PROCESS PAPER D
WILDLIFE ANALYSIS FOR THE TARGHEE FOREST PLAN REVISION

Page

INTRODUCTION 3

OVERVIEW OF VERTEBRATE SPECIES 4

WILDLIFE MANAGEMENT INDICATOR SPECIES 4

OVERVIEW OF FORESTED HABITATS 6

OVERVIEW OF NONFORESTED HABITATS 25

OVERVIEW OF AQUATIC/RIPARIAN HABITATS 25

BALD EAGLE 31

TRUMPETER SWAN 48

COMMON LOON 54

HARLEQUIN DUCK 57

SPOTTED FROG 60

WHITE-FACED IBIS 65

WHOOPING CRANE 66

ELK HABITAT EFFECTIVENESS (EHE) 67

ELK VULNERABILITY (EV) 87

ELK AND DEER WINTER RANGE 119

GRAY WOLF 133

GRIZZLY BEAR 142

PRIMARY CAVITY NESTING SPECIES.....186

FOREST OWLS (FLAMMULATED, BOREAL, GREAT GRAY) 207

FURBEARERS (MARTEN, FISHER, LYNX, WOLVERINE) 216

NORTHERN GOSHAWK.....230

RED SQUIRREL 249

BIG SAGEBRUSH/GRASSLAND HABITAT 254

PEREGRINE FALCON 258

SPOTTED BAT AND WESTERN BIG-EARED BAT 265

NEOTROPICAL MIGRATORY BIRDS 267

BIGHORN SHEEP 277

MOUNTAIN GOATS 289

DEAD AND DOWNED WOODY MATERIAL 292

VIABILITY RATINGS FOR MAMMALS, BIRDS, AMPHIBIANS AND REPTILES 295

Attachment A - Overview of Wildlife Species which may Occur On or Adjacent to the Targhee N. F.

Attachment B - Hiding Cover Analysis for the Forest Inventory Plots

Attachment C - Vegetation Data and Hiding Cover Analysis for each Principle Watershed

Attachment D - Additional Information about Hiding Cover Relationships

Attachment E - Hiding Cover Analysis for the Alternatives

Attachment F - Agreement between IDFG and the Targhee N. F. for the "Infinitely Open Analysis"

Attachment G - Snag/Cavity Nesting Habitat Analysis with the Permanent Forest Inventory Plots

Attachment H - Snag/Cavity Nesting Habitat Analysis for the Principal Watersheds

Attachment I - Road and Trail Access Information for each Principal Watershed for each Alternative

Attachment J - Additional Goshawk Information

Attachment K - Road and Trail Access Information for each BMU/Subunit for each Alternative

Attachment L - Summary of Historical Vegetation Conditions for Two Watersheds

Attachment M - Elk Hunting Information.

Attachment N - Discussion and analysis about the issue of whether or not motorized trails should be equal in effects to motorized roads.

The implementing regulations of the National Forest Management Act (Federal Register Vol. 47, No. 190: 1982) state:

> Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. Fore planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is will distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support, at least a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area.
>
> (a) Each alternative shall establish objectives for the maintenance and improvement of habitat for management indicator species selected under paragraph [1] of this section, to the degree consistent with overall multiple use objectives of the alternative. To meet this goal, management planning for the fish and wildlife resource shall meet the requirements set forth in paragraphs (a)[l] through (a)[7] of this section.
>
> [1] In order to estimate the effects of each alternative on fish and wildlife populations, certain vertebrate and/or invertebrate species present in the area shall be identified and selected as management indicator species and the reasons for their selection will be stated. These species shall be selected because their population changes are believed to indicate the effects of management activities. In the selection of management indicator species, the following categories shall be represented where appropriate: Endangered and threatened plant and animal species identified on State and Federal lists for the planning area; species with special habitat needs that may be influenced significantly by planned management programs; species commonly hunted, fished, or trapped; non-game species of special interest; and additional plant and animal species selected because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities or on water quality. On the basis of available scientific information, the interdisciplinary team shall estimate the effects of changes in vegetation type, timber age classes, community composition, rotation age, and year-long suitability of habitat related to mobility of management indicator species. Where appropriate, measures to mitigate adverse effects shall be prescribed.
>
> [2] Planning alternatives shall be stated and evaluated in terms of both amount and quality of habitat and of animal population trends of the management indicator species.
>
> [3] Biologists from State fish and wildlife agencies and other Federal agencies shall be consulted in order to coordinate planning for fish and wildlife, including opportunities for the reintroduction of extirpated species.

[4] Access and dispersal problems of hunting, fishing, and other visitor uses shall be considered,

[5] The effects of pest and fire management on fish and wildlife populations shall be considered,

[6] Population trends of the management indicator species will be monitored and relationships to habitat changes determined. This monitoring will be done in cooperation with State fish and wildlife agencies, to the extent practicable,

[7] Habitat determined to be critical for threatened and endangered species shall be identified, and measures shall be prescribed to prevent the destruction or adverse modification of such habitat. F Objectives shall be determined for threatened and endangered species that shall provide for, where possible, their removal from listing as threatened and endangered species through appropriate conservation measures, including the designation of special areas to meet the protection and management needs of such species.

This process paper provides a detailed overview of the steps and analysis undertaken to achieve the above planning regulations.

OVERVIEW OF VERTEBRATE SPECIES

Distribution maps and other sources of literature indicate there are about 85 species of mammals which potentially occur on or adjacent to the Forest; 301 species of birds which potentially migrate through, reside on, or are adjacent to the Forest during some season of the year; and 7 species of amphibians and 10 species of reptiles which potentially occur on or adjacent to the Forest. Attachment A lists all of these species, and provides information about the major plant communities which could provide habitat for these species.

WILDLIFE MANAGEMENT INDICATOR SPECIES

A series of workshops were held at the beginning of the Forest Plan Revision process to help identify the wildlife management indicator species (MIS). At the time of these workshops, the Forest Service was working on revising its planning regulations, and the concept of "management indicators" was being proposed (management indicators could be species, communities, or special habitats selected for emphasis in planning). Therefore, participants in the workshop proceedings used the concept of management indicators for some of the recommendations. However, the planning regulations were never revised, and we had to follow the existing NFMA regulations for MIS. Therefore we had to

slightly alter the workshop recommendations and just identify MIS. The following MIS were selected for the Forest Plan Revision:

MIS	Reasons for Their Selection
Bald Eagle	Threatened species; Targhee is within the Pacific States Bald Eagle Recovery Area; uses aquatic and riparian habitats; requires large mature trees for nest sites.
Trumpeter Swan	Regional sensitive species; uses aquatic, riparian and wetland habitats; swans on the Targhee are part of the tri-state resident breeding population.
Spotted Frog	Regional sensitive species; uses aquatic, riparian and wetland habitats.
Common Loon	Regional sensitive species; uses aquatic, riparian and wetland habitats.
Harlequin Duck	Regional sensitive species; uses aquatic, riparian and wetland habitats.
Elk	Uses general forested and non-forested habitats; hunted species highly sought after by the hunting public.
Gray Wolf	Listed as a non-essential experimental population under the Endangered Species Act; Targhee is within both the Yellowstone and Central Idaho release areas.
Grizzly Bear	Listed as a threatened species; a portion of the Targhee is within the Greater Yellowstone Grizzly Bear Recovery Zone.
Primary Cavity Nesting Species	Includes these species: 3-toed woodpecker, Lewis's woodpecker, red-napped sapsucker, Williamson's sapsucker, downy woodpecker, hairy woodpecker, black-backed woodpecker, northern woodpecker; 3-toed woodpecker is a Regional sensitive species; these species are dependent upon a forested environment with suitable nesting habitat (snags or live trees with cavities).
Forest Owls	Includes these species: flammulated owl, boreal owl, great gray owl; all of these are Regional sensitive species; these species are dependent upon a forested environment with suitable nesting and foraging habitat.
Forest Furbearer	Includes these species: wolverine, North American lynx, fisher, American marten; wolverine, lynx and fisher are Regional sensitive species; these species are dependent upon a forested environment with suitable cover and foraging habitat.
Northern Goshawk	Regional sensitive species; dependent upon a forested environment with suitable nesting and foraging habitat.

Red Squirrel	Requires conifer forests of cone bearing age.
Peregrine Falcon	Endangered species; uses cliffs for nesting; especially sensitive to DDT and other chemicals which cause egg shell thinning.

Due to public comments on the DEIS, additional analysis and discussion was added to the FEIS for bighorn sheep and neotropical migratory birds. These species are not identified as MIS.

Table 1.1 shows the distribution of the MIS by seven ecological subsections which encompass the Forest.

OVERVIEW OF FORESTED HABITATS

The Forest has 1,259,000 forested acres. Table 1.2 displays these acres by forest type and size class (or successional stage) by ecological subsection.

Old Growth and Late Successional Forests

In 1993, the Intermountain Region completed a report on the characteristics of old-growth forests in the Intermountain Region (USDA Forest Service 1993). Table 1.3 summarizes the characteristics of old-growth forests as described in the 1993 publication. More description can be obtained by reading the complete report.

The Forest does not have an old growth inventory using the 1993 definitions or any earlier old growth definitions (such as those defined in the existing Forest Plan).

The Forest does have 412 permanent inventory plots that were measured in 1990 and 1991. I was able to examine these permanent inventory plots for the following old-growth characteristics:

Live Trees:	trees per acre by 1-inch dbh classes.
	age for each dbh class.
	recognizable size classes that differ by more than 6-inches in diameter.
	an estimate of canopy layers based on differences in dbh.
Dead Trees:	standing dead trees per acre by 1-inch dbh classes.

Table 1.1. Distribution of MIS by Ecological Subsection.

MIS	SUBSECTIONS 1/ Lemhi/ Medicine Lodge	Centennial Mountains	Island Park	Madison/ Pitchstone Plateaus	Teton Range	Big Hole Mountains	Caribou Range Mountains
Bald Eagle (nesting habitat)	N	Y	Y	N	N	Y	Y
Trumpeter Swan (nesting habitat)	N	N	Y	Y	N	N	S
Spotted Frog	Y	Y	Y	Y	Y	S	S
Common Loon	N	N 2/	Y	Y	N	Y	Y
Harlequin Duck	N	N	N	N	Y	Y	Y
Elk - EHE & EV	Y	Y	Y	Y	Y	Y	Y
Elk & Deer Winter Range	Y	Y	Y	N	Y	Y	Y
Gray Wolf	U	U	U	U	U	U	U
Grizzly Bear	S	Y	Y	Y	Y	U	N
Primary Cavity Nesting Species 3/							
Three-toed Woodpecker	Y	Y	Y	Y	Y	Y	Y
Lewis's Woodpecker	Y	Y	Y	Y	Y	Y	Y
Red-napped Sapsucker	Y	Y	Y	Y	Y	Y	Y
Williamson's Sapsucker	Y	Y	Y	Y	Y	Y	Y
Downy Woodpecker	Y	Y	Y	Y	Y	Y	Y
Hairy Woodpecker	Y	Y	Y	Y	Y	Y	Y
Black-backed Woodpecker	Y	Y	Y	Y	Y	Y	Y
Northern Flicker	Y	Y	Y	Y	Y	Y	Y
Forest Owls							
Flammulated Owl	S	U	Y	S	Y	Y	Y
Boreal Owl	S	Y	Y	Y	Y	Y	Y
Great Gray Owl	Y	Y	Y	Y	Y	Y	Y
Forest Furbearer							
Wolverine	S	Y	Y	Y	Y	U	U
North American Lynx	S	S	S	S	S	Y	S
Fisher	N	S	Y	S	Y	Y	N
American Marten	S	Y	Y	Y	Y	Y	Y
Northern Goshawk	Y	Y	Y	Y	Y	Y	Y
Red Squirrel	Y	Y	Y	Y	Y	Y	Y
Peregrine Falcon	N	Y	Y	N	Y	Y	Y

1/ Letters used for distributions among subsections are as follows:
Y = Species presence and/or suitable habitat has been documented in the subsection; for the grizzly bear, Y = areas within the recovery line.
N = Species presence has not been documented; suitable habitat has not been documented.
U = Unverified but reliable sightings exist on the Forest; suitable habitat probably exists.
S = Suitable habitat probably exists, but no documented or unverified sightings exist.
2/ Common loons have been observed on Henry's Lake, but this is not within the Forest.
3/ It is generally assumed that since conifer and/or aspen and/or cottonwood habitats exist in every subsection of the Forest, then habitat for most of these cavity nesting species occurs in each subsection.
Sources of information for this table include: Targhee N. F. AMS 1992; personal communication with K. Johnson, B.Aber, M. Oechsner, B. Alford, R. Newton; USFWS - Federal Register 61(40):7613 (Feb. 28, 1996).

Table 1.2. Existing Forested Habitat Conditions within Subsections

Subsection	Cover Type	Total Forested Acres	Percent Non-stocked	Percent Seedling	Percent Sapling	Percent Pole	Percent Mature 1/	Percent Mature Prev.Log.2/
Lemhi	Aspen	15.8	0.0	0.0	0.0	0.0	100	0.0
	Douglas-fir	35,423.4	0.0	1.5	0.0	0.0	98.5	0.0
	Lodgepole	64.9	0.0	100.0	0.0	0.0	0.0	0.0
	Mixed Conifer 2sp.	342.8	0.0	0.0	0.0	0.0	100	0.0
	All Forested Acres	35,846.9	0.0	1.6	0.0	0.0	98.4	0.0
Medicine Lodge	Aspen	318.6	0.0	0.0	0.0	0.0	100	0.0
	Douglas-fir	58,026.9	0.0	0.0	0.0	0.0	100	0.0
	Lodgepole	9,694.5	0.0	100.0	0.0	0.0	0.0	0.0
	All Forested Acres	68,040.0	0.0	14.2	0.0	0.0	85.7	0.0
Centennial Mtns.	Aspen	8,781.5	8.4	2.2	0.7	4.2	84.4	0.0
	Douglas-fir	114,153.8	0.9	0.9	0.0	0.0	83.4	14.8
	Limber Pine	113.9	0.0	0.0	0.0	0.0	100	0.0
	Lodgepole	46,873.0	5.7	23.7	11.4	10.7	48.5	0.0
	Mixed Conifer 3sp.	21,625.8	1.2	4.2	1.0	0.6	93.0	0.0
	Mixed Conifer 2sp.	30,375.9	0.8	1.6	0.2	0.0	97.4	0.0
	Spruce/Fir	2,669.3	0.4	0.0	2.3	1.6	95.7	0.0
	Whitebark Pine	419.3	0.0	0.0	0.0	0.0	100	0.0
	All Forested Acres	225,012.4	2.2	6.1	2.6	2.5	79.2	7.5
Island Park	Aspen	7,615.5	7.7	20.9	5.1	4.7	61.6	0.0
	Douglas-fir	27,143.4	1.4	0.1	0.3	0.0	96.8	1.4
	Lodgepole	192,653.5	9.3	25.3	11.6	5.7	48.1	0.0
	Mixed Conifer 3sp.	6,224.4	0.3	14.8	5.3	1.2	78.5	0.0
	Mixed Conifer 2sp.	42,369.5	0.5	4.5	3.1	0.2	91.4	0.1
	Spruce/Fir	368.3	0.0	0.0	0.0	0.0	100	0.0
	All Forested Acres	276,374.5	6.9	19.3	8.9	4.1	60.7	0.2
Madison Plateau	Aspen	4,697.3	8.6	20.3	5.3	0.8	65.0	0.0
	Douglas-fir	6,824.1	7.9	0.5	0.4	1.2	89.9	0.0
	Lodgepole	145,259.8	9.6	18.6	10.9	6.1	54.8	0.0
	Mixed Conifer 3sp.	5,715.4	1.0	9.5	0.8	0.5	88.2	0.0
	Mixed Conifer 2sp.	26,583.6	3.0	1.2	0.5	0.0	95.3	0.0
	Spruce/Fir	1,034.5	0.0	0.1	0.0	2.9	96.9	0.0
	All Forested Acres	190,114.6	8.3	15.2	8.5	4.8	63.3	0.0
Teton Range	Aspen	9,330.5	0.0	0.0	5.4	1.4	93.1	0.0
	Douglas-fir	24,529.7	0.4	0.0	0.0	0.0	99.6	0.0
	Lodgepole	19,180.0	1.1	0.1	0.0	10.0	88.8	0.0
	Mixed Conifer 3sp.	8,621.8	0.0	1.4	0.0	1.4	97.2	0.0
	Mixed Conifer 2sp.	28,311.3	0.0	0.0	0.0	0.0	100	0.0
	Spruce/Fir	2,168.9	0.0	0.0	0.0	0.0	100	0.0
	Whitebark PIne	40.1	0.0	0.0	0.0	0.0	100	0.0
	All Forested Acres	92,182.3	0.3	0.2	0.6	2.3	96.6	0.0

Table 1.2. Existing Forested Habitat Conditions within Subsections (continued)

Subsection	Cover Type	Total Acres	Percent Non-stocked	Percent Seedling	Percent Sapling	Percent Pole	Percent Mature 1/	Percent Mature Prev.Log.2/
Big Hole/Palisades	Aspen	37,673.1	0.0	1.5	0.1	0.0	98.3	0.0
	Douglas-fir	33,102.9	1.4	0.0	0.0	0.2	97.0	1.4
	Lodgepole	34,549.8	13.3	4.7	3.7	2.4	75.9	0.0
	Mixed Conifer 3sp.	13,142.0	3.1	3.9	0.1	0.1	92.8	0.0
	Mixed Conifer 2sp.	107,085.6	0.4	0.0	0.1	0.0	99.3	0.2
	Spruce/Fir	1,662.1	4.2	3.6	0.2	0.0	92.0	0.0
	All Forested Acres	227,215.5	2.6	1.2	0.6	0.4	94.8	0.3
Caribou	Aspen	37,765.2	0.1	0.2	0.0	1.3	98.4	0.0
	Douglas-fir	14,999.2	0.0	0.0	0.0	0.0	99.9	0.1
	Lodgepole	4,654.8	5.2	3.0	0.0	0.0	91.7	0.0
	Mixed Conifer 3sp.	7,132.2	0.0	0.0	0.0	0.0	100	0.0
	Mixed Conifer 2sp.	57,150.8	0.8	0.0	0.0	0.0	99.2	0.0
	Spruce/Fir	792.5	0.0	17.1	26.9	0.0	56.0	0.0
	All Forested Acres	122,494.6	0.6	0.3	0.2	0.4	98.5	0.0

1/ The mature category incorporates all late successional age classes, including old growth. An old growth inventory has not been completed for the Forest at this time.

2/ Percent mature-previous logging includes acres of mature forest that have had logging treatments such as commercial thinning, but the logging did not result in reclassifying the acres to a different successional stage.

Table 1.3. Summary of Characteristics of Old-Growth Forests in the Intermountain Region (USDA Forest Service 1993).

	LIVE TREES							DEAD TREES					
					Tree Decad.			Standing			Down		
SAF Cover Type	DBH	TPA	Age	6" DBH Classes	TPA	DBH	Canopy Layers	DBH	Hght	TPA	Dia.	#/Acre	Length
Spruce/Fir Warm/Moist	≥24	≥25	≥220	≥2	Evidence		≥2	≥12	≥15	≥2	≥12	≥1	≥8
Spruce/Fir Cold/Dry	≥15	≥15	≥150	≥2	≥2	≥14	≥2	≥10	≥15	≥2	≥ 8	≥16	≥8
Spruce/Fir Alpine Transition	≥12	≥10	≥150	≥2	Evidence		≥2	NA	NA	Infr	NA	Infrequent	
Whitebark Pine	≥18	≥15	≥250	≥2	≥2	≥15	≥2	≥15	≥10	≥5	≥20	≥5	≥8
Douglas-fir High Prod.	≥24	≥15	≥200	≥2	Evidence		≥2	≥20	≥20	≥1	≥12	?	0-16
Douglas-fir Low Prod.	≥18	≥10	≥200	≥2	≥2	≥15	≥2	≥16	≥10	0-3	≥15	0-4	≥8
Aspen-Mesic	≥12	≥20	≥100	≥2	≥2	NA	?	≥10	≥15	≥2	≥ 8	≥10	≥10
Aspen-Dry	≥12	≥10	≥100	≥2	≥2	NA	?	≥10	≥15	≥2	≥ 8	≥10	≥10
Lodgepole	≥11	≥25	≥140	≥2	≥2	≥11	≥2	≥11	?	≥5	≥11	≥50	≥8
Limber Pine Lower Timberline	≥16	≥10	≥250	≥1	Evidence		≥2	NA	NA	Few	≥16	Rare	Rare
Limber Pine Montaine Woodland	≥16	≥10	≥500	≥1	Evidence		1	NA	NA	Few	NA	Rare	Rare

DBH = diameter at breast height, in inches.

TPA = trees per acre.

Age = years.

6" DBH Classes = number of recognizable size classes that differ by at least 6 inches in diameter.

Tree Decad. = tree decadence; number of trees per acre of a minimum DBH showing signs of disease or injury of some kind.

Canopy Layers = number of recognizable canopy layers.

Hght = height in feet.

Dia. = diameter of downed logs in inches.

#/Acre = number of downed logs per acre.

Length = minimum length (in feet) of downed logs.

Evidence = some evidence of tree decadence but no minimum requirement for TPA or DBH.

NA = information is not available for this parameter, or this parameter is not applicable for this old growth type.

? = the old growth definitions are not clear on what this parameter should be.

In this examination, I did not include any plot which had less than 50 live trees per acre that were 1-inch dbh or larger. This was done to eliminate those stands which have had some kind of first entry logging, such as a seed tree cut. Also, it would be very difficult for any plot to qualify as having two canopy layers or two dbh size classes with less than 50 live trees per acre.

Since the plots were measured in 1990 and 1991, I added 5 years to all of the tree ages to account for time. I also added 1-inch dbh to all of the dbh measurements to allow for growth (adding 1-inch dbh is probably optimistic for old trees, but I did not want to eliminate plots which were close to the minimum required dbh).

Using the 412 permanent forest inventory plots should give us a sample of the percentage of forested acres that meet old growth characteristics, and insight on the distribution of old growth. This analysis does not give us the location of all old growth, nor the patch sizes of old growth.

Plots Meeting Live and Dead Tree Old Growth Characteristics

Table 1.4 displays the 36 plots (8.7% of the total 412 plots) which meet all of the old growth characteristics that could be determined from the permanent forest inventory plots. These plots were located in the Lemhi Mountains, Medicine Lodge, Centennial Mountains, Madison Plateau, Teton Range, and Big Hole/Palisades Subsections (Figure 1). No old growth plots were found in the Island Park and Caribou Subsections.

Plots Meeting Live Tree Old Growth Characteristics

I then re-examined the plots to see which ones would at least meet the live tree characteristics for old growth. I did this because dead standing trees (snags) often have clumped distributions, and as stated in the old growth report, may not be present continuously over time because they fall down and are not always replaced by a live tree dying at the right time. I did not want to eliminate plots which may be old growth solely on the basis of dead standing trees.

Table 1.5 displays the 7 plots (1.7% of the total 412 plots) which at least meet the live tree characteristics for old growth. These plots are located in the Lemhi Mountains, Medicine Lodge, Centennial Mountains, and Caribou Subsections (Figure 1).

Plots Which Partially Meet Live Tree Old Growth Characteristics

I then re-examined the plots to see which ones have at least 1 live tree per acre that meets the minimum DBH and age requirement for old growth. I did this because this would show the plots which are in a late successional stage and provide at least partial structural and functional attributes of old growth.

Table 1.6 and Figure 1 display the 89 plots (21.6% of the total 412 plots) which partially meet the live tree characteristics for old growth. These plots are located in all subsections (Figure 1).

Plots Which Have Large Live Trees Which Meet the Minimum DBH Old Growth Characteristics

I then re-examined the plots to see which ones have at least 1 live tree per acre that meets the minimum DBH requirement for old growth. I did this because this would show the plots which provide at least partial structural attributes of old growth, such as an overstory canopy layer, cone production, large limbs for nesting raptors, etc. These plots would not provide some of the functional attributes of old growth like decay, disease, etc.

Table 1.7 lists these plots, and Figure 1 displays the location of these plots (186 plots; 45.1% of the total 412 plots).

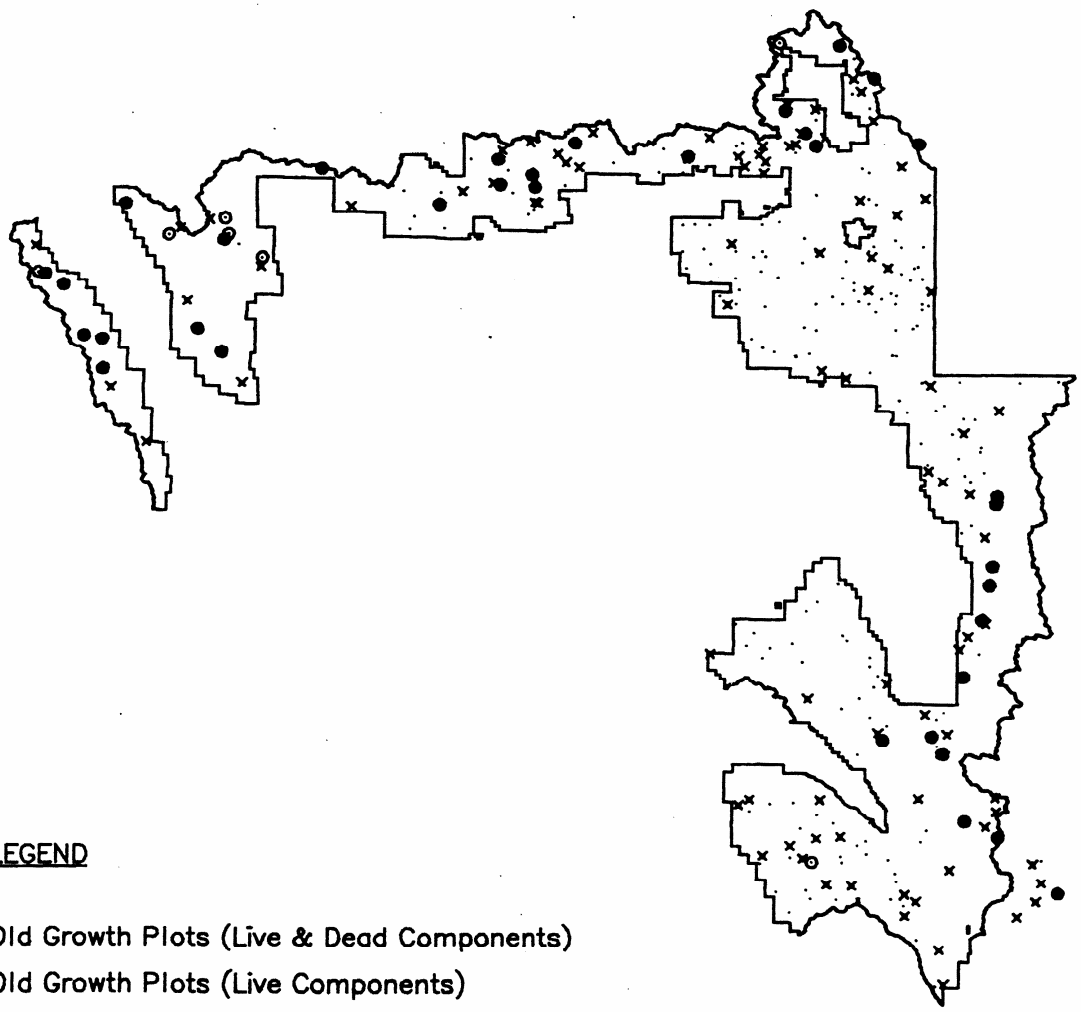
SUMMARY

Plots meeting all old growth characteristics: 8.7%
Plots meeting live tree old growth characteristics: 1.7%
Plots with at least 1 live TPA meeting old growth characteristics: 21.6%
Plots with live trees that meet minimum dbh requirements: 45.1%
Total 77.1%

Table 1.4. Permanent Forest Inventory Plots which meet all old growth characteristics.

Subsection	Plot Number	SAF Cover Type
Lemhi Mountains	59	**Douglas-fir-low productivity**, also contains old growth limber pine trees.
Lemhi Mountains	60	**Spruce/Fir-cold/dry**, also contains old growth limber pine trees and Douglas-fir trees.
Lemhi Mountains	61	**Spruce/Fir-cold/dry**, also contains old growth limber pine trees and Douglas-fir trees.
Lemhi Mountains	62	**Limber Pine-lower timberline**, also contains old growth spruce/fir trees.
Lemhi Mountains	64	**Douglas-fir-low productivity**.
Lemhi Mountains	359	Qualifies as both **Douglas-fir-low productivity** and **Limber Pine-lower timberline**.
Medicine Lodge	357	**Douglas-fir-low productivity**.
Medicine Lodge	51	**Douglas-fir-low productivity**.
Medicine Lodge	52	**Spruce/Fir-cold/dry**, also contains old growth limber pine trees and Douglas-fir trees.
Medicine Lodge	46	Qualifies as both **Spruce/Fir-cold/dry** and **Douglas-fir-low productivity**.
Centennials	39	**Spruce/Fir-cold/dry**, also contains old growth Douglas-fir trees.
Centennials	34	**Douglas-fir-low productivity.**
Centennials	26	**Douglas-fir-low productivity.**
Centennials	28	**Douglas-fir-low productivity.**
Centennials	16	**Douglas-fir-low productivity.**
Centennials	18	**Douglas-fir-low productivity**, also contains old growth lodgepole pine trees and spruce/fir trees.
Centennials	12	**Spruce/Fir-cold/dry.**
Centennials	88	**Douglas-fir-low productivity.**
Centennials	79	**Douglas-fir-high productivity.**
Centennials	221	**Douglas-fir-low productivity.**
Centennials	69	**Douglas-fir-high productivity.**
Centennials	188	**Spruce/Fir-cold dry.**
Centennials	616	Qualifies as both **Spruce/Fir-cold/dry** and **Douglas-fir-low productivity**.
Madison Plateau	190	**Spruce/Fir-cold/dry.**
Teton Range	343	**Spruce/Fir-cold/dry**, also contains old growth limber pine trees and Douglas-fir trees.
Teton Range	344	**Spruce/Fir-cold/dry**, also contains old growth lodgepole pine trees.
Teton Range	391	**Aspen-mesic.**
Teton Range	348	**Spruce/Fir-cold/dry**, also contains old growth Douglas-fir trees.
Teton Range	143	**Spruce/Fir-cold/dry.**
Teton Range	137	**Spruce/Fir-cold/dry.**
Big Hole/Palisades	122	**Spruce/Fir-cold/dry.**
Big Hole/Palisades	127	**Spruce/Fir-cold/dry.**
Big Hole/Palisades	113	**Spruce/Fir-cold/dry**, also contains old growth Douglas-fir trees.
Big Hole/Palisades	112	**Lodgepole Pine**, also contains some old growth Douglas-fir trees.
Big Hole/Palisades	372	**Spruce/Fir-cold/dry.**
Big Hole/Palisades	115	**Douglas-fir-low productivity.**

Targhee National Forest
Old Growth and Late Seral Forest Plots



LEGEND

- ● Old Growth Plots (Live & Dead Components)
- ⊙ Old Growth Plots (Live Components)
- × Late Seral Plots (Partial Live Components)
- · Late Seral Plots (Minimum dbh Components)

N

Not To Scale

Figure 1

Table 1.5. Permanent Forest Inventory Plots which meet the live tree characteristics for old-growth forests.

Subsection	Plot Number	SAF Cover Type
Lemhi Mountains	358	**Douglas-fir-high productivity**, also contains old growth limber pine trees.
Medicine Lodge	56	**Douglas-fir-low productivity**, also contains old growth spruce/fir trees.
Medicine Lodge	43	**Douglas-fir-low productivity**.
Medicine Lodge	48	**Douglas-fir-low productivity**.
Medicine Lodge	49	**Douglas-fir-low productivity**.
Centennials	376	**Aspen-mesic.**
Caribou	518	**Douglas-fir-low productivity**.

Table 1.6. Permanent Forest Inventory Plots which partially meet live tree characteristics for old growth.

Subsection	Plot Number	SAF Cover Type
Lemhi Mountains	58	Douglas-fir-low productivity, also contains limber pine trees.
Lemhi Mountains	63	Douglas-fir-low productivity, also contains old growth limber pine trees.
Lemhi Mountains	65	Douglas-fir-low productivity.
Medicine Lodge	40	Douglas-fir-low productivity.
Medicine Lodge	41	Douglas-fir-low productivity, also contains limber pine trees.
Medicine Lodge	47	Spruce/Fir-cold/dry, also contains limber pine trees.
Medicine Lodge	54	Douglas-fir-low productivity, also contains limber pine and spruce/fir trees.
Medicine Lodge	57	Limber Pine-lower timberline.
Centennials	38	Douglas-fir-low productivity.
Centennials	30	Douglas-fir-low productivity.
Centennials	31	Douglas-fir-low productivity.
Centennials	27	Douglas-fir-low productivity.
Centennials	17	Douglas-fir-low productivity.
Centennials	24	Douglas-fir-low productivity, also contains spruce/fir trees.
Centennials	29	Douglas-fir-low productivity, also contains limber pine trees.
Centennials	20	Spruce/Fir-cold/dry, also contains Douglas-fir trees.
Centennials	21	Douglas-fir-low productivity, also contains lodgepole pine and spruce/fir trees.
Centennials	11	Douglas-fir-low productivity.
Centennials	14	Douglas-fir-low productivity, also contains spruce/fir trees.
Centennials	91	Douglas-fir-low productivity.
Centennials	89	Douglas-fir-low productivity, also contains spruce/fir trees.
Centennials	84	Douglas-fir-low productivity.
Centennials	85	Douglas-fir-low productivity.
Centennials	606	Spruce/fir-cold/dry, also contains Douglas-fir and whitebark pine trees.
Centennials	87	Douglas-fir-low productivity, also contains lodgepole pine and spruce/fir trees.
Centennials	76	Douglas-fir-low productivity.
Centennials	625	Douglas-fir-low productivity, also contains lodgepole pine trees.
Centennials	611	Spruce/Fir-cold/dry, also contains whitebark pine and Douglas-fir trees.
Centennials	74	Douglas-fir-low productivity, also contains spruce/fir trees.
Centennials	361	Spruce/Fir-cold/dry, also contains limber pine trees.
Centennials	81	Douglas-fir-low productivity, also contains spruce/fir trees.
Centennials	78	Douglas-fir-low productivity, also contains lodgepole pine trees.
Centennials	71	Douglas-fir-low productivity.
Centennials	360	Spruce/Fir-cold/dry, also contains Douglas-fir trees.
Centennials	67	Douglas-fir-low productivity, also contains spruce/fir trees.
Island Park	213	Lodgepole Pine.
Island Park	290	Douglas-fir-low productivity, also contains lodgepole pine trees.
Island Park	104	Douglas-fir-low productivity.
Island Park	218	Aspen-mesic, also contains lodgepole pine trees.
Island Park	233	Lodgepole Pine, also contains Douglas-fir trees.
Island Park	107	Douglas-fir-low productivity, also contains lodgepole pine trees.
Island Park	102	Douglas-fir-low productivity.
Island Park	284	Douglas-fir-low productivity, also contains lodgepole pine and aspen trees.
Madison Plateau	620	Lodgepole Pine.
Madison Plateau	193	Lodgepole Pine, also contains spruce/fir trees.
Madison Plateau	186	Lodgepole Pine.
Madison Plateau	166	Lodgepole Pine, also contains spruce/fir and limber pine trees.
Madison Plateau	99	Douglas-fir-low productivity.
Madison Plateau	279	Lodgepole Pine, also contains whitebark pine trees.
Madison Plateau	256	Douglas-fir-low-productivity, also contains lodgepole pine trees.
Madison Plateau	265	Douglas-fir-low-productivity, also contains lodgepole pine and spruce/fir trees.
Madison Plateau	241	Douglas-fir-low-productivity, also contains lodgepole pine trees.

Table 1.6. continued.

Subsection	Plot Number	SAF Cover Type
Teton Range	350	Douglas-fir-low-productivity, also contains lodgepole pine and spruce/fir trees.
Teton Range	349	Douglas-fir-low-productivity, also contains lodgepole pine trees.
Teton Range	339	Douglas-fir-low-productivity, also contains lodgepole pine and spruce/fir trees.
Teton Range	346	Douglas-fir-low-productivity, also contains spruce/fir and aspen trees.
Teton Range	371	Spruce/Fir-cold/dry.
Teton Range	389	Aspen-mesic, also contains spruce/fir trees.
Teton Range	7	Douglas-fir-low-productivity.
Big Hole/Palisades	135	Aspen-mesic, also contains Douglas-fir trees.
Big Hole/Palisades	131	Douglas-fir-low-productivity, also contains spruce/fir trees.
Big Hole/Palisades	351	Douglas-fir-low-productivity, also contains spruce/fir and lodgepole pine trees.
Big Hole/Palisades	139	Spruce/Fir-cold/dry, also contains Douglas-fir trees.
Big Hole/Palisades	4	Spruce/Fir-cold/dry.
Big Hole/Palisades	367	Spruce/Fir-cold/dry.
Big Hole/Palisades	119	Spruce/Fir-cold/dry, also contains Douglas-fir trees.
Big Hole/Palisades	148	Spruce/Fir-cold/dry, also contains lodgepole pine trees.
Big Hole/Palisades	149	Douglas-fir-low-productivity, also contains spruce/fir and lodgepole pine trees.
Big Hole/Palisades	150	Spruce/Fir-cold/dry.
Big Hole/Palisades	455	Douglas-fir-low-productivity, also contains spruce/fir trees.
Big Hole/Palisades	151	Douglas-fir-low-productivity, also contains spruce/fir trees.
Big Hole/Palisades	366	Spruce/Fir-cold/dry, also contains Douglas-fir trees.
Big Hole/Palisades	482	Spruce/Fir-cold/dry, also contains Douglas-fir trees.
Big Hole/Palisades	152	Douglas-fir-low productivity.
Caribou	505	Douglas-fir-low-productivity.
Caribou	525	Douglas-fir-low-productivity.
Caribou	526	Douglas-fir-low-productivity, also contains some aspen trees.
Caribou	517	Douglas-fir-low-productivity, also contains some spruce/fir trees.
Caribou	512	Spruce/Fir-cold/dry, also contains some aspen trees.
Caribou	521	Aspen-mesic, also contains some Douglas-fir trees.
Caribou	523	Douglas-fir-low-productivity, also contains some aspen trees.
Caribou	519	Douglas-fir-low-productivity.
Caribou	534	Douglas-fir-low-productivity.
Caribou	536	Douglas-fir-low-productivity, also contains some spruce/fir trees.
Caribou	542	Douglas-fir-low-productivity.
Caribou	546	Douglas-fir-low-productivity, also contains some spruce/fir and aspen trees.
Caribou	547	Douglas-fir-low-productivity, also contains some spruce/fir trees.
Caribou	549	Douglas-fir-low-productivity, also contains spruce/fir and lodgepole pine trees.
Caribou	551	Douglas-fir-low-productivity, also contains aspen trees.

Table 1.7. Permanent forest inventory plots which have large live trees which meet the minimum dbh old growth characteristics.

PLOT #	COVER TYPE	NOTES
0001	LP	10.9 TPA ≥ 11", ≤ 109 yrs.
0005	DF	1.5 TPA ≥ 18"; 122 yrs.
0008	SF/LP Mix	5.7 TPA = 11"-LP; oldest tree is 96 yrs. LP
0010	DF	8.3 TPA ≥ 18"; all ≤ 163 yrs.
0015	DF	3.6 TPA ≥ 18"; ≤ 194 yrs.
0019	DF W/SF understory	2.3 TPA - 18", = 192 yrs. 2.6 TPA - 17", = 195 yrs.
0022	DF w/some LP	No trees over 94 yrs. old; 3.9 TPA ≥ 18" DF
0023	LM/DF Mix	LM ≤ 125 yrs. 23.9 TPA ≥ 18"; ≤ 136 yrs.
0025	DF	9.8 TPA ≥ 18"; ≤ 123 yrs.
0032	DF	5.2 TPA ≥ 18"; oldest tree = 122 yrs.
0033	SF	34.9 TPA ≥ 15"; 83-130 yrs. (SF) 9.3 TPA ≥ 18", 95-151 yrs. (DF)
0036	DF	31.2 TPA ≥ 18", 170-198 yrs.
0037	SF/LM/DF Mix	Only 1-20" SF, 2.7 TPA - 16" LM-108 yrs., 19 TPA - ≥ 18" DF - 105-141 yrs.
0042	LM	12.5 TPA near 16" - 178 yrs.
0070	DF w/LM understory	20 TPA ≥ 18" - 72-125 yrs. DF
0072	DF	23 TPA ≥ 18" - 95-168 yrs. DF
0073	SF/LP/DF/w some As understory	7 TPA ≥ 15" - 66-111 yrs. SF 2.2 TPA ≥ 19" - 96 yrs. LP 6 TPA ≥ 18" - 75-151 yrs. DF
0075	LP	4.9 TPA ≥ 11" - 68 yrs.
0082	DF	12 TPA ≥ 18" - 86-109 yrs. DF
0083	DF	17 TPA ≥ 18" - 94-155 yrs. DF
0086	DF	24 TPA ≥ 18" - 126-163 yrs. DF
0090	LP/DF Mix	9.2 TPA ≥ 11" - no ages LP 13 TPA ≥ 18" - 57-127 yrs. DF
0092	DF	34 TPA ≥ 18" - 122-141 yrs. DF
0093	SF/DF Mix	19 TPA ≥ 15" - 83-133 yrs. SF 13 TPA ≥ 18" - 94-145 yrs. DF
0094	DF	7 TPA ≥ 18" - 81-151 yrs. DF
0096	LP/DF Mix	3.9 TPA ≥ 11" - 103 yrs. LP no trees ≥ 18" - DF
0098	DF	27 TPA ≥ 18" - 60-147 yrs. DF
0100	SF/LP Mix	2.5 TPA ≥ 15" - 127 yrs. SF 25 TPA ≥ 11" 94-119 yrs. LP
0103	DF	19 TPA ≥ 18" - 74-197 yrs. DF
0105	DF	2.4 TPA ≥ 18" - oldest tree = 104 yrs. DF

Table 1.7. Continued.

PLOT #	COVER TYPE	NOTES
0106	DF	20 TPA ≥ 18" - oldest tree = 95 yrs. DF
0109	DF	3.5 TPA ≥ 18" - 123-128 yrs. DF
0116	SF/LP/DF/Mix	6 TPA ≥ 15" - 94-107 yrs. SF 28 TPA ≥ 11" - 69-100 yrs. LP (all DF < 14" dbh)
0117	SF/DF Mix	4 TPA ≥ 15" - 142 yrs. SF 7 TPA ≥ 18" - 142-187 yrs. DF
0121	SF/LP Mix (some DF)	37 TPA ≥ 11" - 78-95 yrs. LP SF ≤ 9" dbh; DF ≤ 16" dbh
0126	SF/DF/LP/AS Mix	9 TPA ≥ 15" - 64-131 yrs. SF 2.9 TPA ≥ 11" - 93 yrs. LP .7 TPA ≥ 18" - 206 yrs. DF
0129	DF	5.5 TPA ≥ 18" - 93-110 yrs. DF
0130	LP/DF/SF Mix	32.7 TPA ≥ 11" - 82 yrs. LP 8 TPA ≥ 18" - 78-111 yrs. DF 9 TPA ≥ 15" - 98-102 yrs. SF
0133	DF/SF Mix	13 TPA ≥ 17" - 88-190 yrs. DF 10.9 TPA = 15" - no ages (nothing > 15") SF
0138	LP/DF w/aspen understory	6 TPA (Total) ≥ 11" - 98-105 yrs. LP all DF < 18" dbh.
0144	SF	11.6 TPA ≥ 15" - 76-115 yrs. SF
0153	DF	23 TPA ≥ 18" - 83-155 yrs. DF
0154	SF	21 TPA ≥ 15" - 68-82 yrs. SF
0155	SF w/some LP/LM/DF	29 TPA ≥ 15" - 80-87 yrs. SF (oldest DF is 135 yrs.)
0156	SF	17 TPA ≥ 15" - 90-144 yrs. SF
0161	LP	18.5 TPA ≥ 11" - 84-95 yrs. LP
0162	SF/LP Mix	all SF ≤ 106 yrs.; 29 TPA ≥ 11" - 86-94 yrs. LP
0171	LP	4.7 TPA ≥ 11", 93 yrs. LP
0173	LP	9.6 TPA ≥ 11", ≤ 96 yrs. LP
0175	LP/DF Mix	all LP ≤ 8", ≤ 65 yrs. 4.3 TPA ≥ 18", ≤ 97 yrs. DF
0177	LP	19.1 TPA ≥ 11", ≤ 104 yrs. LP
0179	LP	20.2 TPA ≥ 11", ≤ 100 yrs. LP
0180	LP	34 TPA ≥ 11", ≤ 123 yrs. LP
0183	LP/w/SF understory	34.4 TPA ≥ 11", ≤ 115 yrs. LP
0185	LP	5.8 TPA ≥ 11", ≤ 117 yrs. LP
0199	LP	14.3 TPA ≥ 11", ≤ 70 yrs. LP
0205	DF/LP Mix	5 TPA ≥ 18", 76-172 yrs. DF 10.3 TPA ≥ 11", 74 yrs. LP
0206	LP	6.4 TPA ≥ 11", 62 yrs. LP

Table 1.7. Continued.

PLOT #	COVER TYPE	NOTES
0212	LP	10.1 TPA ≤ 11", 98-123 yrs. LP
0217	LP	17.3 TPA - 10" to 11", 65-126 yrs. LP
0219	LP	5.7 TPA ≥ 11", ≤ 113 yrs. LP
0222	LP w/SF&WB&DF understory	9 TPA ≥ 11", 74-90 yrs. LP
0223	LP	26.3 TPA ≥ 11", 63-93 yrs. LP
0228	LP	13.4 TPA ≥ 11", 59-97 yrs. LP
0230	LP	10.6 TPA ≥ 11", 84-93 yrs. LP
0231	LP	13.2 TPA ≥ 11", ≤ 63 yrs. LP
0232	LP	6.8 TPA ≥ 11", ≤ 49 yrs. LP
0234	LP w/DF understory	3.7 TPA ≥ 11", 117 yrs. LP All DF ≤ 6" dbh
0235	LP	22.4 TPA ≥ 11", 61-98 yrs. LP
0237	LP	5.2 TPA ≥ 11", ≤ 69 yrs. LP
0238	LP	18.8 TPA ≥ 11", ≤ 68 yrs. LP
0240	AS/LP Mix	13 TPA = 11", 96 yrs. AS 16.3 TPA ≥ 11", 81-98 yrs. LP
0243	LP/AS Mix	41 TPA ≥ 11", 62-78 yrs. LP 5.5 TPA ≥ 14", 63 yrs. AS
0245	LP/SF Mix	11.1 TPA ≥ 11", ≤ 120 yrs. LP all SF ≤ 9", ≤ 103 yrs. SF
0249	LP/DF Mix	23 TPA ≥ 11", ≤ 97 yrs. LP 15 TPA ≥ 18" ≤ 95 yrs. DF
0250	LP	19.8 TPA ≥ 11", ≤ 94 yrs. LP
0253	LP	13 TPA ≥ 11", ≤ 92 yrs. LP
0254	SF/LP Mix	6.2 TPA ≥ 15", ≤ 102 yrs. SF 4.5 TPA ≥ 11", no age LP
0258	LP	5.6 TPA ≥ 11", 114 yrs. LP
0260	LP	12.0 TPA ≥ 11", ≤ 88 yrs. LP
0266	LP	9.9 TPA ≥ 11", 96 yrs. LP
0270	LP	23.6 TPA ≥ 11", ≤ 96 yrs. LP
0272	AS	5.1 TPA ≥ 12", ≤ 52 yrs. AS
0273	LP w/AS understory	28 TPA ≥ 11", ≤ 92 yrs. LP
0275	LP	55 TPA ≥ 11", ≤ 103 yrs. LP
0276	LP/DF Mix	all LP ≤ 9", ≤ 80 yrs. .6 TPA ≥ 33", 139 yrs. ((age is ?) DF
0280	LP	22 TPA ≥ 11", ≤ 114 yrs. LP
0281	LP	21 TPA ≥ 11", ≤ 113 yrs. LP
0282	LP	10.1 TPA ≥ 11", ≤ 107 yrs. LP
0283	LP	13.7 TPA ≥ 11", ≤ 115 yrs. LP

Table 1.7. Continued.

PLOT #	COVER TYPE	NOTES
0288	LP	11.3 TPA ≥ 11", ≤ 113 yrs. LP
0289	LP	72 TPA ≥ 11", ≤ 107 yrs. LP
0292	LP	41 TPA ≥ 11", ≤ 90 yrs. LP
0293	LP	28 TPA ≥ 11", ≤ 103 yrs. LP
0294	LP	11.6 TPA ≥ 11", ≤ 114 yrs. LP
0296	SF/LP Mix	all SF ≤ 15", 79 yrs. oldest SF 40.7 TPA ≥ 11", ≤ 111 yrs. LP
0298	LP	12.4 TPA ≥ 11", ≤ 119 yrs. LP
0301	LP w/SF understory	18.6 TPA ≥ 11", ≤ 115 yrs. LP
0303	LP	4.7 TPA ≥ 11", ≤ 80 yrs. LP
0304	LP	11.2 TPA ≥ 11", ≤ 113 yrs. LP
0308	LP/DF/Mix	11 TPA ≥ 11", ≤ 65 yrs. LP 2 TPA ≥ 18", ≤ 116 yrs. DF
0309	LP	19.2 TPA ≥ 11", ≤ 124 yrs. LP
0310	DF/LP Mix	7.4 TPA ≥ 18", ≤ 132 yrs. DF 5.4 TPA ≥ 11", ≤ 56 yrs. LP
0313	AS w/some LP & DF	6.7 TPA ≥ 12", ≤ 47 yrs. AS 11.5 TPA ≥ 11", ≤ 96 yrs. LP 1.3 TPA ≥ 24", 76 yrs. DF
0316	AS/DF Mix	20.2 TPA ≥ 12", 75 yrs. AS 6.2 TPA ≥ 18", ≤ 58 yrs. DF
0318	LP & Aspen	8.8 TPA ≥ 11", 64 yrs. LP (only 8.8 TPA Total) 9.0 TPA ≥ 12", no ages AS
0319	LP	6.5 TPA ≥ 11", ≤ 68 yrs. LP
0323	DF/LP Mix	.7 TPA ≥ 18", 132 yrs. DF all LP ≤ 5", ≤ 53 yrs. LP
0328	LP/DF Mix	22.7 TPA ≥ 11", ≤ 64 yrs. LP 9.7 TPA ≥ 18", ≤ 109 yrs. DF
0330	LP	4.4 TPA ≥ 11", ≤ 60 yrs. LP
0331	AS/SF Mix w/some LP&DF	4.4 TPA ≥ 12", ≤ 83 yrs. AS all SF ≤ 7", 34 yrs. SF 13.7 TPA ≥ 11", ≤ 98 yrs. LP
0332	SF/LP Mix/some DF	14.5 TPA ≥ 15", 62 yrs. SF 23 TPA ≥ 11", ≤ 97 yrs. LP
0333	LP/w some DF	22 TPA ≥ 11", ≤ 113 yrs. LP 2.1 TPA ≥ 18", 68 yrs. DF
0334	AS w/some LP & DF	all AS ≤ 9", ≤ 107 yrs. AS 17.7 TPA ≥ 11", ≤ 91 yrs. LP 3.3 TPA ≥ 18", ≤ 75 yrs. DF
0335	LP/DF Mix	4.7 TPA ≥ 11", ≤ 75 yrs. LP 7.9 TPA ≥ 18", ≤ 164 yrs. DF
0336	LP/DF Mix	4.3 TPA ≥ 11", ≤ 93 yrs. LP 4.2 TPA ≥ 18", ≤ 93 yrs. DF

Table 1.7. Continued.

PLOT #	COVER TYPE	NOTES
0338	LP w/some DF	3.1 TPA ≥ 11", ≤ 115 yrs. LP all DF ≤ 9", ≤ 55 yrs. DF
0340	LP/DF Mix	8.6 TPA ≥ 11", 105 yrs. LP 2 TPA ≥ 18", 152-186 yrs. DF
0341	LP	36.6 TPA ≥ 11", ≤ 116 yrs. LP
0352	LP	18.5 TPA ≥ 11", ≤ 96 yrs. LP
0353	DF/SF Mix	16 TPA ≥ 18", ≤ 127 yrs. DF (ages not right) 1.8 TPA ≥ 15", ≤ 99 yrs. SF
0355	LP/SF Mix	50.9 TPA ≥ 11", ≤ 119 yrs. LP 2.5 TPA ≥ 15", 86 yrs. SF
0373	SF/LP/DF Mix	31 TPA ≥ 15", 77-100 yrs. SF 19 TPA ≥ 11", 79 yrs. LP 12 TPA ≥ 18", 89-141 yrs. DF
0374	DF/AS Mix	9.6 TPA ≥ 18", ≤ 78 yrs. DF all AS ≤ 9", ≤ 103 yrs. AS
0375	AS	9 TPA ≥ 12", ≤ 84 yrs. AS
0377	AS/LP Mix	23 TPA ≥ 12", ≤ 85 yrs. AS 9.9 TPA ≥ 11", ≤ 87 yrs. LP
0378	AS	11.2 TPA ≥ 12", ≤ 85 yrs. AS
0379	AS	30 TPA ≥ 12", ≤ 62 yrs. AS
0380	DF/AS Mix	4.3 TPA ≥ 18", ≤ 77 yrs. - DF all ages ≤ 8", ≤ 81 yrs. AS
0383	DF/SF Mix	22 TPA ≥ 18", 77-191 yrs. DF 10 TPA ≥ 15", ≤ 116 yrs. SF
0386	DF w/AS	9.1 TPA ≥ 18", ≤ 87 yrs. DF all AS ≤ 6", ≤ 55 yrs. AS
0387	DF w/AS	18 TPA ≥ 18", ≤ 88 yrs. DF all AS ≤ 9", ≤ 91 yrs.
0390	AS/LP/DF/SF Mix	all AS ≤ 10", ≤ 67 yrs. AS 8.2 TPA ≥ 11", 45 yrs. LP 2.2 TPA ≥ 18", 43 yrs. DF 2.7 TPA ≥ 15", 44 yrs. SF
0393	DF w/LP&AS understory	3.8 TPA ≥ 18", ≤ 84 yrs. DF
0501	DF w/some SF&LP	13.6 TPA ≥ 18", ≤ 109 yrs. DF all SF ≤ 12", ≤ 76 yrs. all LP ≤ 8", no ages
0504	SF w/AS&DF	29 TPA ≥ 15", ≤ 88 yrs. all DF ≤ 8", no ages all AS ≤ 7", ≤ 41 yrs.
0506	DF	9.5 TPA ≥ 18", 85-120 yrs. DF
0507	DF/SF/AS Mix	4 TPA ≥ 18", 70-93 yrs. DF all SF ≤ 12", ≤ 41 yrs. 10.5 TPA ≥ 12", ≤ 83 yrs.
0508	DF/SF/LP/AS Mix	6.6 TPA ≥ 18", 75-94 yrs. DF 1.4 TPA ≥ 15", 85 yrs. SF 20.3 TPA ≥ 11", 71-86 yrs. LP all AS ≤ 9", ≤ 63 yrs.

Table 1.7. Continued.

PLOT #	COVER TYPE	NOTES
0509	DF	5.9 TPA ≥ 18", 101-107 yrs. DF
0510	DF	17 TPA ≥ 18", 88-172 yrs. DF
0513	DF	2.5 TPA ≥ 18", 85 yrs. DF
0514	LP w/one SF	31 TPA ≥ 11", 89-103 yrs. LP 1 TPA ≥ 15", 73 yrs. SF
0516	DF	9.7 TPA ≥ 18", 77-125 yrs. DF
0520	DF w/some AS	7 TPA ≥ 18", 56-168 yrs. DF some AS 109 yrs., but ≤ 11" dbh
0522	SF/DF Mix	21 TPA ≥ 15", 85-106 yrs. SF 14 TPA ≥ 18", 101-155 yrs. DF
0524	DF	7.9 TPA ≥ 18", 87-101 yrs. DF
0527	DF	4.6 TPA ≥ 18", 94 yrs. DF
0529	SF/LP Mix	3.3 TPA ≥ 15", 78 yrs. SF 25 TPA ≥ 11", 118-125 yrs. LP
0530	LP w/AS	11.3 TPA ≥ 11", 60 yrs. LP all AS ≤ 7"
0531	SF/LP/DF Mix	3.6 TPA ≥ 15", no ages SF 21 TPA ≥ 11", ≤ 68 yrs. LP 5.4 TPA ≥ 18", 135-170 yrs. DF
0532	LP	34 TPA ≥ 11", 65-78 YRS. LP
0533	SF/DF MIX	all SF ≤ 11", ≤ 73 yrs. all DF ≤ 14", ≤ 71 yrs. 6.7 TPA LP ≥ 11", no ages
0535	DF/SF/LP Mix	2.2 TPA ≥ 18", 94 yrs. DF 3.5 TPA ≥ 15", 94 yrs. SF all LP ≤ 9"
0537	SF/DF Mix	all SF ≤ 13", ≤ 86 yrs. 5.3 TPA ≥ 18", ≤ 95 yrs. DF
0538	DF	13.6 TPA ≥ 18", ≤ 100 yrs. DF
0540	DF/SF/LP Mix	9 TPA ≥ 18", ≤ 105 yrs. DF 5.6 TPA ≥ 15", ≤ 87 yrs. SF all LP ≤ 9", ≤ 81 yrs. LP
0543	DF/SF Mix	7 TPA ≥ 18", ≤ 90 yrs. DF 24 TPA ≥ 15", ≤ 89 yrs. SF
0544	DF w/SF understory	5.6 TPA ≥ 18", ≤ 94 yrs. DF
0545	SF/DF Mix	12.7 TPA ≥ 15", ≤ 87 yrs. SF 17.5 TPA ≥ 18", ≤ 100 yrs. DF
0548	DF/w few LP&SF understory	7.6 TPA ≥ 18", ≤ 147 yrs. DF 2.8 TPA ≥ 11", 105 yrs. LP
0550	DF w/few LP&SF	11 TPA ≥ 18", ≤ 143 yrs. DF 4.4 TPA ≥ 11", ≤ 123 yrs. LP 1.6 TPA ≥ 15", ≤ 97 yrs. SF
0555	DF/SF Mix	17 TPA ≥ 18", ≤ 114 yrs. DF 11.6 TPA ≥ 15", ≤ 87 yrs. SF
0602	SF/WB/LP Mix	5.9 TPA ≥ 15", 102-126 yrs. SF 2.5 TPA ≥ 18", 179 yrs. WB all LP ≤ 5"

Table 1.7. Continued.

PLOT #	COVER TYPE	NOTES
0605	DF/LP/SF Mix	10 TPA ≥ 18", ≤ 195 yrs. DF 9.2 TPA ≥ 11", ≤ 104 yrs. LP 6.5 TPA ≥ 15", ≤ 104 yrs. SF
0609	DF/LP Mix	7.8 TPA ≥ 18", ≤ 162 yrs. DF 12.8 TPA ≥ 11", ≤ 96 yrs. LP
0612	LP/AS Mix	16.7 TPA ≥ 11", ≤ 97 yrs. LP all AS ≤ 10", ≤ 100 yrs.
0622	DF/AS Mix	26 TPA ≥ 18", ≤ 83 yrs. DF 11.1 TPA ≥ 12", ≤ 70 yrs. AS
0623	LP/w AS understory	6.8 TPA ≥ 11", ≤ 89 yrs. LP
0624	LP/w AS understory	4.3 TPA ≥ 11", ≤ 52 yrs. LP
0626	LP/w SF&DF&AS understory	17.9 TPA ≥ 11", ≤ 130 yrs. LP
0632	LP	13.4 TPA ≥ 11", ≤ 98 yrs.
0635	LP w/some SF&DF	6.9 TPA ≥ 11", ≤ 71 yrs. 3.3 TPA ≥ 15", ≤ 88 yrs.
0644	LP/AS Mix	6.7 TPA ≥ 11", ≤ 72 yrs. LP 4.7 TPA ≥ 12", ≤ 81 yrs. AS
0645	LP w/AS understory	3.9 TPA ≥ 11", 107 yrs. LP
0647	LP/DF Mix	17.4 TPA ≥ 11", ≤ 114 yrs. LP 6.1 TPA ≥ 18", 117-197 yrs. DF
0654	DF w/AS understory	10.7 TPA ≥ 18", ≤ 69 yrs. DF
0656	LP	9.7 TPA ≥ 11", 71-128 yrs. LP
0657	LP/DF/SF Mix	6.3 TPA ≥ 11", ≤ 114 yrs. LP all DF ≤ 16", ≤ 168 yrs. DF all SF ≤ 13", ≤ 84 yrs.
0658	LP w/some DF	19.1 TPA ≥ 11", ≤ 96 yrs. LP .8 TPA ≥ 18", 130 yrs. DF
0664	LP	12.1 TPA ≥ 11", ≤ 71 yrs. LP
0668	LP	3.3 TPA ≥ 11", ≤ 89 yrs. LP
0669	LP	6.5 TPA ≥ 11", ≤ 101 yrs. LP
0674	DF/LP/SF Mix	all DF ≤ 15", ≤ 69 yrs. 11.1 TPA ≥ 11", no age LP all SF ≤ 13", ≤ 64 yrs. SF
0675	LP	41.5 TPA ≥ 11", 71-126 yrs. LP
0680	LP	2.4 TPA ≥ 11", no ages LP
0692	LP w/DF understory	18.7 TPA ≥ 11", 86-114 yrs. LP
0699	LP/DF/AS Mix	28.5 TPA ≥ 11", ≤ 67 yrs. LP 5.6 TPA ≥ 18", 65-170 yrs. DF all AS ≤ 9", ≤ 85 yrs.
0702	DF	7.7 TPA ≥ 18", ≤ 80 yrs. DF

OVERVIEW OF NONFORESTED HABITATS

Table 1.8 provides an overview of the nonforested habitats within each subsection.

OVERVIEW OF AQUATIC/RIPARIAN HABITATS

Table 1.9 provides an overview of the existing aquatic/riparian habitat condition and trend within each subsection.

Table 1.8. Nonforested Habitats in each Subsection.

Subsection	Total Nonforested Acres	Percent of Nonforested Acres in Each Category										
		Grass	Grass/ Brush	Grass/ Forb	Grass/ Sage	Mahogany	Mtn. Brush	Rock/ Barren	Tall Sage/ Grass	Tall Sage/ Brush	Willow	Water
Lemhi Mtns.	55,421	1.4	1.1	10.2	7.0	2.1	2.4	23.1	52.4	0.0	0.0	0.4
Medicine Lodge	120,350	4.1	0.0	0.2	3.4	1.5	1.8	4.0	84.9	0.0	0.0	0.2
Centennial Mtns.	94,109	6.0	1.8	8.5	1.5	0.0	1.4	2.3	74.8	0.9	0.6	2.3
Island Park	20,265	11.9	6.9	8.8	6.2	0.0	9.0	1.7	38.0	2.3	0.0	13.6
Madison Plateau	6,156	0.1	0.0	40.0	0.0	0.0	19.2	0.9	8.5	2.6	0.0	27.8
Teton Range	68,645	1.7	5.3	65.2	0.0	0.0	5.9	20.5	0.0	0.3	0.0	1.0
Big Hole/Palisades	122,852	0.5	3.0	28.5	2.6	0.0	38.9	5.9	14.0	1.7	0.0	4.9
Caribou	82,456	1.1	4.3	10.2	11.6	0.0	14.8	2.5	49.0	0.0	0.0	6.4

Table 1.9. Existing Condition and Trend of Aquatic and Riparian Habitats.

Subsection	Drainage	Aquatic Habitat Condition 1/	Aquatic Habitat Trend	Vegetative Seral Stage Condition 2/	Vegetative Trend 3/
Lemhi	N. Fk. Pass Cr.	IIIA	Stable	MS	Stable
Lemhi	Middle Pass Cr.	IIIB	Stable	LS	Stable
Lemhi	Pass Cr. Lake	IIC	Stable	MS	Down
Lemhi	S. Fk. Pass Cr.	IIIC	Stable	MS	Down
Lemhi	Rocky Canyon Cr.	IIIC	Stable	MS	Stable
Lemhi	N. Fk. Eightmile	IIIC	Stable	LS	Stable
Medicine Lodge	Jump Cr.	IIIC	Stable	MS	Stable
Medicine Lodge	Divide Cr. Lake	IIC	Stable	LS	Stable
Medicine Lodge	Crooked Cr.	IIB	Up	LS	Stable
		IIB	Up	MS	Up
Medicine Lodge	Buckhorn Spring	IIIC	Stable	LS	Stable
Medicine Lodge	Blue Canyon Spr.	IIIC	Stable	LS	Stable
Medicine Lodge	Buckhorn Ponds	IIB	Stable	LS	Stable
Medicine Lodge	Shamrock Spring	IIIC	Stable	MS	Stable
Medicine Lodge	Crystal Srping	IIIC	Stable	MS	Stable
Medicine Lodge	Antelope Lakes	IIC	Stable	LS	Stable
Medicine Lodge	Grouse Cr.	IIIB	Up	LS	Stable
		IIIB	UP	MS	UP
Medicine Lodge	Meyers Cr.	IIB	Stable	PNC	Stable
Medicine Lodge	Bullpen Irving	IIB	Stable	LS	Stable
Medicine Lodge	Left Fk. Irving	IIB	Stable	LS	Up
Medicine Lodge	Dry Fk. Spring	IIIC	Stable	LS	Stable
Medicine Lodge	Fritz Cr.	IIC	Stable	LS	Stable
		IIIC	Stable	MS	Stable
Medicine Lodge	Horse Cr.	IIC	Stable	MS	Down
Medicine Lodge	Porky Spr. Cr.	IIIC	Stable	LS	Stable
Medicine Lodge	Divide Cr.	IIC	Stable	LS	Down
		IIIC	Stable	LS	Down
Medicine Lodge	Warm Cr.	IIB	Up	MS	Up
Medicine Lodge	Limestone Gulch	IIIB	Stable	LS	Stable
Medicine Lodge	Slate Basin Spr.	IIIC	Stable	LS	Down
Medicine Lodge	Spring Canyon Spr.	IIIC	Stable	LS	Stable
Medicine Lodge	McNeary Cr.	IIA	Stable	LS	Up
Medicine Lodge	Webber Cr.	IB	Stable	LS	Up
Medicine Lodge	Willow Cr.	IIC	Stable	ES	Down
		IIC	Stable	LS	Stable
Medicine Lodge	Montana Canyon Cr.	IIB	Stable	MS	Stable
Medicine Lodge	Milo Canyon Cr.	IIB	Stable	LS	Stable
Centennials	E. Fk. Cottonwood	IIB	Stable	MS	Up
Centennials	W. Fk. Cottonwood	IIB	Stable	MS	Up
Centennials	E. Fk. Indian Cr.	IIC	Up	MS	Up
Centennials	Corral Cr.	IIC	Stable	MS	Down
Centennials	Rock Cr.	IIB	Stable	LS	Stable
Centennials	Thunder Gulch	IIC	Stable	MS	Up
Centennials	Pauls Reservoir	IIC	Stable	MS	Stable
Centennials	E. Modoc Cr.	IA	Stable	PNC	Stable
Centennials	Middle Modoc Cr.	IA	Stable	PNC	Stable
Centennials	W. Modoc Cr.	IA	Stable	PNC	Stable
Centennials	W. Dry Cr.	IIB	Stable	MS	Stable
Centennials	Middle Dry Cr.	IIB	Stable	MS	Stable
Centennials	East Dry Cr.	IIB	Stable	MS	Stable
Centennials	Huntley Canyon	IA	Stable	LS	Up
Centennials	Idaho Cr.	IIB	Down	LS	Stable
		IIIC	Down	ES	Stable
Centennials	School Sec. Cr.	IIC	Down	MS	Down
Centennials	Berry Cr.	IIC	Down	MS	Down
Centennials	Grouse Cr.	IIIC	Stable	LS	Stable
		IIIB	Stable	MS	Down
Centennials	Ditch Cr.	IIIC	Stable	LS	Stable
		IIIB	Stable	MS	Down
Centennials	Middle Cr.	IB	Stable	LS	Stable
Centennials	L. Fk. Middle Cr.	IIC	Stable	LS	Stable
Centennials	Mill Fk. Middle Cr.	IIIC	Stable	MS	Stable
Centennials	Big Springs Cr.	IIC	Stable	LS	Stable
Centennials	Broad Hollow	IIIC	Stable	MS	Up
Centennials	Poison Cr.	IIB	Stable	LS	Stable
Centennials	Modoc Cr.	IIC	Stable	MS	Stable
Centennials	Tenpin Gulch	IIB	Stable	LS	Stable
Centennials	Kettle Cr.	IIB	Stable	LS	Stable
Centennials	Horse Cr.	IIC	Stable	MS	Stable

Table 1.9. Existing Condition and Trend of Aquatic and Riparian Habitats (continued).

Subsection	Drainage	Aquatic Habitat Condition 1/	Aquatic Habitat Trend	Vegetative Seral Stage Condition 2/	Vegetative Trend 3/
Centennials	White Pine Canyon	IIIB	Stable	MS	Stable
Centennials	Thomas Draw	IIIC	Stable	MS	Up
Centennials	VanNoy Canyon Cr.	IIIC	Stable	MS	Up
Centennials	Stoddard Cr.	IIC	Stable	MS	Up
Centennials	Camp Cr.	IIIC	Stable	MS	Up
Centennials	Brooks Canyon Cr.	IIC	Stable	MS	Up
Centennials	Swampy Draw	IIC	Stable	MS	Up
Centennials	Kite Canyon Cr.	IIIC	Stable	MS	Stable
Centennials	Ramshorn Cr.	IIB	Stable	MS	Up
Centennials	Headquarters Cr.	IIB	Stable	MS	Up
Centennials	Pleasant Valley	IIC	Stable	LS	Stable
Centennials	W. Indian Cr.	IC	Stable	LS	Stable
Centennials	Alex Draw	IIC	Up	LS	Stable
Centennials	E. Fk. Threemile	IIC	Stable	LS	Up
		IIC	Stable	MS	Stable
Centennials	Middle Fk. Threemi.	IIB	Stable	LS	Stable
Centennials	Long Cr.	IIB	Stable	LS	Up
Centennials	West Camas Cr.	IC	Up	MS	Up
		IC	Up	LS	Stable
		IC	Up	MS	Up
Centennials	Boatman Spr.	IIIC	Stable	MS	Stable
Centennials	Moose Cr.	IIC	Stable	LS	Up
Centennials	Scalp Cr.	IIC	Stable	LS	Up
Centennials	Ching Cr.	IC	Stable	LS	Up
Centennials	Coon Cr.	IIB	Stable	LS	Stable
Centennials	Beartrap	IIB	Stable	LS	Stable
Centennials	Pasture Cr.	IIC	Stable	LS	Stable
Centennials	Spruce Cr.	IIC	Stable	LS	Stable
Centennials	E. Camas Cr.	IB	Stable	PNC	Stable
		IC	Stable	LS	Down
		IC	Stable	LS	Stable
Centennials	Larkspur Cr.	IIB	Stable	LS	Down
Centennials	Fryingpan Cr.	IIB	Stable	LS	Stable
Centennials	Saw Cr..	IIC	Stable	LS	Stable
Centennials	McGarry Canyon	IIIC	Stable	LS	Stable
Centennials	Spring Cr.	IIIB	Stable	LS	Stable
Centennials	Corral Cr.	IIC	Stable	LS	Stable
Centennials	Bear Cat	IIIC	Stable	LS	Stable
Centennials	Cottonwood Cr.	IB	Stable	LS	Stable
		IC	Stable	MS	Stable
Centennials	Lake Cr.	IIB	Stable	LS	Down
Centennials	Salamander Cr.	IIA	Stable	LS	Down
Centennials	Trail Cr.	IIA	Stable	MS	Down
Centennials	Kay Cr.	IIC	Stable	LS	Stable
Centennials	Little Cr.	IIC	Stable	MS	Stable
Centennials	Chicken Cr.	IIB	Stable	LS	Stable
Centennials	Robbins Cr.	IIB	Stable	LS	Stable
Centennials	Sheep Cr.	IIC	Stable	MS	Up
Centennials	Owens Cr.	IIIC	Down	MS	Down
Centennials	Meadow Cr.	IIB	Stable	MS	Up
Centennials	Little Lake Cr.	IIB	Stable	LS	Stable
Centennials	Aspen Draw	IIB	Stable	MS	Up
Centennials	Post Hollow	IIIC	Stable	MS	Stable
Centennials	Cobble Cr.	IIIC	Stable	MS	Stable
Centennials	Clay Cr.	IIIC	Stable	MS	Stable
Centennials	Dairy Cr.	IC	Stable	LS	Stable
Centennials	Aldous Lake	IIC	Stable	LS	Stable
Centennials	Hancock Lake	IIC	Stable	LS	Stable
Centennials	Telephone Cr.	IIC	Stable	LS	Stable
Centennials	Left Fork Cr.	IIB	Stable	LS	Stable
Centennials	Calf Cr.	IIIC	Stable	LS	Stable
Centennials	Miners Cr.	IIIC	Up	MS	Up
Centennials	Hirschi Flats	IIIB	Stable	LS	Stable
Centennials	Bear Gulch	IIC	Stable	LS	Stable
Centennials	Spring Cr.	IIB	Stable	LS	Stable
Centennials	Pete Cr.	IC	Stable	LS	Stable
Centennials	W. Fk. Rattlesnake	IIC	Stable	LS	Up
Centennials	E. Fk. Rattlesnake	IIC	Stable	LS	Up
Centennials	Stump Cr.	IIC	Stable	LS	Stable
		IIC	Stable	MS	Up

Table 1.9. Existing Condition and Trend of Aquatic and Riparian Habitats (continued).

Subsection	Drainage	Aquatic Habitat Condition 1/	Aquatic Habitat Trend	Vegetative Seral Stage Condition 2/	Vegetative Trend 3/
Centennials	Jug Cr.	IIB	Stable	LS	Stable
		IIB	Stable	MS	Stable
Centennials	Pass Cr.	IIIC	Stable	LS	Stable
Centennials	Castle Cr.	IIC	Stable	LS	Stable
Centennials	Frazier Cr.	IIIB	Stable	LS	Stable
Centennials	Disaster Cr.	IIIB	Stable	LS	Stable
Centennials	West Steel Cr.	IIC	Stable	LS	Stable
Centennials	East Steel Cr.	IIC	Stable	LS	Stable
Centennials	Lyman's Cr.	IIIB	Stable	LS	Stable
Centennials	Allan Canyon Cr.	IIC	Stable	MS	Up
Centennials	Arange Cr.	IIA	Stable	LS	Stable
Centennials	Blind Cr.	IIB	Stable	LS	Stable
Centennials	Blue Cr.	IIB	Stable	MS	Stable
Centennials	Bootjack Cr.	IIB	Stable	MS	Stable
Centennials	Canyon Cr.	IIA	Stable	LS	Stable
Centennials	Coffeepot Cr.	IIB	Stable	LS	Stable
Centennials	Duck Cr.	IIB	Stable	MS	Stable
Centennials	Duck Cr. N. Fk.	IIB	Stable	MS	Stable
Centennials	Duck Cr. S. Fk.	IIB	Stable	MS	Stable
Centennials	Dry Cr. E. FK.	IIB	Stable	MS	Stable
Centennials	Dry Cr. W. Dry	IIB	Stable	LS	Stable
Centennials	Elk Springs Cr.	IIB	Stable	LS	Stable
Centennials	Enget Cr.	IIB	Stable	LS	Stable
Centennials	Gillan Cr.	IIIB	Stable	MS	Stable
Centennials	Hope Cr.	IIA	Stable	LS	Stable
Centennials	Hotel Cr.	IIB	Stable	LS	Stable
Centennials	Hotel Cr. E. Fk.	IIA	Stable	LS	Stable
Centennials	Hotel Cr. W. Fk.	IIA	Stable	LS	Stable
Centennials	Howard Cr.	IIB	Stable	LS	Stable
Centennials	Howard Cr.	IB	Stable	LS	Stable
Centennials	Icehouse Cr.	IB	Stable	LS	Stable
Centennials	Ingalls Cr.	IIA	Stable	LS	Stable
Centennials	Jesse Cr.	IIB	Stable	MS	Stable
Centennials	Keg Springs Cr.	IIA	Stable	LS	Stable
Centennials	Kelley Cr.	IIB	Stable	MS	Stable
Centennials	Kick Cr.	IIB	Stable	LS	Stable
Centennials	Meyers Cr.	IIA	Stable	LS	Stable
Centennials	Mill Cr.	IIB	Stable	LS	Stable
Centennials	Mill Cr. W. Fork	IIB	Stable	LS	Stable
Centennials	Rea's Pass Cr.	IIB	Stable	LS	Stable
Centennials	Rock Cr.	IIA	Stable	LS	Stable
Centennials	Sawtell Cr.	IIB	Stable	LS	Stable
Centennials	Schneider Cr.	IIB	Stable	LS	Stable
Centennials	Sheridan Cr.	IIB	Stable	LS	Stable
Centennials	Sheridan Cr. E. Fk.	IIA	Stable	LS	Stable
Centennials	Sheridan Cr. M. Fk.	IIA	Stable	LS	Stable
Centennials	Sheridan Cr. T. Fk.	IIA	Stable	LS	Stable
Centennials	Sheridan Cr. W. Fk.	IIA	Stable	LS	Stable
Centennials	Targhee Cr.	IA	Stable	LS	Stable
Centennials	Targhee Cr. Dry Fk.	IIIA	Stable	LS	Stable
Centennials	Targhee Cr. E. Fk.	IA	Stable	LS	Stable
Centennials	Targhee Cr. W. Fk.	IA	Stable	LS	Stable
Centennials	Taylor Cr.	IIB	Stable	MS	Stable
Centennials	Timber Cr.	IIIB	Stable	MS	Stable
Centennials	Tin Cup Cr.	IIB	Stable	LS	Stable
Centennials	Twin Cr. Lower	IIB	Stable	MS	Stable
Centennials	Twin Cr. Upper	IIB	Stable	LS	Stable
Centennials	Tygee Cr. Upper	IIB	Stable	LS	Stable
Centennials	Tygee Cr. Lower	IIA	Stable	LS	Stable
Centennials	Tyler Cr.	IIB	Stable	LS	Stable
Centennials	Willow Cr.	IIB	Stable	LS	Stable
Island Park	Antelope Park	IIB	Stable	MS	Stable
Island Park	Buffalo River	IIB	Stable	LS	Stable
Island Park	Chick Cr.	IIIB	Stable	LS	Stable
Island Park	Coyote Gulch	IIIB	Stable	LS	Stable
Island Park	Elk Cr.	IB	Stable	LS	Stable
Island Park	Henry's Fork D2	IC	Stable	LS	Stable
Island Park	Henry's Fork D3	IB	Down	MS	Stable
Island Park	Lucky Dog Cr.	IB	Stable	LS	Stable
Island Park	Moose Cr. Lower	IB	Stable	LS	Stable

Table 1.9. Existing Condition and Trend of Aquatic and Riparian Habitats (continued).

Subsection	Drainage	Aquatic Habitat Condition 1/	Aquatic Habitat Trend	Vegetative Seral Stage Condition 2/	Vegetative Trend 3/
Island Park	Thurmon Cr. E. Fk.	IA	Stable	LS	Stable
Island Park	Thurmon Cr. M. Fk.	IA	Stable	LS	Stable
Island Park	Thurmon Cr. W. Fk.	IA	Stable	LS	Stable
Island Park	Tom's Cr.	IIB	Stable	LS	Stable
Island Park	Warm River	IA	Stable	LS	Stable
Island Park & Madison	Bitch Cr.	IA	Stable	MS	Stable
Island Park & Madison	Boone Cr.	IIA	Stable	LS	Up
Island Park & Madison	Conant Cr.	IIA	Stable	LS	Up
Island Park & Madison	Fall River	IA	Stable	LS	Stable
Island Park & Madison	Partridge Cr.	IIIB	Stable	LS	Down
Island Park & Madison	Porcupine Cr.	IIA	Stable	LS	Stable
Island Park & Madison	Robinson Cr.	IA	Stable	LS	Stable
Island Park & Madison	Rock Cr.	IIA	Stable	LS	Stable
Island Park & Madison	Squirrel Cr. upper	IIA	Stable	LS	Stable
Island Park & Madison	Squirrel Cr. lower	IIB	Down	LS	Down
Madison	Moose Cr. Upper	IB	Stable	ES	Up
Madison	Split Cr.	IIIB	Stable	LS	Stable
Madison	Split Cr. M. Fk.	IIIB	Stable	LS	Stable
Madison	Split Cr. N. Fk.	IIIB	Stable	LS	Stable
Madison	Split Cr. S. Fk.	IIIB	Stable	LS	Stable
Madison	Thirsty Cr.	IIB	Stable	MS	Stable
Madison	Fish Cr.	IIA	Stable	LS	Stable
Madison	Snow Cr.	IIA	Stable	LS	Stable
Caribou	Fall Cr. upper	IIB	Stable	ES to MS	Stable
Caribou	Fall Cr. lower	IIB	Stable	MS	Stable
Caribou	McCoy Cr.	IIB	Stable	MS	Stable
Caribou	Pritchard Cr.	IIA	Stable	MS	Stable
Caribou	Bear Cr.	IIA	Up	MS	Up
Caribou	Beaver Cr.	IIA	Stable	LS	Stable
Caribou	Brockman Creek	IIA	Stable	MS	Stable
Caribou	Corral Cr.	IIA	Stable	MS	Stable
Big Hole/Palisades	Indian Cr.	IIB	Down	ES	Stable
Big Hole/Palisades	Rainey Cr.	IIA	Stable	MS	Stable
Big Hole/Palisades	Big Burns Cr.	IIA	Stable	MS	Stable
Big Hole/Palisades	Big Elk Cr.	IIA	Stable/Up	MS to LS	Stable
Big Hole/Palisades	Canyon Cr.	IIB	Stable	MS	Stable
Big Hole/Palisades	Moody Cr.	IIA	Up	MS	Up
Big Hole/Palisades	Sheep Cr.	IIB	Stable	MS	Stable
Big Hole/Palisades	Palisades Cr.	IIA	Stable	LS	Stable
Big Hole/Palisades	Pine Cr.	IIB	Stable	MS	Stable

1/ Aquatic Habitat Condition:

I = Perennial streams at least 14 inches deep (at low summer flow), with 40 to 60 percent pools. Streambank stability is at least 90 percent of inherent stability (based on channel type, parent materials and plant associations). Instream and overhead cover is abundant (large woody material, overhanging vegetation, undercut banks, turbulence).

II = Perennial streams between 8 inches to 14 inches deep (at low summer flow), with 20 to 40 percent pools or 60 to 80 percent pools. Streambank stability is 70 to 90 percent of inherent stability. Instream and overhead cover is moderate.

III = Intermittent or ephemeral streams less than 8 inches deep (at low summer flow), with less than 20 percent pools or more than 80 percent pools. Streambank stability is less than 70 percent of inherent stability. Instream and overhead cover is scarce.

A = Pristine - 90 percent of riparian acres near pristine condition.
B = Moderate - 50 to 89 percent of riparian acres near pristine condition.
C = High Human Disturbance - less than 50 percent of riparian acres near pristine conditions.

2/ Vegetative Seral Stage Condition Criteria: This is based on the Range Analysis and Management Handbook (2209.21, section 2.23f). PNC = potential natural community. LS = late seral. MS = mid seral. ES = early seral.

3/ Vegetative Trend: This is apparent trend described in the Range Analysis and Management Handbook. Apparent trend is the direction of change in vegetation condition or soil stability. It may be inferred from indicators. knowledge of apparent trend will help determine if current practices are sound or if corrective actions are needed.

PACIFIC STATES BALD EAGLE RECOVERY PLAN GOALS AND POPULATIONS

The Targhee National Forest is part of the Pacific Recovery Region. The Pacific States Bald Eagle Recovery Plan was developed in 1986 (USFWS 1986).

The delisting goals for the Pacific Recovery Region were summarized by the USFWS (1995) as follows: "A minimum of 800 nesting pairs with an average reproductive rate of 1.0 fledged young per pair with an average success rate per occupied site of not less than 65% over a 5-year period. Attainment of breeding population goals should be met in at least 80% of management zones. Wintering populations should be stable or increasing."

Progress in achieving the delisting goals were summarized by the USFWS (1995) as follows: "In 1994, 1,192 occupied territories were reported with 1.03 young per occupied territory. The number of occupied territories has consistently increased since 1986 and exceeded 800 for 5 years beginning in 1990 when 861 were reported. Productivity has averaged about 1.03 since 1990. Nesting targets for 37 specified management zones have been reached in 57 percent of the zones. In 1994, 21 of those zones had met or exceeded their recovery goals, and 5 other zones in addition to the original 37 had nesting eagles that are not part of the recovery goals for this region. Reclassification goals have been met. Delisting goals have been met in all categories except distribution in zones with nesting targets."

Due to accomplishments of achieving recovery goals, the USFWS reclassified the bald eagle from endangered status to threatened status in the lower 48 States, effective August 11, 1995 (USFWS 1995).

Recovery Plan - Greater Yellowstone Bald Eagle Management Zone

The Targhee National Forest is within the "Greater Yellowstone bald eagle management zone" as outlined in the Pacific States Bald Eagle Recovery Plan (USFWS 1986). The Recovery Plan established the following habitat and population goals for this management zone:

> Habitat management goal - 65 nesting territories, which is considered the minimum number of territories needed to provide secure habitat for the recovered population.
>
> Population management goal - 50 breeding pairs.

For the portion of the Greater Yellowstone bald eagle management zone which includes the Targhee, habitat management goals have been established for 5 areas as follows (these goals include all land ownerships) (USFWS 1986):

Island Park/Henrys Fork	- 7 nesting territories
Big Springs	- 2 nesting territories
S. Fork Snake River	- 8 nesting territories
Palisades	- 5 nesting territories
Henrys Lake	- 1 nesting territory
Total goal:	23 nesting territories

BALD EAGLE POPULATIONS IN GREATER YELLOWSTONE

The following information is taken from the Greater Yellowstone Bald Eagle Management Plan - 1995 Update (Greater Yellowstone Bald Eagle Working Group 1996):

From 1960 to 1995, the bald eagle population in the Greater Yellowstone increased exponentially (Figure 2). In 1982 (the first year of comprehensive data), 49 breeding areas were known with 78% occupied by breeding pairs. An average of 0.61 young were fledged per occupied breeding area and 23 young were produced. The number of known breeding areas had grown to 111 by 1995 (Figure 3), with a mean annual occupancy rate of 91%, average number of young fledged per occupied breeding area 1.05, and average number of young produced per year of 80.8, over 14 years. Although number of active pairs (pairs that attempted to breed) and number of young they produced per year increased at similar rates, number of young produced annually was more variable (Figure 4). Productivity has been well over that considered necessary for population maintenance.

Figure 5 shows the growth in number of known bald eagle breeding areas by three population units within the Greater Yellowstone management zone (the Yellowstone Unit, the Continental Unit, and the Snake Unit).

BALD EAGLE POPULATIONS ON AND ADJACENT TO THE TARGHEE

Tables 2.0 and 2.1 summarize bald eagle information for 5 areas which include areas on and adjacent to the Targhee National Forest in southeast Idaho. As of 1995, total known nesting territories in SE Idaho numbered 42, compared to the recovery plan goal of 23 nesting territories. Figures 6 and 7 display the general locations of the 42 known nesting territories in SE Idaho.

The data we have been able to compile on bald eagle nesting populations in SE Idaho dates back to 1972. In 1972, there was one recorded bald eagle nest along the South Fork of the Snake River, which was not on the Targhee N. F. The first recorded bald eagle nest on the Targhee occurred in 1975, along Palisades Reservoir. From 1975 to 1995, the bald eagle nesting population on the Targhee N. F. increased to 17 nesting pairs. Depending upon food supply and tolerance of bald eagle pairs to nest in proximity to other pairs, the existing number of nesting pairs on the Forest may be near the habitat capacity.

Productivity of nest territories on the Targhee was low in 1993 and 1995, with only 5 (1993) and 7 (1995) young produced (Table 2.1.). The low productivity in these years was a product of wet, cold weather during critical times for the nests on Palisades Reservoir and in Island Park (Whitfield, et al 1994 and 1995; Beals and Melquist 1995).

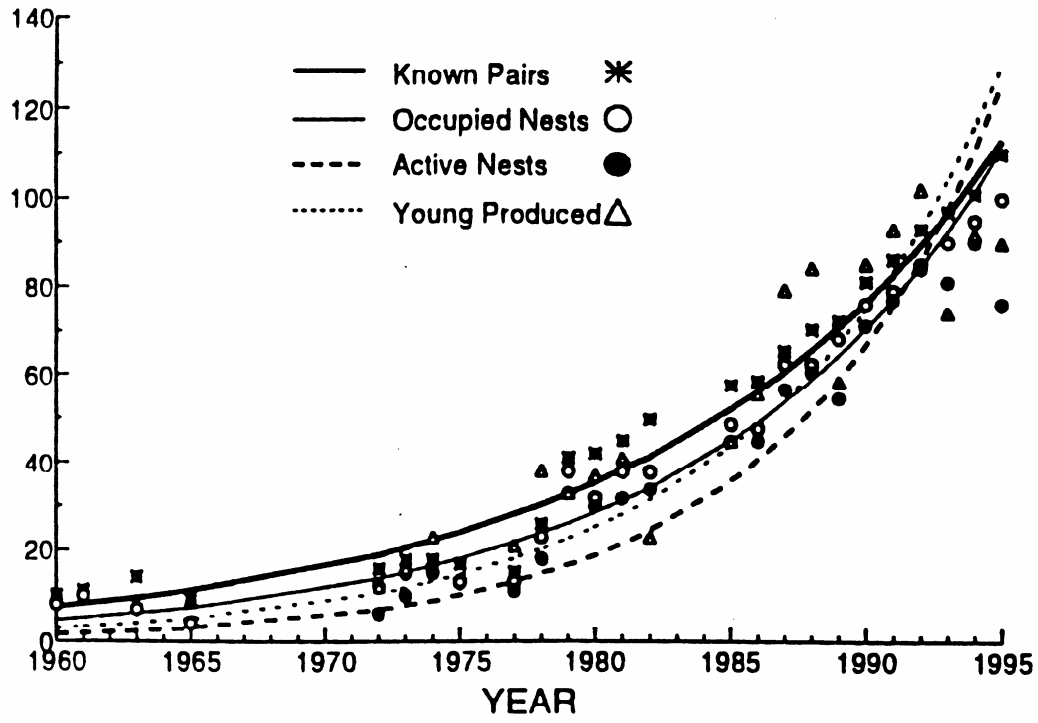


Figure 2. Exponential growth of 4 reproductive parameters for the bald eagle population in Greater Yellowstone, 1960-1995. $R^2 > 0.80$ and $P < 0.01$ for all curves.
(from Greater Yellowstone Bald Eagle Working Group, 1996)

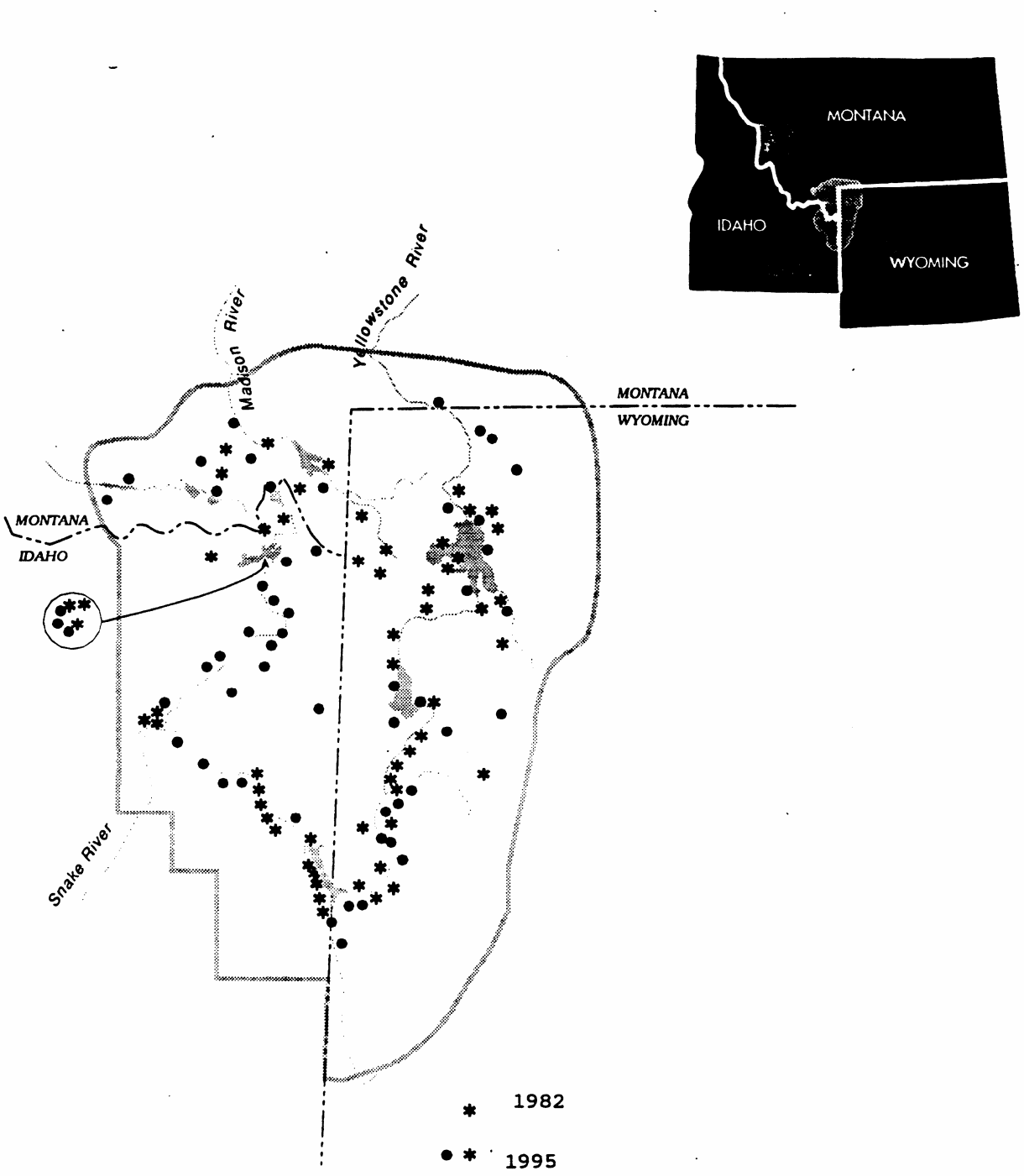


Figure 3. Bald eagle breeding areas in Greater Yellowstone, 1982 and 1995 (from Greater Yellowstone Bald Eagle Working Group, 1996)

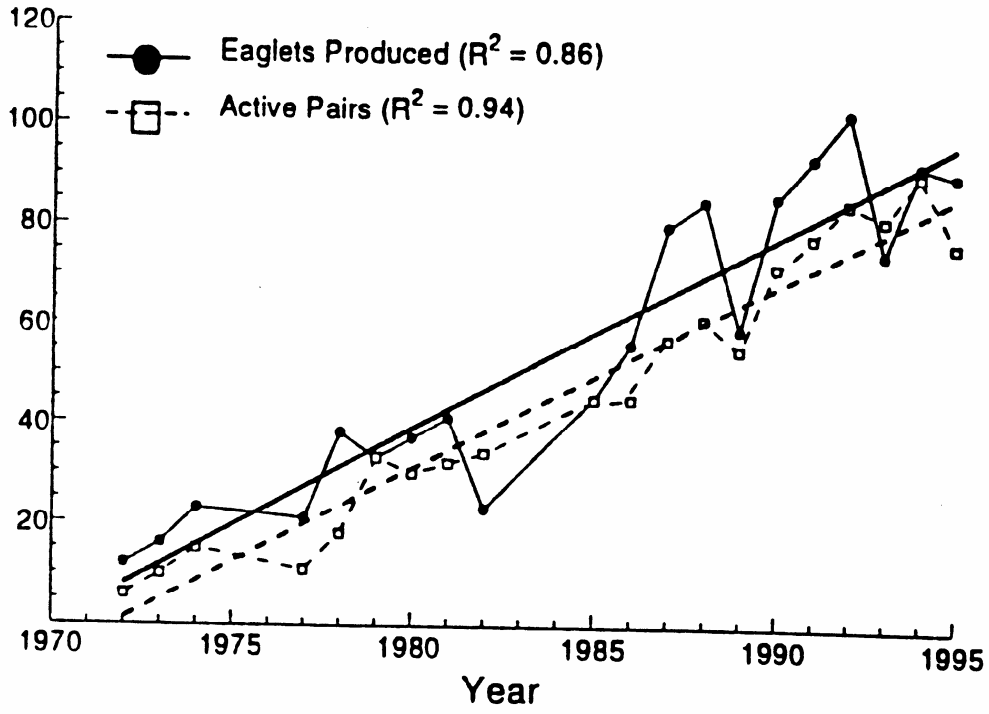


Figure 4. Number of bald eagle pairs that attempted to breed (active pairs) and respective number of eaglets of advanced age produced annually, 1972 - 1995.
(from Greater Yellowstone Bald Eagle Working Group, 1996)

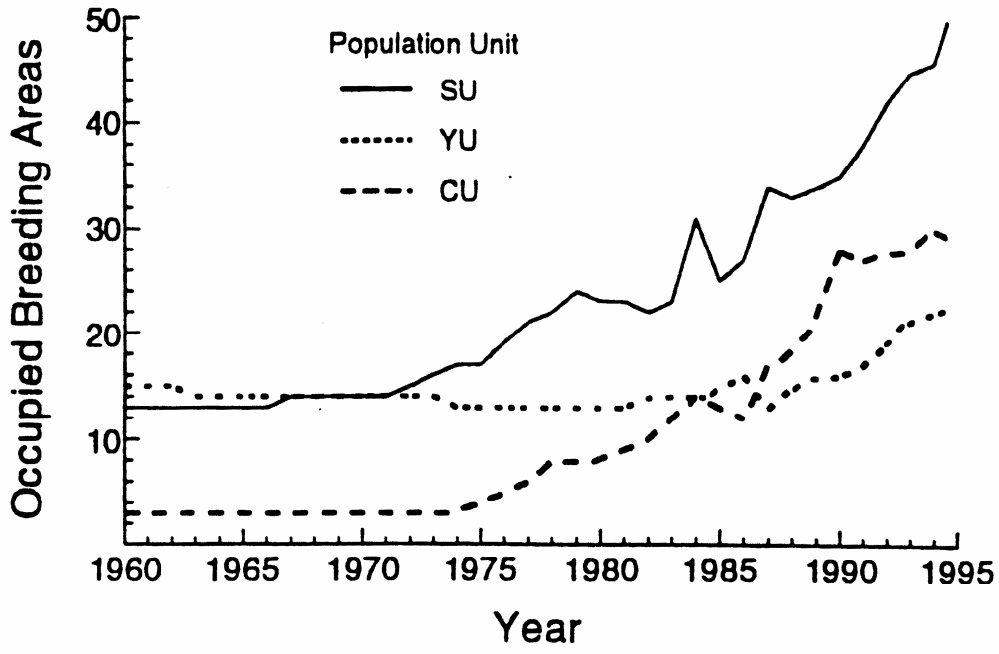


Figure 5. Growth in number of occupied bald eagle breeding areas in Greater Yellowstone, by Population Unit, 1960-1995. SU = Snake Unit, CU = Continental Unit, YU = Yellowstone Unit. (from Greater Yellowstone Bald Eagle Working Group, 1996)

Table 2.0. Bald Eagle Breeding Territories

Subsection	Territory Name	Territory Number	Nest Site Occurs on Forest	Some Portion of Territory Occurs on Forest	Year First Recorded
		UPPER HENRY'S FORK SNAKE RIVER			
Island Park	Kerr Canyon	18-IC-01	no	no	1986
Island Park	Pine Haven	18-IC-02	yes	yes	1983
Island Park	Box Canyon	18-IC-03	yes	yes	1977
Centennials	Coffee Pot	18-IC-04	yes	yes	1982
Island Park	Bishop Lake	18-IC-05	yes	yes	1987
Centennials	Sheridan	18-IC-06	no	yes	1979
Madison Plateau	Lucky Dog	18-IC-07	yes	yes	1987
Centennials	Henry's Lake	18-IC-08	no	yes	1976
Centennials	Staley Springs/ Targhee Cr.	18-IC-09	yes	yes	1987
Island Park	Hale Canyon	18-IC-10	no	no	1987
Island Park	Moonshine	18-IC-11	yes	yes	1989
Island Park	Last Chance	18-IC-12	yes	yes	1990
Island Park	IP Bills	18-IC-13	yes	yes	1990
Centennials	Flat Rock	18-IC-14	yes	yes	1990
Island Park	Riverside	18-IC-15	yes	yes	1990
Island Park	Snake R. Butte	18-IC-16	yes	yes	1991
Island Park	Buffalo River	18-IC-17	no	yes	1994
Island Park	Big Bend 1/	18-IC-18	no	?	1995
		SOUTH FORK SNAKE RIVER			
Caribou	Palisades Cr.	18-IS-04	no	yes	1988
Caribou	Swan Valley	18-IS-05	no	yes	1979
Caribou	Conant Valley	18-IS-06	no	no	1972
Big Hole/Palisades	Pine Cr.	18-IS-07	no	no	1977
Big Hole/Palisades	Dry Canyon	18-IS-08	no	yes	1982
Big Hole/Palisades	Gormer Canyon	18-IS-09	no	yes	1976
Big Hole/Palisades	Wolverine	18-IS-10	?	yes	1992
Big Hole/Palisades	Antelope Cr. 2/	18-IS-11	no	yes	1984
Big Hole/Palisades	Cress Cr.	18-IS-12	no	no	1988
Big Hole/Palisades	Five Ways	18-IS-24	no	no	1995
		PALISADES RESERVOIR AREA			
Caribou	Hoffman	18-IS-01	yes	yes	1975
Caribou	Williams Cr. 3/	18-IS-02	yes	yes	1976
Caribou	Van Point 3/	18-IS-03	yes	yes	1976
Caribou	Edwards Cr.	18-IS-17	yes	yes	1991
Caribou	King Cr.	18-IS-18	yes	yes	1991
		MAIN SNAKE RIVER			
**	Confluence	18-IS-13	no	no	1979
**	Market Lake	18-IS-22	no	no	1994
		LOWER HENRY'S FORK SNAKE RIVER			
**	Cartier Slough	18-IS-14	no	no	1987
**	St. Anthony	18-IS-15	no	no	1984
**	Singleton Pond	18-IS-16	no	no	1989
**	Lower Fall River	18-IS-19	no	no	1992
**	Menan Buttes	18-IS-20	no	no	1992
		TETON RIVER			
**	Upper Teton R. 4/	18-IS-21	no	no	1994
**	Hog Hollow	18-IS-23	no	no	1995

1/ This territory may actually be an alternate nest site for the Moonshine territory. Monitoring in future years will be necessary to see if this is the case.
2/ This territory was called Wolf Flats from 1984 to 1987; it has been called Antelope Creek from 1988 to the present.
3/ In BLM bald eagle data records prior to 1992, territory 18-IS-02 is called Van Point and territory 18-IS-03 is called Williams Creek. From 1992 to the present, reports show the names and numbers as listed in this table.
4/ Some reports may refer to this territory as Three Forks.
** These territories occur in subsections which are not on the Targhee National Forest.
Source of data: Bureau of Land Management bald eagle database, Idaho Falls, Idaho; Idaho Bald Eagle Research Project/Greater Yellowstone Ecosystem-Annual Production Summaries 1992, 1993, 1994, 1995.

Table 2.1. Bald Eagle Nesting Success

Subsection	Territory Name	Territory Number	Number of Young Produced (successful fledglings) Each Year 1/														
			81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
		UPPER HENRY'S FORK SNAKE RIVER															
Island Park	Kerr Canyon	18-IC-01	-	-	-	-	-	1	*	2	1	1	1	2	2	2	2
Island Park	Pine Haven	18-IC-02	-	-	1	3	0	1	3	2	1	0	2	0	0	0	0
Island Park	Box Canyon	18-IC-03	2	0	0	2	*	2	1	3	1	2	0	1	1	1	0
Centennials	Coffee Pot	18-IC-04	-	0	*	0	*	0	1	1	0	0	2	2	0	0	0
Island Park	Bishop Lake	18-IC-05	-	-	-	-	-	-	0	2	2	2	2	0	1	0	0
Centennials	Sheridan	18-IC-06	*	*	*	*	*	*	2	2	0	1	2	2	1	2	0
Madison Plateau	Lucky Dog	18-IC-07	-	-	-	-	-	-	2	0	3	2	1	2	0	2	0
Centennials	Henry's Lake	18-IC-08	2	2	2	2	1	2	2	0	1	2	3	1	0	0	0
Centennials	Staley Springs-Targhee Cr.	18-IC-09	-	-	-	-	-	-	1	2	2	2	2	0	1	2	1
Island Park	Hale Canyon	18-IC-10	-	-	-	-	-	-	3	*	2	2	2	2	1	1	1
Island Park	Moonshine	18-IC-11	-	-	-	-	-	-	-	-	1	*	2	1	0	0	0
Island Park	Last Chance	18-IC-12	-	-	-	-	-	-	-	-	-	2	1	2	0	2	2
Island Park	IP Bills	18-IC-13	-	-	-	-	-	-	-	-	-	2	2	1	1	0	0
Centennials	Flat Rock	18-IC-14	-	-	-	-	-	-	-	-	-	3	1	1	0	1	2
Island Park	Riverside	18-IC-15	-	-	-	-	-	-	-	-	-	0	0	0	0	2	1
Island Park	Snake R. Butte	18-IC-16	-	-	-	-	-	-	-	-	-	-	0	1	0	1	1
Island Park	Buffalo River	18-IC-17	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
Island Park	Big Bend 2/	18-IC-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
		SOUTH FORK SNAKE RIVER															
Caribou	Palisades Cr.	18-IS-04	-	-	-	-	-	-	-	3	3	2	1	3	2	2	2
Caribou	Swan Valley	18-IS-05	*	2	2	1	0	1	2	1	0	1	0	0	0	1	2
Caribou	Conant Valley	18-IS-06	2	2	1	3	2	0	3	3	2	2	1	1	2	2	3
Big Hole/Palisades	Pine Cr.	18-IS-07	2	0	2	2	2	1	0	2	1	2	2	2	1	0	0
Big Hole/Palisades	Dry Canyon	18-IS-08	-	0	2	0	1	2	2	2	0	2	0	2	1	2	2
Big Hole/Palisades	Gormer Canyon	18-IS-09	2	0	0	*	1	0	2	0	3	3	3	3	1	2	2
Big Hole/Palisades	Wolverine	18-IS-10	-	-	-	-	-	-	-	-	-	-	-	0	2	1	1
Big Hole/Palisades	Antelope Cr. 3/	18-IS-11	-	-	-	0	*	2	2	0	1	2	1	0	2	1	1
Big Hole/Palisades	Cress Cr.	18-IS-12	-	-	-	-	-	-	-	2	1	2	2	2	0	0	3
Big Hole/Palisades	Five Ways	18-IS-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
		PALISADES RESERVOIR AREA															
Caribou	Hoffman	18-IS-01	2	3	0	*	0	2	3	2	0	*	2	2	1	2	0
Caribou	Williams Cr. 4/	18-IS-02	*	1	2	1	0	1	2	1	1	1	1	0	0	1	0
Caribou	Van Point 4/	18-IS-03	2	0	1	2	2	2	2	2	1	0	2	2	0	2	0
Caribou	Edwards Cr.	18-IS-17	-	-	-	-	-	-	-	-	-	-	2	2	0	0	0
Caribou	King Cr.	18-IS-18	-	-	-	-	-	-	-	-	-	-	1	1	0	2	0
		MAIN SNAKE RIVER															
**	Confluence	18-IS-13	2	1	2	0	2	1	3	2	1	1	1	0	0	1	0
**	Market Lake	18-IS-22	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
		LOWER HENRY'S FORK SNAKE RIVER															
**	Cartier Slough	18-IS-14	-	-	-	-	-	-	0	2	1	1	1	1	1	1	0
**	St. Anthony	18-IS-15	-	-	-	*	0	0	3	3	3	0	1	2	1	2	1
**	Singleton Pond	18-IS-16	-	-	-	-	-	-	-	-	1	2	2	1	0	1	2
**	Lower Fall River	18-IS-19	-	-	-	-	-	-	-	-	-	-	-	0	0	0	*
**	Menan Buttes	18-IS-20	-	-	-	-	-	-	-	-	-	-	-	1	2	1	2
		TETON RIVER															
**	Upper Teton R. 5/	18-IS-21	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1
**	Hog Hollow	18-IS-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
	Total Young Produced:		16	11	15	16	11	18	39	39	33	42	46	43	24	40	37
	Young From Targhee Nests:		6	4	4	8	2	8	15	15	12	16	23	18	5	18	7

1/ A '-' indicates years prior to the first recording of the nest territory (refer to Table 1 for the year of first recording). A '*' means data was not collected or data was insufficient to provide information on number of young produced.
2/ This territory may actually be an alternate nest site for the Moonshine territory. Monitoring in future years will be necessary to see if this is the case.
3/ This territory was called Wolf Flats from 1984 to 1987; it has been called Antelope Creek from 1988 to the present.
4/ In BLM bald eagle data records prior to 1992, territory 18-IS-02 is called Van Point and territory 18-IS-03 is called Williams Creek. From 1992 to the present, reports show the names and numbers as listed in this table.
5/ Some reports may refer to this territory as Three Forks.
** These territories occur in subsections which are not on the Targhee National Forest.

Source of data: Bureau of Land Management bald eagle database, Idaho Falls, Idaho; Idaho Bald Eagle Research Project/Greater Yellowstone Ecosystem-Annual Production Summaries 1992, 1993, 1994, 1995.

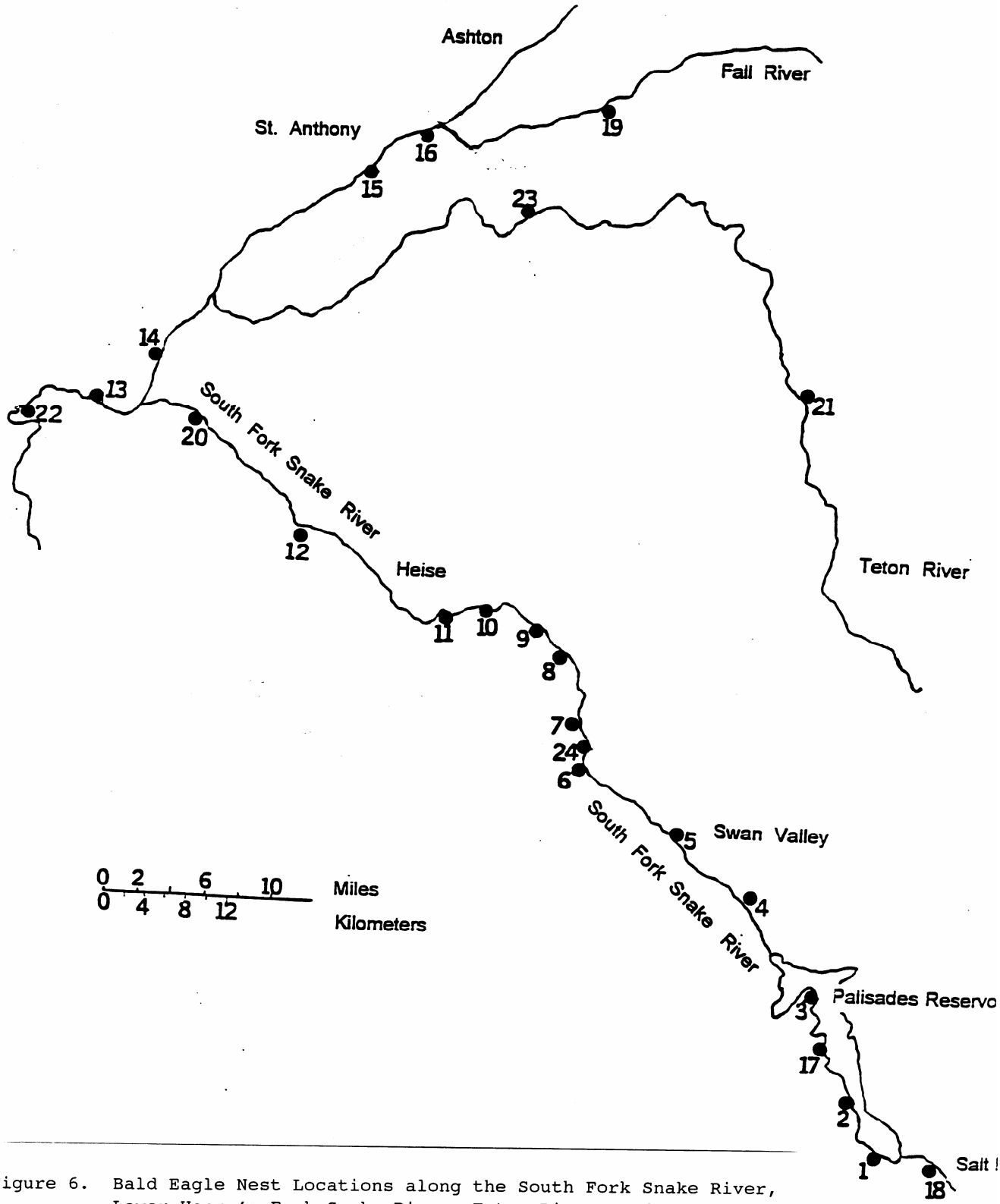


Figure 6. Bald Eagle Nest Locations along the South Fork Snake River, Lower Henry's Fork Snake River, Teton River, and Fall River. (from Beals and Melquist 1995)

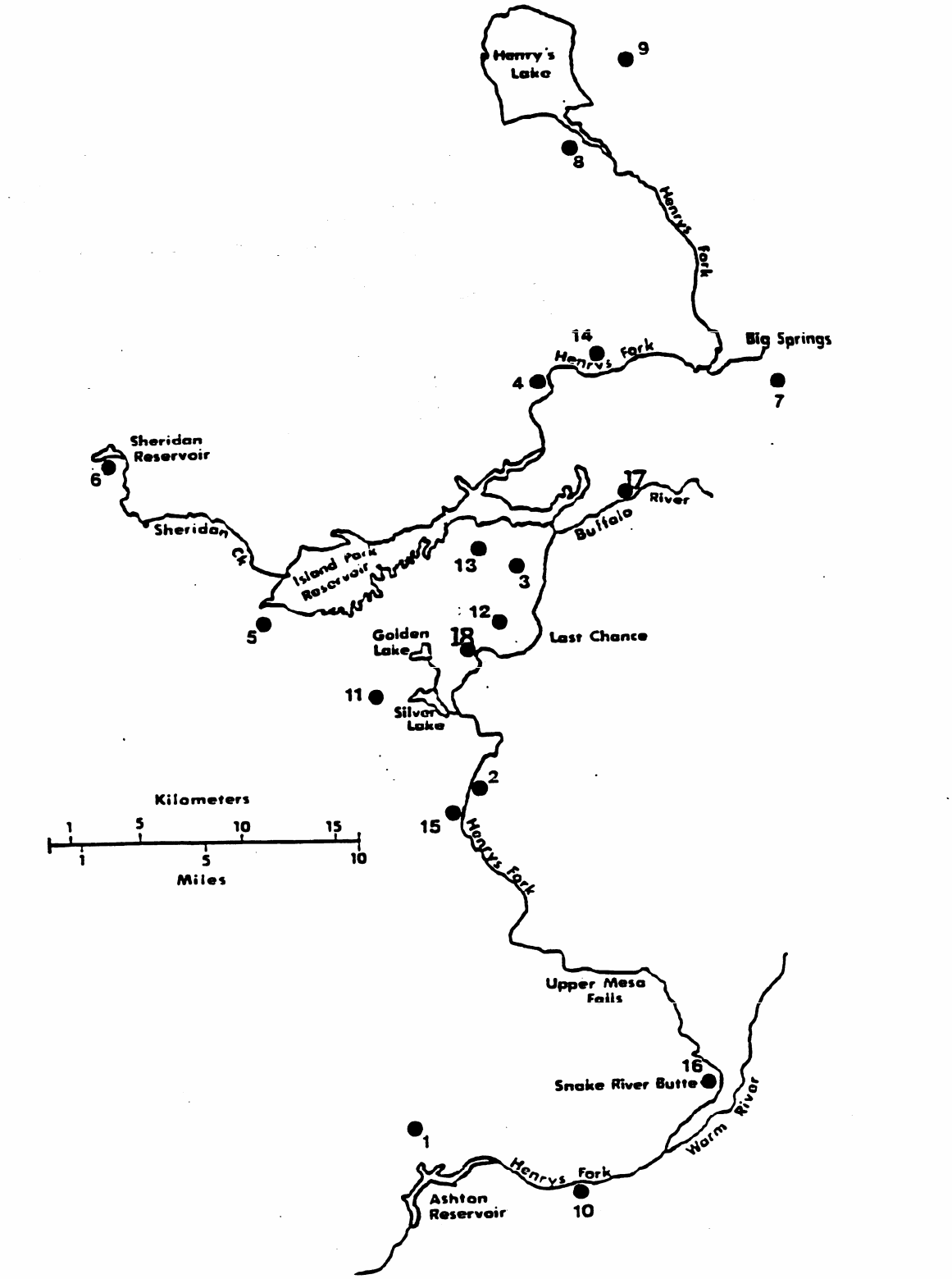


Figure 7. Bald Eagle Nest Locations along the Upper Henry's Fork Snake River. (from Beals and Melquist 1995)

HABITAT - GENERAL OVERVIEW

During the breeding season, bald eagles eat mainly fish. They also eat waterfowl, shorebirds, upland birds, and small mammals. Eagles are very opportunistic predators, especially during the winter. They will eat whatever is available including fish, waterfowl, small mammals, and carrion.

Nesting habitat on the Targhee National Forest is associated with large rivers, lakes, and reservoirs (Figures 6 and 7). Nests are commonly found in large trees, mainly conifers and cottonwoods. Because eagles need large trees to support their large nests, they are often found in multi-storied, late successional stands with open canopies.

Wintering bald eagles tend to congregate near bodies of water and roost communally. Major rivers and large lakes constitute the majority of winter habitats used, although temporary presence of high quality foods may entice eagles to areas far removed from aquatic zones (Greater Yellowstone Bald Eagle Working Group 1996).

Roost sites are usually located in stands of mature or old-growth conifers or cottonwoods. For purposes of management, a communal roost is defined as an area usually less than 10 acres in size that contains > 6 bald eagles on any given night. Critical roost sites are defined as exhibiting traditional use for > 5 years and contain > 15 eagles per night for > 14 nights per season (USFWS 1983). No critical winter roost sites have been identified in Greater Yellowstone (Greater Yellowstone Bald Eagle Working Group 1996).

Risks to migrant eagles involve exposure to lead poisoning, secondary poisoning from insect and predator control programs, collisions and electrocutions associated with power transmission, and loss of perching, foraging and roosting opportunities due to human disturbance (Greater Yellowstone Bald Eagle Working Group 1996).

Bald eagle population declines in the United States were first brought to public attention in the early 1900's. During this time habitat loss and shooting were the main causes for the declines. Passage of the Bald Eagle Protection Act in 1940 made it illegal to shoot a bald eagle. From the late 1940's to the early 1970's organochlorine pesticides, mainly DDT, caused major declines in bald eagle reproduction. Since the banning of DDT in 1972 and the listing of the bald eagle as endangered, populations have slowly, but steadily increased.

EFFECTS OF HUMAN ACTIVITY - OVERVIEW

(This overview is summarized from the Greater Yellowstone Bald Eagle Working Group, 1996.)

Responses of eagles to human activity may vary from ephemeral, temporal and spatial avoidance of activity to total reproductive failure and abandonment of breeding areas. Relationships of human activity and eagle responses are highly complex, difficult, to quantify, and often individual- or site-specific. Responses vary depending on type, intensity, duration, timing,

predictability and location of human activity. The way in which these variables interact depends on age, gender, physiological condition, sensitivity, residency and mated status of affected eagles. Prey base, season, weather, geographic area, topography and vegetation in the vicinity of activities and eagles also influence eagle responses. Although direct impacts occur, frequencies are unexpectedly low because eagles are modifying activity to avoid direct impacts and are less sensitive than anticipated.

Bald eagles clearly respond to the proximity of humans by modifying activity and movements to avoid encounters.

In a study along the Snake River in Wyoming, fewer eagles flushed when human activity was over 200 meters (656 ft) but most did when human activity was within 150 meters (492 ft). Movements of breeding eagles indicated an awareness and response to changing human recreation levels. Some pair's primary use areas were on the most heavily impacted section of the River. Despite continuous and often highly intensive human use, eagles shifted their activity patterns in apparent response to periods when their presence would be least obvious to humans - very early morning and evening. Eagles used perches on the shoreline of the Snake River with much greater frequency and duration than those on the opposite shore, where a heavily used state highway and associated boat ramps, campgrounds, and vehicle pullouts were situated.

In a study along the Snake River in Idaho, only 5.8% of encounters between recreating humans and bald eagles resulted in a flush response, but eagles chose perches insulated from recreational activity along the Snake River by vegetation or extreme distance. Eagles were not observed foraging during periods when they occupied insulated perches indicating they were effectively excluded from prime foraging areas. These areas were used heavily when recreational activity was absent.

Eagles appear to avoid construction and reclamation work. Prior to work on Jackson Lake dam, eagles frequented the vicinity. After initiation of reclamation work, use decreased and centered on areas over 1.25 miles away. After reclamation ceased, eagle activity resumed.

Some bald eagles are more tolerant of human activity in the Greater Yellowstone area than others. There are apparently "urban" and "rural" eagles. Mean distance at which resident eagles flushed from human activity was greater when relative exposure to human activity was less. Thus, eagles in the vicinity of continuously inhabited areas of high human density may become habituated to human presence and tolerant of certain human activities more than their rural counterparts. Urban eagles may be exposed to more human activity at gradually increasing levels, usually within clearly defined limits (towns, villages, roads) while human activity to which rural eagles are exposed is distributed and moving randomly (campgrounds, hikers, boats) at varying intensities and often seasonal and abrupt. Whether individual eagles become progressively more tolerant to human activity over time or if areas subjected to excessive human activity are occupied by more tolerant eagles is unknown.

Vehicular traffic (including watercraft) traveling along prescribed routes or within strict spatial limits and at relatively predictable frequencies is least disturbing to bald eagles. Snow machines and all terrain vehicles are especially disturbing, probably due to associated random movement, loud noise and operators are generally exposed.

Excessive human activity associated with housing and recreational development contributed to abandonment of 2 nest sites in Yellowstone National Park and at least one along the Snake River. A bald eagle nest site near Fishing Bridge on the Yellowstone River at the outlet of Yellowstone Lake was abandoned in the mid 1970's coincident with campground and satellite recreational facilities development and significant increase in visitor use. Also, bald eagles nested on the southeast shore of West Thumb of Yellowstone Lake until the late 1970's when development of extensive visitor dormitories began.

OTHER FACTORS AFFECTING PRODUCTIVITY AND SURVIVAL - OVERVIEW

(This overview is summarized from the Greater Yellowstone Bald Eagle Working Group, 1996.)

Weather

Productivity of bald eagles is inversely correlated with severity of late winter and early spring weather, both seasonally and geographically. Exceptionally cold and wet weather in April has a singularly significant depressing affect on productivity regardless of location. Along the Snake River in Idaho, the availability of open water in the vicinity of nest sites during winter was correlated with productivity. During years in which low flows and cold temperatures froze the Snake River, bald eagle productivity the following spring was low.

Habitat Suitability

Along the Snake River in Wyoming, habitat suitability indices incorporating variables indirectly relating to prey base abundance and availability varied among breeding ranges. Habitat suitability indices including such variables as sinuosity of the river, number of islands, riffles, runs, and pools were 2 to 3 times higher for bald eagle breeding areas occupied the longest and where pairs produced high absolute numbers of young than indices of breeding areas with low productivity.

Habitat suitability is also influenced by availability of perches, nest trees, security habitat, and amount and type of human activity.

Environmental Contaminants

DDT has not been used in the Greater Yellowstone area since 1964, and progressive thickening of recovered egg shells and low blood concentrations reflect a leaching of the chemical from the environment. Thickness of egg shell fragments recovered from a nest in 1989 and an egg recovered in 1993 was equivalent or greater to that of pre-DDT era eggs. Organochlorines appear to no longer affect productivity of bald eagles in the Greater Yellowstone area.

Organophospate or carbamate compounds have induced mortality of at least 2 bald eagles along the Snake River in Idaho. Actual incidence of

organophosphate induced mortality may be seasonal (spring), incurred by mostly migrant eagles, and underestimated, due to restricted access to remote lands where poisoning occurs.

Of 146 bald eagles of all age and residency classes tested for heavy metals in the Greater Yellowstone area, 35% had detectable levels of lead, 91.4% had detectable levels of mercury and 100% had detectable levels of selenium. Some eagles contained high blood levels of lead (> 4 ppm), but most were captured in winter and were probably migrants from Canada. Not all eagles with high lead levels died or displayed clinical signs of lead toxicosis. However, 6 cases of lead induced mortality have been recorded, with at least 1 confirmed as having been produced in the Greater Yellowstone area. The 1991 federal ban on lead shot will probably decrease the incidence of poisoning from lead shot in eagles resident in the GYA, but increasing fishing pressure may result in increased poisonings from discarded/lost fishing tackle. Yellowstone National Park imposed lead free fishing tackle restrictions in 1992, with additional restrictions on lead containing tackle imposed in 1994.

No deaths or debilitation of eagles have been attributed to mercury toxicosis in the GYA, possibly due to the mitigative effects of concurrent high levels of selenium.

Currently, heavy metal contamination of bald eagles in the GYA does not appear to be affecting survival and productivity.

Disease, Parasites, and Injury

During 16 years of nestling banding and 4 years of intensive study in the GYA, incidence of disease and injury encountered was negligible and somewhat randomly distributed. At past and current levels these potential population depressing agents appear to have little consequence for the GYA bald eagle population.

The frequency of intra-specific territorial encounters among adult eagles appears to be increasing. Between 1989 and 1994, 4 encounters resulting in the death of at least one combatant have been noted in the GYA. This phenomenon is probably a function of saturation of declining habitat and exceptional productivity and survival of the population. Additional pairs may be attempting to initiate breeding areas within territories, stimulating agonistic encounters with greater frequency.

CONSERVATION STRATEGY - TARGHEE FOREST PLAN REVISION

Forest wide Goals, Objectives, Standards and Guidelines

Bald eagle goals, objectives, and standards and guidelines are presented in the Forest wide Standards and Guidelines. The standards and guidelines apply to all existing territories and any new territories which become established.

South Fork of the Snake River - Management Prescriptions 2.9.1 and 2.9.2:

Six territories which include National Forest land along the South Fork of the Snake River are included in Management Prescriptions 2.9.1 (South Fork Eligible Scenic River) and 2.9.2 (South Fork Eligible Recreation River). The management direction contained in the Snake River Activity/Operations Plan, as developed between the U. S. Forest Service and the Bureau of Land Management and signed in February 1991, applies to these areas. Maintaining or enhancing critical nesting, foraging and wintering areas for bald eagles is one of the management goals for these prescriptions.

Henry's Fork of the Snake River - Management Prescriptions 2.3, 2.4, 2.5:

Twelve territories which include National Forest land along the Henry's Fork of the Snake River are included in Management Prescriptions 2.3 (Eligible Wild River), 2.4 (Eligible Scenic River), and 2.5 (Eligible Recreation River). Goals for these prescriptions include maintaining and protecting the free flowing character and the outstandingly remarkable values of the river and corridor (1/4 mile from the ordinary high water mark on each side of the river) which qualify it as an eligible river. Lands in these prescriptions are not included in the suitable timber base.

Aquatic Influence Zone Management Prescription 2.8.3:

This prescription applies to the aquatic influence zone associated with lakes, reservoirs, ponds, perennial, and intermittent streams, and wetlands. These aquatic influence zones provide a high level of aquatic protection and maintain ecological functions and processes necessary for the restoration and maintenance of habitat for aquatic and riparian organisms. They also maintain future management options.

Cumulative Effects

The FWS&G's for bald eagle nest zones and primary use areas apply to human activities which the Forest Service has authority to manage. Bald eagle nest zones and primary use areas occur on adjacent National Forests, BLM lands, state and private lands. Along the South Fork of the Snake River, a "Snake River Activity/Operations Plan" was approved by the BLM and the Forest Service in 1991. Bald eagle habitat management was a key component of that Plan.

Management actions of other agencies, such as management of fishing and fish populations by the State Fish and Game agencies, and management of river flows by the Bureau of Reclamation and the SE Idaho irrigators, may have positive or negative affects on the bald eagle population.

However, according to records which we have been able to compile from 1972 to the present, the bald eagle population has increased in SE Idaho.

DETERMINATION OF EFFECTS

May Affect - Not Likely to Adversely Affect

Existing management actions have allowed the bald eagle population in the Greater Yellowstone Management Zone to increase above levels outlined in the Pacific States Bald Eagle Recovery Plan.

Every bald eagle territory which has become established on the Targhee National Forest since the first recorded bald eagle nest in 1975 has been maintained. Proposed management direction will maintain suitable habitat on National Forest lands for all existing bald eagle nesting territories and any new territories which may become established. In areas without territories, management prescriptions will maintain suitable habitat conditions for perching, foraging, and potential future nest sites. Objectives in the Forest Plan Revision include gathering more information about wintering and migration habitat.

Human presence and activities have occurred and will continue to occur within and adjacent to bald eagle territories. As long as humans are present, there will be probable occurrences of short-term displacement. Therefore, the proposed management direction may have some adverse affect on individuals or pairs, but not likely to adversely affect the population.

REFERENCES

Beals, J. and W. Melquist. 1995. Idaho Bald Eagle Nesting Report 1995. Idaho Department of Fish and Game, Boise, ID. 16 pp. + appendices.

Greater Yellowstone Bald Eagle Working Group. 1996. Greater Yellowstone Bald Eagle Management Plan - 1995 Update. Greater Yellowstone Bald Eagle Working Group, Wyoming Game & Fish Dept., Lander, WY 82520. 47 pp.

Targhee National Forest. 1992. Analysis of the Management Situation. St. Anthony, ID. unnumbered pages.

USDI Bureau of Land Management and USDA Forest Service. 1991. Snake River Activity/Operations Plan, Final. BLM, Idaho Falls District/Medicine Lodge Resource Area, and Targhee National Forest/ Palisades Ranger District. 101 pp. + appendices.

U. S. Fish and Wildlife Service. 1986. Pacific Bald Eagle Recovery Plan. U. S. Fish and Wildlife Service, Portland, OR. 163p.

U. S. Fish and Wildlife Service. 1995. Endangered and Threatened Species; Bald Eagle Reclassification; Final Rule. Federal Register, Volume 60, Number 133. pp. 35999-36010.

Whitfield, M. B., et al. 1994. Annual Bald Eagle Productivity Report, Idaho Portion of the Greater Yellowstone Ecosystem. U. S. Bureau of Land Management, U. S. Forest Service - Targhee National Forest, Idaho Department

of Fish and Game, Northern Rockies Conservation Cooperative. unnumbered pages.

Whitfield, M. B., et al. 1995. Annual Bald Eagle Productivity, Final Report, 1995. Idaho Portion of the Greater Yellowstone Ecosystem. Greater Yellowstone Ecosystem Bald Eagle Research Project. Unpublished Report. 26 pp.

TRUMPETER SWAN

Population and Habitat Overview

Trumpeter swans on the Targhee National Forest are part of the Rocky Mountain Population (RMP) of trumpeter swans (Shea 1994 and Maj and Shea 1996). The RMP is comprised of the non-migratory resident Tri-state flocks (which includes the Targhee) and the migratory Canadian flocks. From less than 200 birds in 1930, the RMP increased to about 2,525 birds by 1996, the highest in over a century (this includes about 275 Tri-state summer residents; 2,150 migratory birds from Canada, and about 100 birds transplanted to Oregon and Nevada) (Shea 1994 and Maj and Shea 1996)•

The following summarizes trumpeter swan population changes which have occurred from about 1932 to the present (from Maj and Shea 1996):

> From 1932 to the 1970's the RMP grew from less than 200 birds (100 birds which summered in Canada and 100 birds from the tri-state area) to over 700 birds. Most of this increase was observed within the tri-state flock which had increased to over 500 birds by 1951. While the tri-state flock fluctuated between 450-650 birds (about 72% of the RMP) during the next 2 5 years, the Canadian flock increased to only 200 birds (about 28% of the RMP).
>
> During the 1970's, the Canadian flock started to grow, reaching 2,200 birds (86% of the RMP) by 1994. During the 1970's and 1980's, the tri-state flock continued to fluctuate between 400-600 birds (14% of the RMP).
>
> Since 1990, in an attempt to expand wintering and breeding distribution of the RMP, over 1200 swans have been translocated from the tri-state wintering areas to southern Oregon, western Wyoming, and other SE Idaho areas. Also, winter feeding at Red Rocks Lakes National Wildlife Refuge was terminated.
>
> Due to translocation efforts and termination of winter feeding, the nonmigratory tri-state population has declined to less than 300 swans (239 adult birds counted in September 1994). This is the lowest number since 1945.

Trumpeter swans feed mainly on aquatic plants such as pondweed, waterweed, duckweed, and water milfoil. Cygnets feed mainly on aquatic insects and crustaceans after hatching and gradually include more and more aquatic plants in their diet as they grow.

Nesting habitat consists of marshes, lakes, beaver ponds, and oxbows and backwaters of rivers. They prefer quiet shallow water with dense aquatic plant and invertebrate growth. Tall emergent vegetation is essential for cover for both the adults and brood. In winter, trumpeter swans need areas with plentiful aquatic vegetation that remains ice-free all winter.

Table 3.1 lists 39 lakes and ponds on the Forest which historically may have had suitable habitat characteristics for summer use by swans, and may have historically been used by swans (historical records are not complete to substantiate use on all of the lakes and ponds). However, not all of these

Table 3.1. Summer trumpeter swan nesting activity from 1982 to 1996 (P = lake occupied by a pair of swans but no nesting attempt was recorded; P/# = lake was occupied by a pair, nesting was documented, and the # is the number of young observed; a "-" indicates no recorded swan use on the lake). 1/

Subsection	Location	Year 82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
	IDAHO:															
Island Park	Boundary Pond (Sec. 16, T12N, R44E)	-	-	-	P	-	P/4	-	P/4	P	P/3	P/1	-	P/2	-	-
Island Park	Pond at Sec. 32, T12N, R43E	-	-	-	-	-	-	-	P	-	-	-	-	P	-	-
Island Park	Eccles Marsh (Sec. 33, T12N, R43E) 2/	P	P	-	-	-	-	-	P	-	P	-	-	-	-	-
Island Park	Swan Lake (Sec. 11, T11N, R42E)	P/3	P	P/0	P/2	P/3	P/0	-	P/1	P/4	P/4	P/5	P/3	P/0	P/4	P/6
Island Park	Lily Pond (Sec. 18, T11N, R44E)	-	P	P	P	-	P	P/3	P	P	-	-	-	P	-	-
Island Park	Hatchery Butte (Sec. 22, T11N, R43E)	-	P/5	P/0	P/3	-	-	-	-	-	-	-	-	-	P/5	P
Island Park	Railroad Pond (Sec. 32, T11N, R44E)	P/0	-	P/1	P/3	P/0	-	-	-	P/1	-	P	P	P/2	P/0	P
Island Park	Beaver Pond (Sec. 8, T10N, R44E) 2/	-	-	-	-	-	-	-	P	P	P	P	-	P	P	-
Island Park	Mesa Marsh Sec. 19, T10N, R44E	-	P/0	-	P/2	P/3	P/1	P/0	-	P/2	P	P/4	P	P/4	P	P/3
Madison	Beaver Lake (Sec. 2, T9N, R45E)	-	-	P	-	P	P	P	P	P	-	-	-	-	-	-
Island Park	Bear Lake (Sec. 7, T9N, R45E)	P/2	P/0	P/0	P/1	P/1	P/2	P/1	P/1	P	P/0	P/0	P	-	P/1	P/0
Madison	Swan Lake (Sec. 12, T9N, R45E)	-	-	-	-	-	-	-	-	-	-	-	P	P	-	-
Madison	Steele Lake (Sec. 17, T9N, R46E) (part in ID & part in WY)	-	-	-	-	-	-	-	-	P	-	-	P	-	-	-
Madison	Upper Goose Lake (Sec. 14, T9N, R45E)	-	-	-	-	-	-	-	P	P	P/0	-	-	-	-	-
Madison	Lower Goose Lake (Sec. 22, T9N, R45E)	-	-	-	-	-	P	P	-	-	-	-	-	P	-	P
Madison	Long Meadows (Sec. 22, T9N, R45E)	-	P	-	P/0	-	P/0	P/0	P/0	P	-	-	-	-	-	P/0
Madison	Thompson Hole (Sec. 19, T9N, R46E)	P/0	P/2	P/4	P/0	P/1	P/1	P/4	P/1	P/5	P/0	P/1	-	-	P/2	P/2
Island Park	Twin Lakes (Sec. 20, T9N, R45E)	-	P	P	P/1	-	P	P	-	-	-	-	-	-	-	-
Madison	Tule Lake (Sec. 27, T9N, R45E)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Island Park	Porcupine Lake (Sec. 29, T9N, R45E)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madison	Ponds at Sec. 11, T8N, R45E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madison	Chain Lakes (Sec. 12, T8N, R45E)	-	P	-	P	P	P/0	P/0	-	-	P	P	-	P	P/1	P
Madison	Putney Meadows (Sec. 24, T9N, R45E)	-	-	-	-	-	-	-	P	-	-	-	P	P/0	P/1	-
Madison	Pond at Sec. 19, T9N, R46E	-	-	-	-	-	-	-	-	-	-	-	-	P/4	-	-
Island Park	Last Chance Pond (Sec. 20, T12N, R43E)	-	-	-	-	-	-	-	-	-	P	-	P	P	-	-
Island Park	Tom's Creek (Sec. 36, T13N, R43E)	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-
	WYOMING:															
Madison	Pond at Sec. 21, T48N, R118W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madison	Widgit Lake (Sec. 21, T48N, R118W)	P/0	-	P/0	-	-	-	-	P/0	P/0	-	-	-	-	-	-
Madison	Rock Lake (Sec. 13, T48N, R118W)	-	-	-	-	-	-	P/0	-	P	-	P	-	-	-	-
Madison	Junco Lake (Sec. 18, T48N, R117W)	-	-	-	-	-	-	-	P	P	-	P	-	-	-	-
Madison	Fish Lake (Sec. 18, T48N, R117W)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madison	Indian Lake (Sec. 5, T47N, R118W)	P/0	P/0	P	P/0	P	P/0	P/1	P/0	P/0	P/0	P	P/0	P/0	P/2	P/0
Madison	Bergman Reservoir (Sec. 8, T47N, R118W)	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-
Madison	Pond at Sec. 9, T47N, R118W	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madison	Ernest Lake (Sec. 16, T47N, R118W)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madison	Squirrel Meadows (Sec. 3, T47N, R118W)	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-
Madison	Pond East of Squirrel Meadows (Sec. 1/2, T47N, R118W)	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-
Madison	Ponds at Sec. 14/15, T48N, R118W	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-
Madison	Porter Pond (Sec. 35, T48N, R118W)	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-
	TOTAL SITES OCCUPIED BY A PAIR	7	11	10	12	8	12	11	17	16	12	13	9	15	10	10
	TOTAL YOUNG OBSERVED	5	7	5	12	8	8	9	7	12	7	11	3	10	16	11
	YOUNG OBSERVED-USFWS SEPTEMBER SURVEY DATA								11	11	3	1	2	2	-	-

1/ Data from Targhee National Forest records and 1989-1994 U. S. Fish and Wildlife Service September Survey Data.
2/ Eccles Marsh and Beaver Pond generally have swans present for various lengths of time during the summer, but use is not of sufficient duration to designate these areas as being occupied by a pair.
In 1995, nonbreeders were observed at Swan Lake (Sec. 12, T9N, R45E) and Rock Creek Lake.
In 1996, a nonbreeder was observed at SW 1/4, Sec. 32, T12N, R45E.

lakes or ponds are currently used by swans. Several of the lakes listed in Table 3.1 are managed for recreational fishing with fish stocking by the State Fish and Game Departments. Because of the recreational use, these lakes are not expected to receive nesting use by swans.

For the period 1982 to 1994, 31 of the lakes and ponds listed in Table 3.1 have been used at least during one or more summers; 17 of the lakes and ponds have had at least one nesting attempt; 11 of the lakes and ponds have successfully produced young during one or more years.

There are two sites on the Forest which are not listed in Table 3.1 which may provide new nesting habitat for swans sometime in the future. One of these sites is on the Palisades Ranger District, on the waterfowl wetlands area located near Alpine, Wyoming. The other site is located on the Teton Basin Ranger District, at McReynolds Reservoir. Neither of these sites has been historically used by nesting trumpeter swans, and we do not know if swans will use these sites in the future.

A study has recently been done to evaluate trumpeter swan incubation behavior with measures of habitat quality (Henson and Cooper 1992). This study compared incubation behavior and habitat quality in Alaska with the Tri-state region of Idaho, Wyoming, and Montana. The study found that Alaska female swans remained on nests incubating eggs for longer periods of time (referred to as a high incubation constancy), and had shorter feeding periods, than the Tri-state female swans. The study concluded that the Tri-state region is relatively poor swan habitat because it lacks the food resources necessary to allow female swans to maintain a high incubation constancy in an area with a short and harsh breeding season (Henson and Cooper 1992).

Preferred wintering sites in the tri-state area provide ice-free waters with slow current, extensive beds of aquatic plants, and low levels of human disturbance. In the tri-state area during most winters, icing restricts swans to sites where geothermal waters, springs, or outflows from dams maintain open water. (Maj and Shea 1996)

During the waterfowl hunting season in November and December, RMP swans concentrate in the less disturbed habitats provided by Yellowstone N. P, Harriman State Park, Red Rock Lakes NWR, and the broad arms of Hebgen Lake, Montana (Maj and Shea 1996). As these areas freeze and as human activity diminishes elsewhere, swans make greater use of other sites. About 80% of the RMP winters in SE Idaho along the Henry's Fork of the Snake River and in SE Montana along the Madison River. The remaining 20% winter in western Wyoming and Yellowstone N. P. (Maj and Shea 1996)

The swans which nest on the Targhee have historically been year-around residents, moving to open water areas along the Henrys Fork to winter. The winter population of swans increases substantially with swans coming from northern summer areas in Canada. The Canada population of swans has been increasing (Henson and Cooper 1992; Shea 1994), thus increasing the wintering population on the Henrys Fork each year. There are concerns that the winter population of swans is exceeding the winter carrying capacity (Shea 1994). Because of this concern, the Idaho Department of Fish and Game, USFWS, and other cooperating agencies, developed plans to reduce the number of wintering swans on the Henrys Fork, by relocating them to other suitable winter habitats in Idaho, Oregon, Wyoming and Utah. Beginning in the winter of 1990-1991, the Idaho Department of Fish and Game began capturing and relocating wintering

swans. Since 1990, over 1,200 swans had been relocated to other sites in Idaho, Oregon, Wyoming and Utah (Maj and Shea 1996).

Relocation efforts have not successfully established consistent migration to new wintering sites and several difficult problems remain (Shea 1994):

1. Risk of winter mortality in the Tri-state area remains high as wintering swans continue to increase while carrying capacity has declined. Substantial mortality appears likely when a severe winter occurs.

2. Inadequate security from human disturbance, particularly waterfowl hunting and boating, has reduced success of swans at winter relocation sites and discouraged pioneering to new wintering sites.

3. Artificial feeding during the winter used to occur at the Red Rocks Lakes National Wildlife Refuge. This artificial feeding was terminated in 1992 (Shea 1994). During the transition away from artificial feeding, non-migratory Tri-state resident swans have declined. The viability of these flocks is precarious and could further decline if they fail to locate adequate wintering sites. Without access to artificial feed, non-migratory behavior will likely have low survival value during a severe winter.

4. Migrant Canadian Trumpeters continue to arrive in the Tri-state area in autumn and a severe winter population bottleneck will remain until substantial migration southward from the Tri-state area is restored. Concerns regarding potential conflicts with Tundra swan hunting in Utah and Nevada and with waterfowl hunting on the middle Snake River in southern Idaho have so far blocked development of strategies to increase trumpeter swan use of those habitats.

Current objectives for minimum breeding pairs of trumpeter swans in the Tri-state region and adjacent states are (Maj and Shea 1996):

U. S. Flocks:

Montana/Centennial Valley	38 breeding pairs
Montana/Other	5 breeding pairs
Wyoming/Yellowstone National Park	15 breeding pairs
Wyoming/outside Yellowstone	30 breeding pairs
Idaho/Targhee National Forest	10 breeding pairs
Idaho/other sites	15 breeding pairs
Oregon	25 breeding pairs
Nevada	7 breeding pairs
TOTAL FOR U. S. FLOCKS	145 breeding pairs

Canadian Flocks:

Alberta	80 breeding pairs
British Columbia	60 breeding pairs
Yukon	35 breeding pairs
Northwest Territories	30 breeding pairs
Saskatchewan	5 breeding pairs
TOTAL FOR CANADIAN FLOCKS	210 BREEDING PAIRS

Habitat Evaluation

Consequences Common to All Alternatives.

For the Forest Plan Revision, Forest-wide standards and guidelines (FWS&G's) were developed which apply to trumpeter swan nesting habitat in all alternatives as follows:

I. Maintain suitable trumpeter swan nesting habitat conditions including (but not limited to) the following lakes and ponds: Boundary Pond, Swan Lake, Lily Pond, Hatchery Butte, Railroad Pond, Mesa Marsh, Bear Lake, Upper Goose Lake, Long Meadows, Thompson Hole, Twin Lakes, Chain Lakes, Widgit Lake, Rock Lake, Indian Lake, Putney Meadows, Unnamed Pond (Sec. 19, T9N, R46E). (S)

   A. Change livestock grazing through management or fencing when grazing is adversely affecting trumpeter swan use or productivity. (G)

   B. No vegetation management will occur within 300 feet of the lake or pond shoreline unless necessary to improve riparian habitat conditions favorable for trumpeter swans. Management will occur after the swans have left the lake or pond. (S)

   C. Maintain constant water levels; allow no drawdowns from May 1 to September 30 when not in conflict with pre-existing water rights. (G)

   D. Discourage dispersed recreation activity at these lakes and ponds between April 1 and September 30. Close these areas to recreation activity if this activity is adversely affecting trumpeter swan use or productivity. (G)

   E. Implement habitat improvement projects at these lakes and ponds, such as dredging to maintain proper water depths and aquatic vegetation control. (G)

Application of these standards and guidelines will maintain suitable habitat conditions for all existing nesting pairs plus any new nesting pairs which may become established.

Cumulative Effects.

Many of the lakes and ponds historically used by trumpeter swans are naturally filling in with sediment and are becoming too shallow for swan use. Active management will be needed to help maintain suitable water depths for swans, or the lakes and ponds will not be useable.

Determination of Effects

The proposed management actions may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

References

Henson, P. and J. A. Cooper. 1992. Differences in Trumpeter Swan Incubation Behavior: A Measure of Habitat Quality. Draft paper being prepared for the Journal of Wildlife Management. 19pp + Figures.

Maj, M. and R. Shea. 1996. Habitat Conservation Assessment and Strategy for the Rocky Mountain Population of Trumpeter Swans (Cygnus buccinator) with Emphasis on the Tri-State Population. USFWS Prelisting/Recovery Program, Boise, ID. 17pp.

Shea, Ruth E. 1994. Conservation Assessment for the Rocky Mountain Population of Trumpeter Swans (Cygnus buccinator). USDA Forest Service Regions 1 and 4, and Department of Biological Sciences, ISU, Pocatello, ID. 35pp.

Targhee National Forest. 1992. Analysis of the Management Situation. St. Anthony, ID. unnumbered pages.

COMMON LOON

Habitat and Population Overview

Loons primarily eat fish, but they also eat amphibians, crayfish, leeches, aquatic insects, and some vegetation. Loons breed on large (greater then 9 acres), clear lakes at elevations of 5,000 to 9,000 feet. Loons need lakes large enough to provide adequate runways for flight, deep enough to sustain fish populations, and clear enough for them to see their prey (they rely on their sight for foraging). A loon's breeding territory will contain a secluded shoreline area that will protect the nest from wave-action and an area of shallow water with emergent vegetation within a protected cove or bay for chick rearing. Loons frequently nest on islands. Loons avoid lakes with high levels of human activity, fluctuating water levels, turbid water, and no protected coves.

During 1991, 22 lakes and reservoirs were surveyed for common loons on the Forest (Atkinson 1991). Loons were observed on seven lakes; however, no successful reproduction was documented (Atkinson 1991). The seven lakes with loon observations were:

Palisades Reservoir - Big Elk Creek Bay (Sec. 24, T1S, R45E)
Island Park Reservoir (T12N, R42E)
Grassy Lake Reservoir (Sec. 17, T48N, R116W)
Lake of the Woods (Sec. 24, T48N, R117W)
Loon Lake (Sec. 19, T48N, R117W)
Moose Lake (Sec. 25, T48N, R118W)
Indian Lake (Sec. 5, T47N, R118W)

One adult loon was observed on Bergman Reservoir (Sec. 8, T47N, R118W) in June of 1994 during a trumpeter swan survey. Loons have also been observed at Horseshoe Lake (Sec. 26, T10N, R45E) in 1994 and 1995 (B.Aber, personal communication). Loons have also been observed at Henry's Lake.

Reservoirs and lakes which have significant drawdowns during the summer months likely do not provide suitable breeding habitat for common loons (Atkinson 1991). The following lakes and ponds have been identified as capable of providing suitable breeding habitat for common loons:

Idaho:
Thompson Hole (Sec. 19, T9N, R46E)

Wyoming:
Junco Lake (Sec. 18, T48N, R117W)
Fish Lake (Sec. 18, T48N, R117W)
Loon Lake (Sec. 19, T48N, R117W)
Moose Lake (Sec. 25, T48N, R118W)
Indian Lake (Sec. 5, T47N, R118W)
Pond at Sec. 9, T47N, R118W

On the Targhee National Forest, successful reproduction by common loons has been documented at the following locations (IDFG 1992 - Idaho Conservation Data Center, Nongame and Endangered Wildlife Program and Targhee National Forest records):

Indian Lake:	1985 - a pair and 1 chick observed 1989 - a pair and 1 chick observed 1994 - a pair and 2 chicks observed
Thompson Hole:	1988 - a pair and 1 chick observed
Bergman Reservoir:	1988 - a pair and 1 chick observed

For lands adjacent to the Targhee National Forest, common loons have been documented on the Madison R. D. (Beaverhead N. F.)/ Hebgen Lake R. D. (Gallatin N. F.), Sand Creek Wildlife Management Area, South Fork of the Snake River, Grey's River R. D. (Bridger-Teton N. F.), anc* Yellowstone and Grand Teton National Parks,

In the Greater Yellowstone Area, loons nest on several lakes in the southwestern section of Yellowstone National Park, and on a few lakes throughout the rest of the Park, in Grand Teton National Park, and on the Targhee National Forest (Clark et al. 1989). In Yellowstone N. P., there are an estimated 15 pairs of common loons, with about 50 percent of the pairs nesting each year; Park personnel believe the population may be slowly increasing (T. McEneaney, personal communication, 1997).

Common loon habitat on the Forest and in the adjacent National Parks occurs at the highest elevation of any other loon populations in North America (Atkinson 1991). Therefore, the time period for nesting and rearing of young is probably shorter than other areas in North America (Atkinson 1991 and Clark et al. 1989).

Habitat Evaluation

Consequences Common to All Alternatives.

At the present time, an Idaho Interagency Habitat Conservation Assessment and Conservation Strategy is being prepared for common loons. This assessment and strategy has not yet gone through any of the internal review by Idaho Fish and Game, BLM, Forest Service, and USFWS personnel on the Idaho Conservation Effort technical committee (C. Harris, personal communication, 1997). There is uncertainty about habitat quality on the Targhee N. F. The proposed Forest-wide management direction for common loon habitat in all alternatives is:

Objectives - Common Loon Habitat

I. Evaluate the potential to provide and maintain suitable breeding habitat for common loons at these sites: Indian Lake, Thompson Hole, Bergman Reservoir, Junco lake, Fish Lake, Loon Lake, Moose Lake, Unnamed Pond (Sec. 9, T47N, R118W).

II. Develop common loon management plans for the above sites if the evaluation indicates there is potential to provide and maintain suitable breeding habitat.

All of these sites are within the Bechler/Teton grizzly bear management unit. There is no scheduled timber management proposed in any

alternative near any of these sites. Aquatic influence zone management prescriptions apply to all of these sites in all alternatives.

Livestock grazing, recreation activity, and other human activities are not measurably different among the alternatives for these sites.

Current habitat conditions will be perpetuated at these sites in all alternatives.

Determination of Effects

The proposed management actions may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

References

Atkinson, E. C. 1991. Distribution and Status of Harlequin Ducks (Histrionicus histrionicus) and Common Loon (Gavia immer) on the Targhee National Forest. Idaho Department of Fish and Game, Boise, Idaho and Targhee National Forest, St. Anthony, Idaho. 27pp + appendices.

Clark, T. W., A. H. Harvey, R. D. Dorn, D. L. Genter, C. Groves, eds. 1989. Rare, Sensitive, and Threatened Species of the Greater Yellowstone Ecosystem. Northern Rockies Conservation Cooperative, Montana Natural Heritage Program, The Nature Conservancy, and Mountain West Environmental Services. 153p.

Targhee National Forest. 1992. Analysis of the Management Situation. St. Anthony, ID. unnumbered pages.

HARLEQUIN DUCK

Habitat and Population Overview

Harlequin ducks are sea ducks that winter in coastal areas in the Pacific Ocean and nest along swiftly flowing mountain streams in inland areas. They arrive on Idaho streams in March, April and May (Cassirer and Groves 1991).

For nesting and brood rearing, these ducks require relatively undisturbed, low gradient, meandering mountain streams with dense shrubby riparian areas, and woody debris for nesting and brood rearing. They also need log jams, and overhanging vegetation for cover and loafing areas. Specific habitat requirements include streams with gradients less than 3 degrees, greater than 50 percent streamside shrub cover, and at least 3 loafing sites (mid-stream boulders or log jams) per 33 feet of stream.

Harlequin duck nests are well-hidden, and most investigators have been unable to locate nests. Nests are usually close to streams; may be on the ground in dense vegetation, in rocky cavities, piles of woody debris, undercut stream banks, cliff cavities above the stream, or hollow trees or snags in the adjacent forest (Cassirer, et al. 1993).

Harlequin duck observations have been made at the following locations (IDFG 1992 - Idaho Conservation Data Center, Nongame and Endangered Wildlife Program; Atkinson 1991; Atkinson and Atkinson 1990; Cassirer and Groves 1990 and 1991; Bud Alford, personal communication, 1995):

Big Elk Creek:	1989 - a pair and single drake observed. 1990 - 2 pairs and a single drake observed. 1995 - 2 drakes and a hen observed.
Teton Creek:	1990 - a male and female observed. 1991 - female and 2 young observed.
Darby Creek:	1990 - a pair, a single drake, and 1 lone young observed.
McCoy Creek:	1989 - 1 1/2 mi. above confluence with Jensen Cr. (no other information provided for this observation)

Not all of the streams with potential suitable habitat have been surveyed.

For lands adjacent to the Targhee National Forest, harlequin ducks have been documented on the Hebgen Lake R. D. (Gallatin N. F.), and in Yellowstone and Grand Teton National Parks.

The harlequin duck population on the Forest is part of the Pacific Northwest population. The estimated breeding population in the Pacific Northwest is as follows: Washington - 274, Oregon - 50, Idaho - 50, Montana - 110, Wyoming -40, for a total of 514 (Harlequin Duck Working Group 1993). The documented breeding population on the Forest is part of the Idaho and Wyoming breeding populations. Monitoring of populations in Idaho and Wyoming indicate they are stable (Harlequin Duck Working Group 1993).

Management concerns generally relate to human activities along stream reaches where documented harlequin duck nesting and brood rearing activity occurs.

Habitat Evaluation

Consequences Common to All Alternatives.

For the Forest Plan Revision, Forest-wide standards and guidelines (FWS&G's) were developed which apply to all streams with documented harlequin duck breeding activity follows:

I. Avoid establishing new trails, new roads, or new recreation facilities within 300 feet of any stream reach with documented harlequin duck breeding activity. (G)

There is no scheduled timber harvesting adjacent to any of the streams with documented breeding activity.

Livestock grazing, existing recreation activity (existing trails, recreation facilities, dispersed use, etc.), and other human activities are not measurably different among the alternatives for the sites with documented reproduction.

Existing habitat conditions will be maintained in all alternatives.

Determination of Effects

The proposed management actions may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

References

Atkinson, E. C. and M. L. Atkinson. 1990. Distribution and Status of Harlequin Ducks (Histrionicus histrionicus) on the Targhee National Forest. Idaho Department of Fish and Game, Boise, Idaho and Targhee National Forest, St. Anthony, Idaho. 18pp + appendices.

Atkinson, E. C. 1991. Distribution and Status of Harlequin Ducks (Histrionicus histrionicus) and Common Loon (Gavia immer) on the Targhee National Forest. Idaho Department of Fish and Game, Boise, Idaho and Targhee National Forest, St. Anthony, Idaho. 27pp + appendices.

Cassirer, E. F. and C. R. Groves. 1990. A Summary of Harlequin Duck Sightings in Idaho, 1989. Idaho Department of Fish and Game, Boise, Idaho. 10pp.

Cassirer, E. F. and C. R. Groves. 1991. Harlequin Duck Ecology in Idaho: 1987-1990. Idaho Department of Fish and Game, Boise, Idaho. 93pp.

Cassirer, E. F., et al. 1993. Status of Harlequin Ducks (Histrionicus histrionicus) in North America. Report of the Harlequin Duck Working Group. 83pp.

Harlequin Duck Working Group. 1993. Status of Harlequin Ducks in North America. No publisher indicated. Photocopy Report. 83pp.

Targhee National Forest. 1992. Analysis of the Management Situation. St. Anthony, ID. unnumbered pages.

SPOTTED FROG

Habitat and Population Overview

Spotted frogs are most likely found near permanent water such as marshy edges of ponds or lakes, in algae-grown overflow pools of streams, or in wet areas with emergent vegetation (Gomez 1994). They may move considerable distances from permanent water after breeding, often frequenting mixed conifer and subalpine forests, grasslands, and brushlands of sage and rabbitbrush if puddles, seeps or other water is available (Gomez 1994). Spotted frogs are thought to hibernate in holes near springs or other areas where water remains unfrozen and is constantly renewed. A muddy or soupy substrate in rivers or ponds is preferred by the spotted frog for hibernation (Gomez 1994).

A spotted frog population was studied in Yellowstone National Park during the 1950's (Turner 1960). Findings from that study include the following:

Hibernation occurred along permanent stream courses and permanent ponds.

After hibernation, frogs moved from stream courses to upland areas to breed in permanent or ephemeral ponds. These movements occurred along watercourses (both permanent and intermittent) and cross country. Movements occurred primarily at night. Recorded movement distances ranged up to 4,200 ft. Movements back to permanent stream courses and permanent ponds occurred during the summer and fall as the ephemeral streams and ponds dried up.

Frogs were found in water temperatures ranging from 1 to 27.2 C. Water temperatures above 26 C appeared to promote movement to other areas with cooler water temperatures. Water temperatures below 10 C reduced activity.

Larval mortality varied greatly from year to year, depending upon precipitation. Precipitation affected the length of time ephemeral ponds contained water, which affected whether eggs and larvae had long enough time to develop and transform. Permanent ponds provided more consistent habitat conditions for egg and larval survival, but not all permanent ponds were used for breeding each year.

Population size fluctuated greatly, depending upon breeding success.

Estimated adult life span was 10-12 years. Sex ratio was near equal through year 5, but after year 5 there were 3.5 times more older females than older males.

A spotted frog inventory/study has been in progress on the Forest for several years. Results of this work include the following:

"We telemetered one frog at Moose Creek pond during June and telemetered three more in September. All frogs were always within two meters of water. None left riparian habitats and almost all were associated with ponds until September when they left the ponds for nearby streams. Ponds within 50 m of permanent streams were an important combination of habitat characteristics for them." (Bartelt and Peterson 1993)

The occurrence of spotted frogs did not demonstrate a significant relationship with elevation, pH, or conductivity (Clark and Peterson 1994).

Clark et al (1993 and 1994 plus errata page) reported there appeared to be no significant relationship between spotted frog occurrence and evidence of grazing. They stressed however, that no controlled study was performed investigating the effects of grazing on spotted frogs, and therefore appropriate caution should be expressed when evaluating the importance of the results.

We do not know the total distribution or abundance of spotted frogs on the Forest. Figure 2.1 displays spotted frog distribution at 51 sites within the Forest (from Clark and Peterson 1994). Additional sites not shown on Figure 2.1 include Idaho Creek (T13N R35E Sec. 12), Middle Three-Mile (T12N R37E Sec. 8), and Modoc Creek (T14N R39E Sec. 36). Spotted Frogs are not found in every drainage on the Forest, and in the drainages where they are found, they may not be distributed throughout the entire drainage. At this time, spotted frogs have not been observed in the Big Hole/Palisades Subsection and the Caribou Subsection.

For lands adjacent to the Targhee National Forest, spotted frogs have been documented in Yellowstone National Park and Grand Teton National Park.

Results of the 1992 and 1993 amphibian survey (Clark and Peterson 1994), plus results of spotted frog research conducted in Yellowstone N. P. (Turner 1960), illustrate that population detectibility and abundance can vary widely between years. Turner (1960) documented that population size fluctuated greatly, depending upon breeding success; and breeding success was tied to the persistence of water at breeding sites, which was regulated by weather conditions. Clark and Peterson (1994) considered two factors, temperature and water availability, as the most important components of population detectibility. They suggest these two factors may contribute to significant yearly variation in reproductive activity and foraging/dispersal patterns.

Habitat Evaluation

Consequences Common to All Alternatives.

For the Forest Plan Revision, a Forest-wide objective was developed which applies to all spotted frog habitat in all alternatives as follows:

I. Maintain riparian vegetation in desired vegetative condition.

Consequences Which Vary by Alternative.

Five aquatic influence zone management prescriptions have been developed for the seven alternatives. We evaluated how each alternative may affect spotted frog habitat as follows.

Influence of Buffer Widths. Spotted frogs may move considerable distances from permanent streams where they hibernate to ponds where they breed (Turner 1960; Gomez 1994). These movements may occur along permanent and intermittent stream courses and cross-country. For movements along stream courses, all of the buffer widths

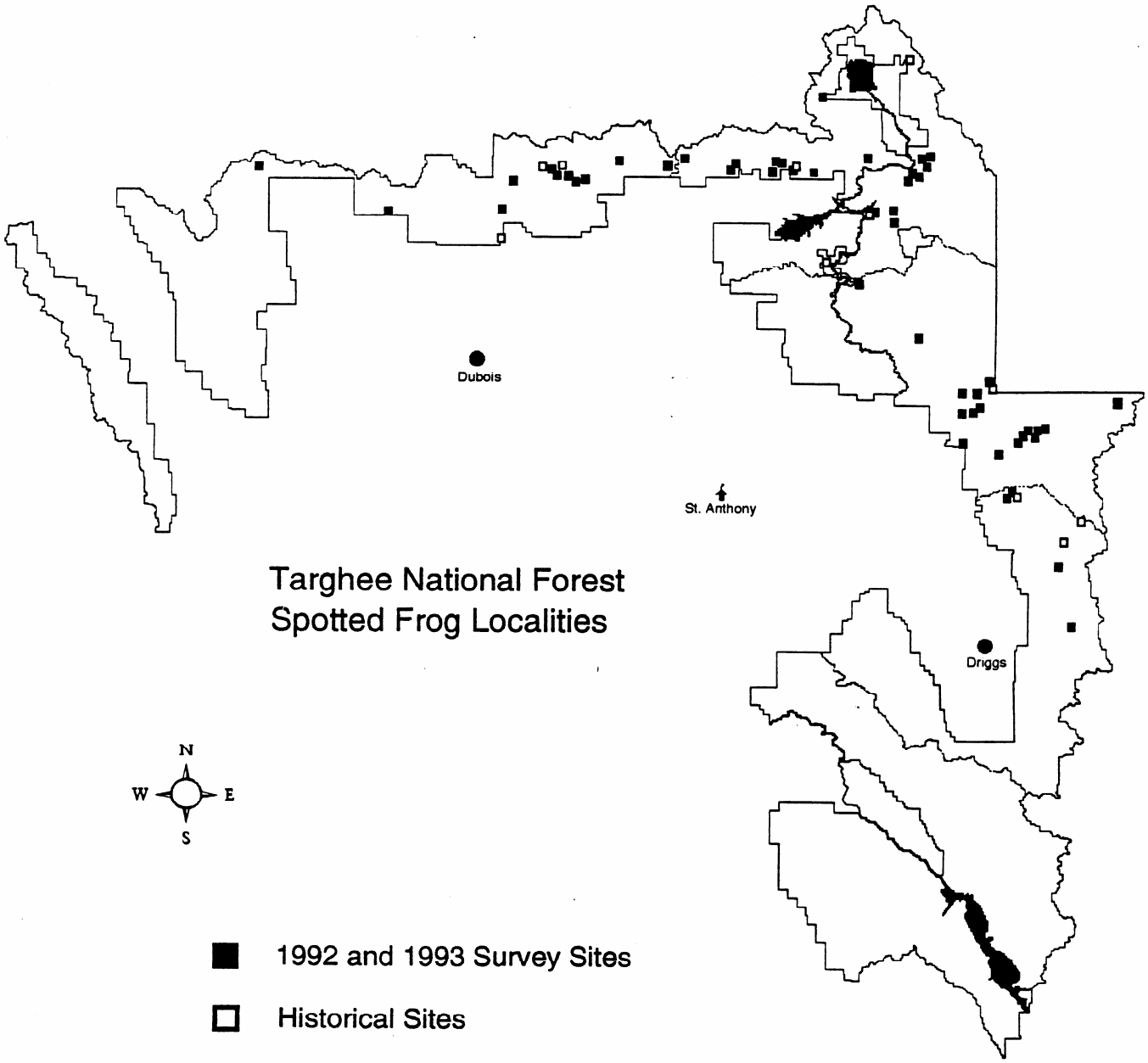


Figure 2.1
(from Clark, R. J. and C. R. Peterson. 1994)

associated with the various alternatives would help provide habitats with low levels of human disturbance. When cross-country travel occurs, the various buffer widths would not provide any benefit.

When not making movements between hibernacula and breeding areas, spotted frogs are highly aquatic. Bartelt and Peterson (1993) noted that spotted frogs were always within 2 meters of water; none left riparian habitats; almost all were associated with ponds until September when they left the ponds for nearby streams; and ponds within 50 m of permanent streams were an important combination of habitat characteristics. Based on this, all of the buffer widths in each of the alternatives would help provide habitats with low levels of human disturbance.

Timber Harvesting/Management. There is no data in the literature to suggest that spotted frogs are dependent upon a particular forested vegetation condition. Therefore, there is no difference between the alternatives in terms of affects from changes in forest vegetation due to timber harvesting. However, there may be a disturbance affect from the presence of human activity associated with timber harvesting. Therefore, Alternatives 1 and 2 which allow scheduled timber harvesting in the aquatic influence zones may have site-specific, short-term impacts on spotted frog populations and habitat.

Livestock Grazing. A recent conservation assessment for spotted frogs (Gomez 1994) listed concerns about possible threats to spotted frogs and habitat from livestock or grazing. Concerns included such things as reduced vegetation in riparian areas, potential increases in water temperature, trampling, etc. However, no documented studies were cited in the conservation assessment in support for these concerns.

On the Targhee National Forest, Clark et al (1993 and 1994 plus errata page) reported there appeared to be no significant relationship between spotted frog occurrence and evidence of grazing. They stressed however, that no controlled study was performed investigating the effects of grazing on spotted frogs, and therefore appropriate caution should be expressed when evaluating the importance of the results.

Recreation and Other Activities. Acres affected by developed recreational sites and special use permit recreation sites within the aquatic influence zone would vary little by alternative. All alternatives would have approximately 1100 acres of disturbance associated with these sites within the aquatic influence zone. Not all of these acres would be spotted frog habitat.

Riparian Habitat Condition and Trend. In Alternative 1, 86 percent of the riparian acres are meeting desired vegetative condition (DVC's) or will be improving towards DVC's. In Alternatives 2, 3, and 3-M, 90 percent of the riparian acres are meeting DVC's or will be improving towards DVC's. In Alternatives 4, 5, and 6, 93 percent of the riparian acres are meeting DVC's or will be improving towards DVC's.

Mitigation

Site-specific mitigation, including site-specific BMP's, will be developed at the project level to offset management impacts. Standards and guidelines in this document, plus over-riding requirements from other legal sources (e.g., Clean Water Act) are meant to help riparian and aquatic resources approach their desired future conditions.

All alternatives are expected to maintain the current spotted frog distribution on the Forest. General habitat conditions are expected to improve with all alternatives, with the most improvement occurring in Alternatives 4, 5 and 6.

Determination of Effects

The proposed management actions may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

References

Bartelt, Paul E. and Charles R. Peterson. 1993. Progress Report - Riparian Microhabitat Utilization by Spotted Frogs (Rana pretiosa) and Western Toads (Bufo foreas) on the Targhee National Forest. Dept. of Biological Sciences, Id. State Univ. and Id. Museum of Natural History, Pocatello, ID. 16p. + tables & figures.

Clark, R. J., C. R. Peterson, P. E. Bartelt. 1993. The Distribution, Relative Abundance, and Habitat Associations of Amphibians on the Targhee National Forest. Dept. of Biological Sciences, Id State Univ. and Id. Museum of Natural History, Pocatello, ID.

Clark, R. J. 1994. Errata Page - Changes and Corrections to the 1992 Final Report.

Clark, R. J. and C. R. Peterson. 1994. Yearly Variation in Amphibian Sampling on the Targhee National Forest. Idaho State Univ. and The Idaho Museum of Natural History, Pocatello, ID. 149pp.

Gomez, Dale. 1994. Conservation Assessment for the Spotted Frog (Rana pretiosa) in the Intermountain Region - USFS. USDA Forest Service, Intermountain Region, Ogden, UT. 30p.

Targhee National Forest. 1992. Analysis of the Management Situation. St. Anthony, ID. unnumbered pages.

Turner, F. B. 1960. Population Structure and Dynamics of the Western Spotted Frog, Rana pretiosa Baird & Girard, in Yellowstone Park, Wyoming. Ecological Monographs 30(3):251-278.

White-faced Ibis

Habitat and Population Overview

White-faced ibis inhabit wetland habitats, preferably marshes and sloughs or ponds surrounded by low bushes or willows, and emergent vegetation such as bulrushes (DeGraff, et al. 1991).

White-faced ibis are only peripherally found in the Greater Yellowstone Area (Clark et al. 1989). Nesting colonies which are closest to the Greater Yellowstone Area include: 1) a bulrush marsh south of Cokeville, Wyoming, near the Idaho state line; 2) Grays Lake National Wildlife Refuge (NWR); 3) Bear River NWR near Montpelier, Idaho; 4) Market Lake Wildlife Management Area (WMA) near Roberts, Idaho; 5) Mud Lake WMA near Terreton, Idaho; 6) Camas NWR near Hamer, Idaho; 7) American Falls Reservoir on the Snake River in southern Idaho (Clark et al. 1989).

Habitat Evaluation

At this time, we do not anticipate having white-faced ibis on the Forest, other than occasional flocks or individuals during migration. No specific habitat analysis is being done.

Determination of Effects

The proposed management actions may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

References

Clark, T. W., A. H. Harvey, R. D. Dorn, D. L. Genter, C. Groves, eds. 1989. Rare, Sensitive, and Threatened Species of the Greater Yellowstone Ecosystem. Northern Rockies Conservation Cooperative, Montana Natural Heritage Program, The Nature Conservancy, and Mountain West Environmental Services. 153p.

DeGraff, R. M., V. E. Scott, R. H. Hamre, L. Ernst, S. H. Anderson. 1991. Forest and Rangeland Birds of the United States - Natural History and Habitat Use. USDA Forest Service, Agric. Handbook 688. 625p.

Whooping Crane Habitat

Habitat and Population Overview

Whooping crane breeding grounds consist of marshes, sloughs, prairie potholes, and lake margins with abundant emergent vegetation in isolated, undisturbed areas. They also forage in adjacent upland areas.

During the 1980's the USFWS tried to establish a flock of whooping cranes at Grays Lake National Wildlife Refuge in SE Idaho by allowing sandhill cranes to hatch and raise young whooping cranes. The sandhill cranes did successfully hatch and raise whooping cranes, but to date the whooping cranes have shown no evidence of pairing and breeding. Since pairing and breeding have not occurred, the USFWS has stopped trying to use sandhill cranes as foster parents for whooping cranes (Targhee N. F. 1992).

In 1992, twelve whooping cranes remained at the Refuge (Targhee N. F. 1992). In the spring of 1995, only four whooping cranes returned from their wintering grounds; one of the four remained at the refuge while the other three moved to other locations possibly in Montana or Wyoming (USFWS, personal communication, July 25, 1995).

The USFWS has no plans to replace the whooping cranes once they are gone from the Grays Lake National Wildlife Refuge (USFWS, personal communication, July 25, 1995).

Habitat Evaluation

At this time, we do not anticipate having whooping cranes on the Forest, and no specific habitat analysis for whooping cranes has been done in the Targhee Forest Plan Revision.

References

Targhee National Forest. 1992. Analysis of the Management Situation. St. Anthony, ID. unnumbered pages.

ELK HABITAT EFFECTIVENESS (EHE)

Introduction

EHE is defined as the percentage of available habitat that is usable by elk outside the hunting season (Lyon and Christensen 1992). For this EHE analysis, it is the spring, summer, and early fall habitat that is usable by elk outside the general elk rifle hunting seasons. EHE is not a measure of elk populations and it is not a measure of habitat carrying capacity (Lyon and Christensen 1992).

Beginning in August, 1992, and continuing to September, 1993, several workshops and meetings were held to develop analysis procedures for EHE which would be used for the Targhee Forest Plan Revision. (Copies of all workshop and meeting notes are in the planning files). Two habitat parameters were determined to be most important for EHE analysis:

1) Motorized road and trail densities (measured in mi./sq.mi). As motorized road and trails densities increase, EHE declines. Figure 4.1 displays this relationship, which is based on research by Dr. L. Jack Lyon (Lyon 1983).

2) Elk hiding cover (measured as a percentage of an area in cover). Hiding cover is defined as vegetation capable of hiding 90 percent of a standing adult elk from the view of a human at a distance equal to or less than 200 feet (Lyon and Christensen 1992). Figure 4.2 displays this relationship, which is based on the judgment of professional biologists involved in elk workshops on the Targhee N. F.

The following EHE model was developed, incorporating both motorized road and trail densities and hiding cover:

$$[(\text{EHE roads and trails})^{3} (\text{EHE cover})^{25}]^{*}$$

In this model, the influence of motorized use on roads and trails is given increased weight based on Dr. L. Jack Lyons research which indicates that motorized access accounted for 70 to 80 percent of potential elk use in an area (Lyon 1979, 1983, 1984, personal communication).

Also, this model uses the geometric mean of these factors to incorporate the "compensatory function" (Thomas et al, 1988).

An EHE of 100 percent (usually displayed as 1.0) would require no motorized roads and trails within an analysis area, and 50 to 60 percent of the analysis area being in hiding cover.

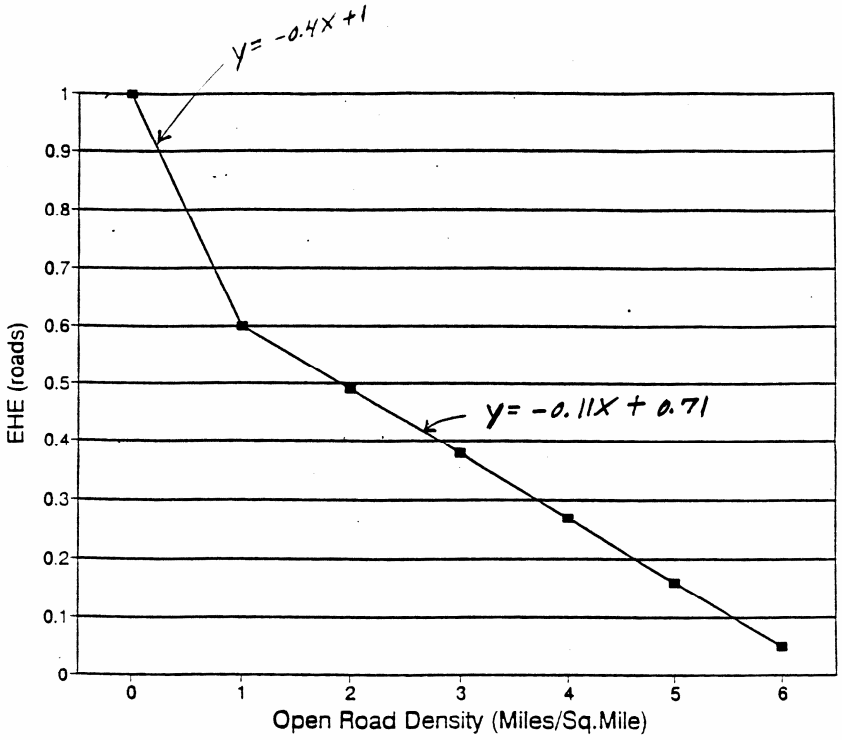


Figure 4.1

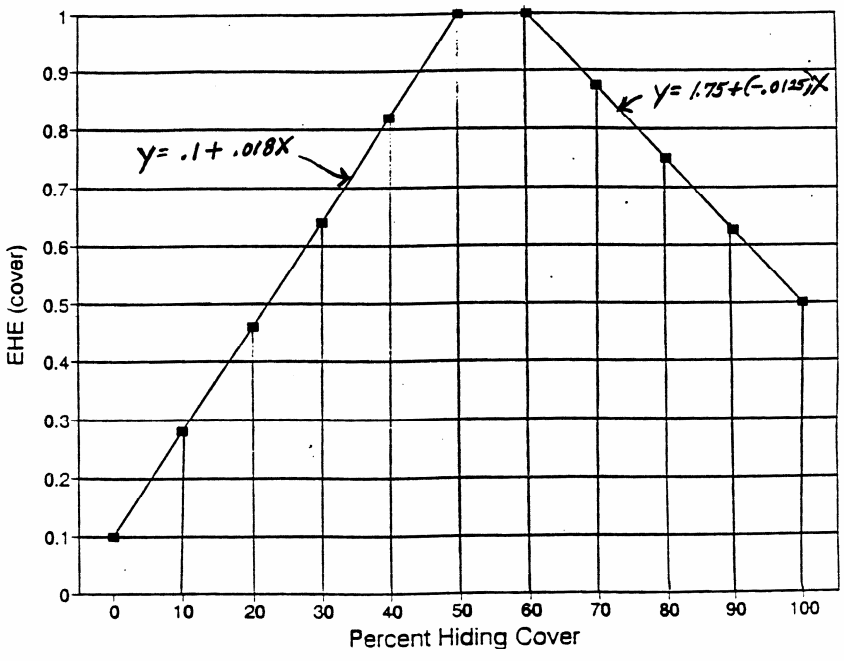


Figure 4.2

EHE modeling for the Forest Plan Revision is being done on a watershed basis. Figure 4.3 displays the 38 principal watersheds being used for the analysis. Idaho Department of Fish and Game (IDFG) and Wyoming Game and Fish Department (WGF) recommended separate analysis for Idaho and Wyoming portions of watersheds split by the State line. This has been done.

Motorized Road and Trail Density Analysis

To obtain the needed information for miles of roads and trails being used by motorized vehicles, we had the Ranger Districts in cooperation with the local State Fish and Game officers inventory each principal watershed. Criteria used for this inventory was as follows:

Criteria for Road and Trail Miles for EHE Analysis.

1. Accurately describe & quantify the existing situation for motorized use on roads, trails, open ridges, etc. during the spring-summer-fall season.

2. The analysis will be done by principal watersheds. Include all roads and trails within each of the watersheds and within the outer boundary of the Forest. Include all system roads and trails and all "ghost" (nonsystem) roads and trails. Include ridges and open terrain that are used by motorized vehicles during the spring-summer-fall season (estimate miles for these cases).

   For system roads and trails, use the official road or trail number. If an official number does not exist (i.e. ghost roads and trails), use a logical name or number that means something.

3. Open miles of roads and trails means miles of roads and trails (including system, ghost, open ridges, etc.) that are used by motorized vehicles on an average of one to two vehicles per week during the spring-summer-fall season. Do not rely on the Forest/District travel plan map - some closures are not effective and we want to account for this.

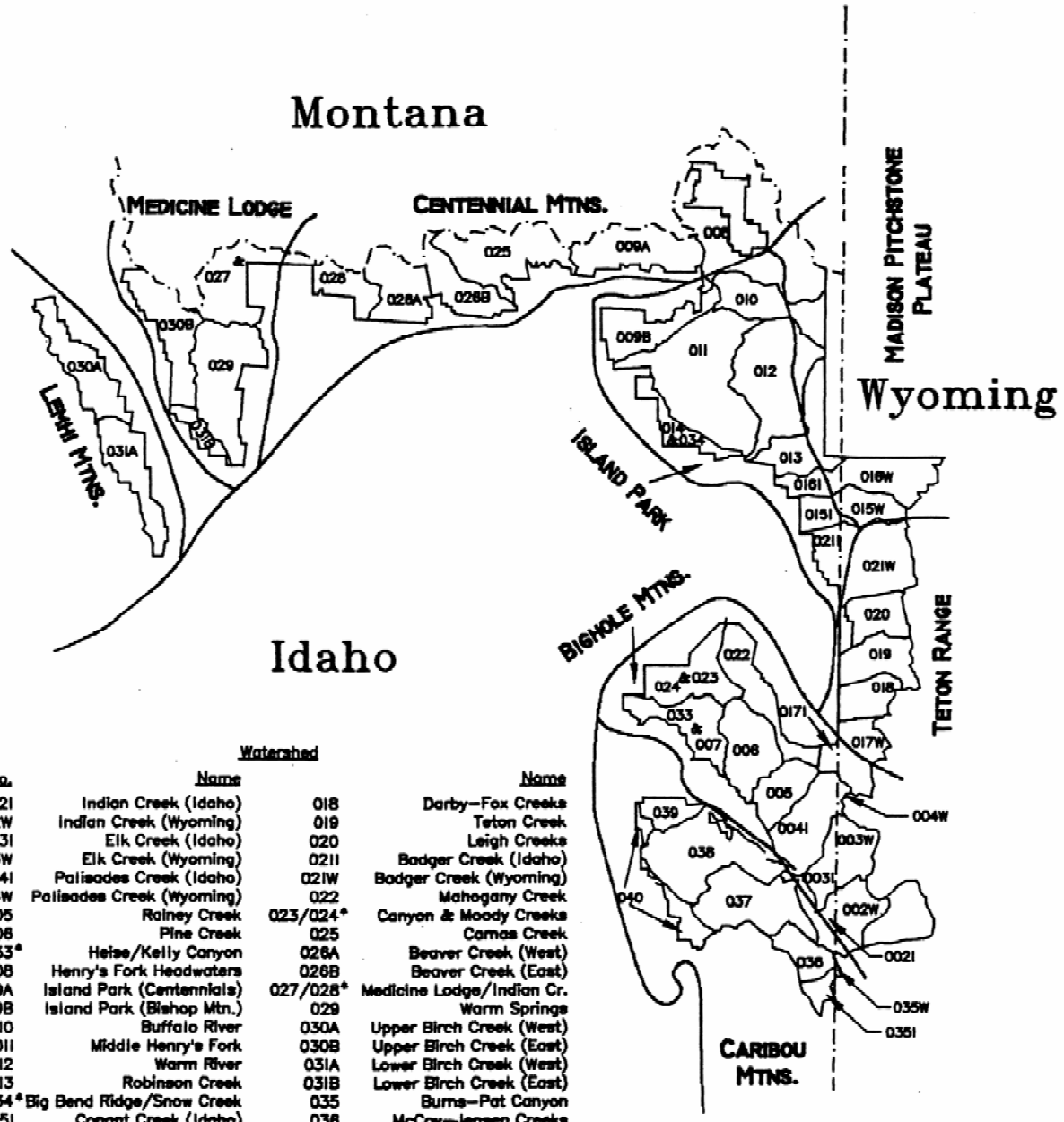
   Closed miles of roads and trails means miles of roads and trails that are not used by motorized vehicles, or the average use is less than one to two vehicles per week, during the spring-summer-fall season.

   Roads and trails that have motorized use for short periods of time, such as a one or two week period for tree planting, are not counted as open road and trail miles.

4. For roads and trails that fall on a watershed boundary, put the miles in the tables for both watersheds - AND NOTE IN THE COMMENTS SECTION OF THE TABLE THAT SO MANY MILES ARE ALSO BEING COUNTED IN WATERSHED XXX. This will double count some road and trail miles, and we want to keep track of how much double counting is occurring.

This inventory identified all of the roads and trails currently being used by motorized vehicles on the Forest. This established the existing condition.

Targhee National Forest
Principal Watersheds



Watershed

No.	Name	No.	Name
002I	Indian Creek (Idaho)	018	Darby–Fox Creeks
002W	Indian Creek (Wyoming)	019	Teton Creek
003I	Elk Creek (Idaho)	020	Leigh Creeks
003W	Elk Creek (Wyoming)	021I	Badger Creek (Idaho)
004I	Palisades Creek (Idaho)	021W	Badger Creek (Wyoming)
004W	Palisades Creek (Wyoming)	022	Mahogany Creek
005	Rainey Creek	023/024▲	Canyon & Moody Creeks
006	Pine Creek	025	Camas Creek
007/033▲	Heise/Kelly Canyon	026A	Beaver Creek (West)
008	Henry's Fork Headwaters	026B	Beaver Creek (East)
009A	Island Park (Centennials)	027/028▲	Medicine Lodge/Indian Cr.
009B	Island Park (Bishop Mtn.)	029	Warm Springs
010	Buffalo River	030A	Upper Birch Creek (West)
011	Middle Henry's Fork	030B	Upper Birch Creek (East)
012	Warm River	031A	Lower Birch Creek (West)
013	Robinson Creek	031B	Lower Birch Creek (East)
014/034▲	Big Bend Ridge/Snow Creek	035	Burns–Pat Canyon
015I	Conant Creek (Idaho)	036	McCoy–Jensen Creeks
015W	Conant Creek (Wyoming)	037	Elk–Bear Creeks
016I	Fall River (Idaho)	038	Fall Creek
016W	Fall River (Wyoming)	039	Pritchard Creek
017I	Trail Creek (Idaho)	040	Brockman Creek
017W	Trail Creek (Wyoming)		

Note:

▲ Both used for watershed analysis in EIS; combined for elk habitat analysis as shown on Forest Plan Map 22.

Figure 4.3.

Not To Scale

For each alternative, the Districts identified which roads and trails would be open for motorized use, restricted for motorized use, or reclaimed.

Hiding Cover Analysis

Hiding cover definition: Vegetation capable of hiding 90 percent of a standing adult elk from the view of a human at a distance equal to or less than 200 feet (Lyon and Christensen 1992),

Dr. L. Jack Lyon developed a computer model called "HIDE2" to evaluate hiding cover using standard timber inventory data (Lyon 1987). We used HIDE2 to establish existing hiding cover values for vegetation types on the Targhee.

Before the computer model could be used, relationships for crown widths of live trees needed to be established.

> **Crown widths of young live trees:** The dbh (diameter at breast height) and crown width relationship of young trees is an important component of the HIDE2 model. We measured dbh and crown widths of trees in unthinned clearcuts and underneath mature tree canopies, and developed regressions for these parameters. The relationship for unthinned clearcuts is displayed in Figure 4.4, and the relationship for understory trees is displayed in Figure 4.5. We used these dbh:crown width relationships for 0.1 to 3 inch dbh trees. Trees from 0.1 to 3 inch dbh retain lower crowns which contribute to elk hiding cover.
>
> **Live trees 4 inches dbh and larger:** For all trees 4 inches dbh and larger, just the dbh width (bole or trunk of the tree) was used for the model. We used the assumption that trees developed under normal stand conditions (that is, the trees were not 'open grown' trees), and that lower branches would be naturally pruned off when the trees reached 4 inches dbh and larger. The result being, only boles (trunks) of the trees contribute to elk hiding cover.

Dead trees: We did not use standing dead tree data for the computer model. Standing dead trees do add to hiding cover in timber stands, but we noticed that dead lodgepole pine trees were often falling at extremely fast rates and could not be counted in providing cover for very long.

We used the 400+ forest inventory plot data (see Figure 18) and computed hiding cover values for each plot using the HIDE2 model. The forest inventory plots were then correlated with the vegetation classification amd mapping being used for the Forest Plan Revision. Attachment B displays the hiding cover analysis results for each of the forest inventory plots.

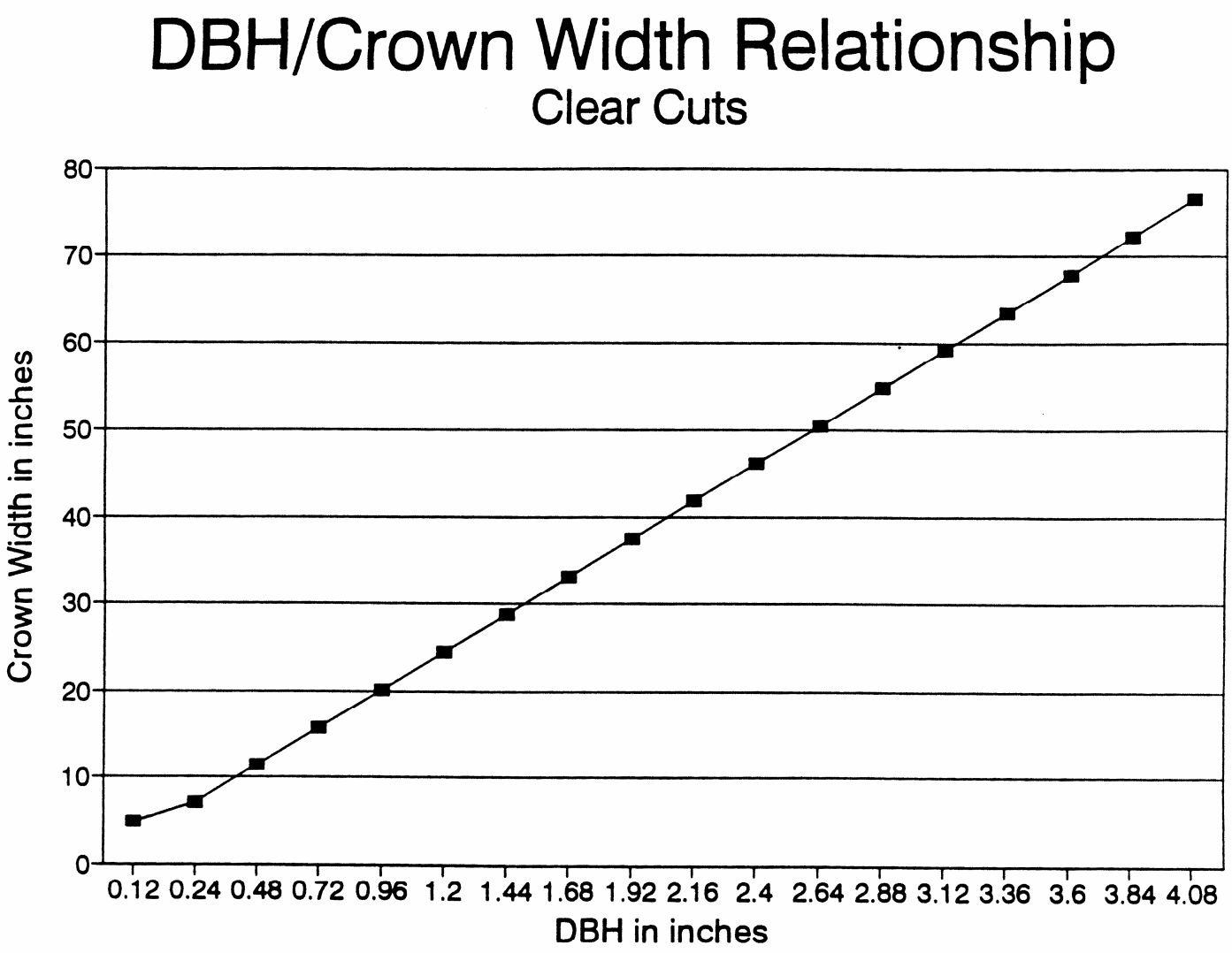

DBH/Crown Width Relationship
Clear Cuts
Crown Width in inches
80
70
60
50
40
30
20
10
0
0.12 0.24 0.48 0.72 0.96 1.2 1.44 1.68 1.92 2.16 2.4 2.64 2.88 3.12 3.36 3.6 3.84 4.08
DBH in inches

Figure 4.4

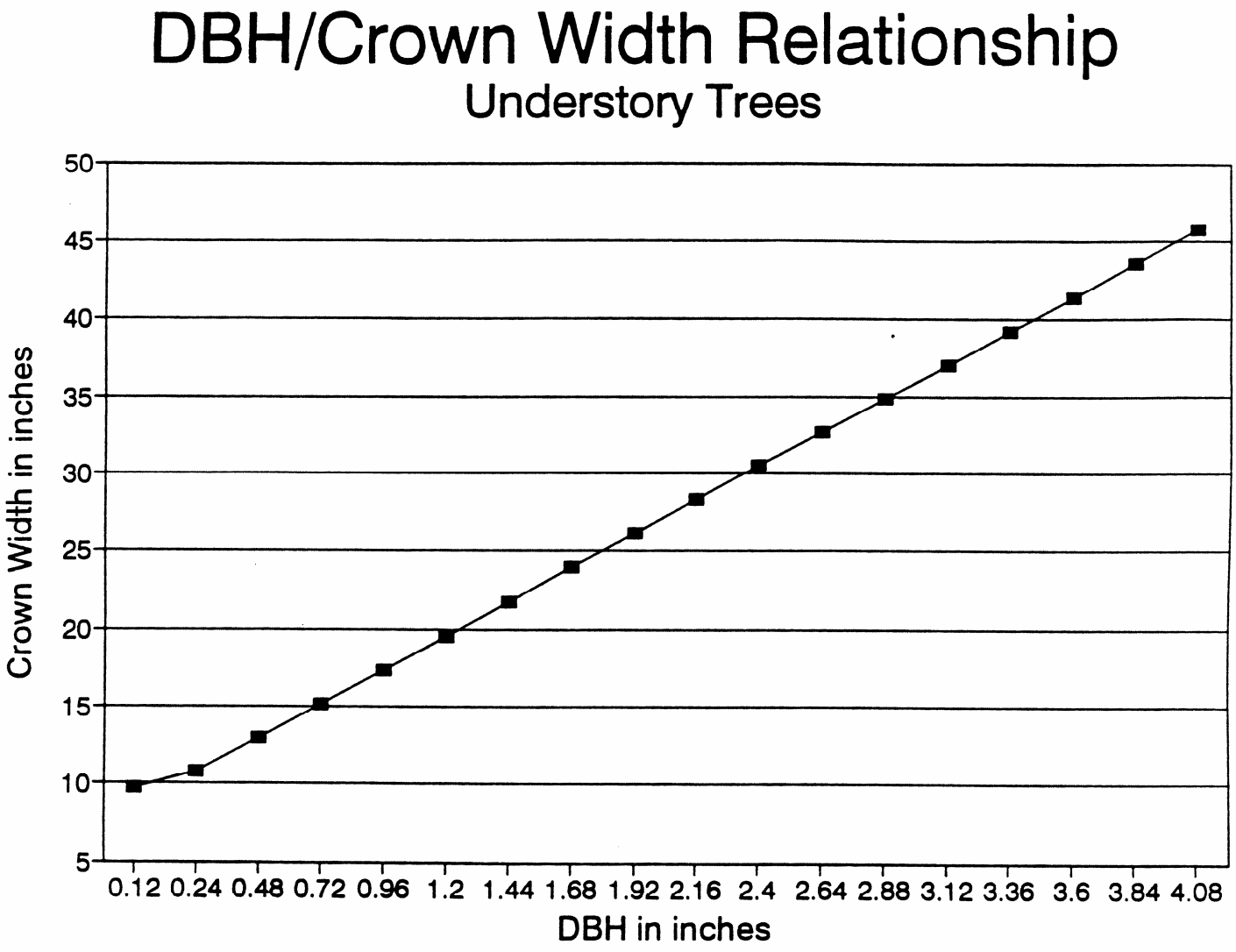

DBH/Crown Width Relationship
Understory Trees
Crown Width in inches
50
45
40
35
30
25
20
15
10
5
0.12 0.24 0.48 0.72 0.96 1.2 1.44 1.68 1.92 2.16 2.4 2.64 2.88 3.12 3.36 3.6 3.84 4.08
DBH in inches

Figure 4.5

Based on this analysis, the following elk hiding cover values are being used for elk habitat effectiveness analysis in the Targhee Forest Plan Revision:

Vegetation Strata	Percent Hiding Cover	Explanation
All non-forest vegetation strata	0%	There is general agreement that most non-forest vegetation strata do not provide any hiding cover value for elk
All non-stocked forest strata	0%	The average mean hiding cover values range between 1.0 to 5.6%.
All seedling size-class forest strata	0%	The mean hiding cover values range between 1.0 to 97%; this wide range is due to the height and crown development between young seedling stands and seedling stands nearing the sapling stage. For Forest-wide analysis, it is impossible to keep track of seedling stand ages and growth. To avoid overestimating cover, we agreed with State Fish and Game Departments that all seedling stands would be considered as zero hiding cover.
All sapling size-class forest strata	60%	The mean hiding cover values range between 4 to 100%; this wide range is due to the height and crown development between young sapling stands and older sapling stands. For Forest-wide analysis, it is impossible to keep track of sapling stand ages and growth. The average mean hiding cover values were about 60% so we decided to use this value for all sapling stands.
Pole sizeclass forest strata	15%	Aspen pole stands. The mean hiding cover values for aspen pole stands in the forest inventory plots ranged between 6 and 22%. The average mean hiding cover value was 15%.
	40%	Douglas-fir, lodgepole, and mixed conifer pole stands. The mean hiding cover value for lodgepole pole stands in the forest inventory plots ranged between 1 and 100%. The average mean hiding cover value was 39%. There were no Douglas-fir pole stands and only one mixed conifer pole stand in the forest inventory plots; until more information is obtained, we have applied the lodgepole pole cover value.

Vegetation Strata	Percent Hiding Cover	Explanation
Spruce/fir pole stands.		There were no spruce/fir pole stands in the forest inventory plots. Since mature spruce/fir stands have higher cover values than other mature forest types, a slightly higher cover value was given to the spruce/fir pole sizeclass.
Mature sizeclass forest strata	10%	Mature aspen stands. The mean hiding cover values for mature aspen stands in the forest inventory plots ranged between 3 and 18%. The average mean hiding cover value was 10%.
	30%	Mature Douglas-fir and mixed conifer stands. The mean hiding cover value in the forest inventory plots ranged between 0 and 100%. The average mean hiding cover value was 35%.
	40%	Mature lodgepole stands. The mean hiding cover value in the forest inventory plots ranged between 0 and 100%. The average mean hiding cover value was 38%.
	60%	Mature spruce/fir stands. The mean hiding cover value in the forest inventory plots ranged between 0 and 100%. The average mean hiding cover value was 56%.

This analysis illustrates that on the average, no vegetation type on the Targhee consistently and fully meets the definition of hiding cover. Vegetation that does not fully meet the definition of hiding cover still provides cover for elk. It was agreed that vegetation which provides partial cover for elk should be accounted for according to the amount of hiding cover value it contributes. This was done as follows: 1,000 acres of mature spruce/fir that averages 60 percent hiding cover would be accounted as 600 acres of hiding cover (1,000 acres X .60 = 600 acres).

Using the Forest GIS vegetation database, the acres of all non-forest and forest vegetation strata in each principal watershed were determined. Using the hiding cover values established above, the percent hiding cover for each watershed was calculated. This information and analysis is presented for each principal watershed in Attachment C.

Attachment D presents additional information about hiding cover relationships with various forest sizeclass and tree density parameters.

EHE for the Existing Condition

Table 4.1 presents a summary of the open motorized road and trail densities for each principal watershed for the existing condition, and the associated EHE value based on Figure 4.1.

Table 4.2 presents a summary of the percent hiding cover for each principal watershed for the existing condition, and the EHE value for cover based on Figure 4.2.

Table 4.3 presents the total EHE value for each principal watershed for the existing condition based on the formula:

$$[(\text{EHE roads and traxls})^{3} (\text{EHE cover})^{.25}]$$

For the existing condition, EHE ranges from .46 (Watersheds 026A-Beaver Cr. West and 026B-Beaver Cr. East) to .74 (Watershed 016W-Fall River Wyoming). The average EHE for the entire Forest is .57 (this is a weighted average based on the size of each of the principal watersheds).

EHE for the Alternatives

Each Ranger District identified roads and trails which would be open for motorized use, restricted, or reclaimed for each alternative. Table 4.4 displays the open roads and open motorized trails for each principal watershed for each alternative. Table 4.5 shows the EHE value for motorized access for each alternative based on the densities in Table 4.4 and Figure 4.1.

Changes in hiding cover for each watershed were calculated as follows:

Growth of existing stands of trees: For existing sapling stands, we estimated that one-half the acres would reach pole size stand conditions by the end of the decade. For existing seedling stands, we estimated that one-half the acres would reach sapling size stand conditions by the end of the decade.

Timber Harvesting: Forplan was used to provide an estimate of the acres of timber harvesting in each principal watershed for each alternative during the decade. Table 4.6 displays these acres. (Note: These acres do not include firewood harvesting or acres of post and pole timber harvesting. Since we did not include dead trees in the analysis of hiding cover, firewood harvesting would not change the hiding cover calculations. Post and pole timber harvesting may result in changes in hiding cover on a site specific basis.)

Using the acres of estimated timber harvesting for each watershed from Table 4.6, plus the growth of existing stands of trees, we calculated a new percent cover for each watershed at the end of the decade. Details of this analysis are displayed in Attachment E. Table 4.7 displays hiding cover for each principal watershed for each alternative at the end of the decade. Table 4.8 displays the EHE cover value for each watershed for each alternative for the end of the decade, based on the percent hiding cover from Table 4.7 and Figure 4.2.

Table 4.9 presents the total EHE value for each principal watershed for each alternative based on the formula:

$$[(\text{EHE roads and trails})^{3} (\text{EHE cover})^{.25}]^{*}$$

The average EHE for the entire Forest ranges from .60 for Alternative 1 to .70 for Alternative 6.

The overall effect from improving EHE is a probable wider distribution of elk into areas previously underutilized because those areas previously had higher motorized access densities and densities are now reduced. Improving EHE does not mean elk populations will increase.

References

Lyon, L. Jack and A. G. Christensen. 1992. A partial glossary of elk management terms. USDA Forest Service, Intermountain Research Station, General Tech. Report INT-288. Missoula, MT. 6pp.

Lyon, L. Jack. 1987. HIDE2: Evaluation of elk hiding cover using a personal computer. USDA Forest Service, Intermountain Research Station, Research Note INT-365. Missoula, MT. 2pp.

Lyon, L. Jack. 1984. Field tests of elk/timber coordination guidelines. USDA Forest Service, Intermountain Forest & Range Experiment Stations, Ogden, UT. INT-325. 10pp.

Lyon, L. Jack. 1983. Road density models describing habitat effectiveness for elk. J. of Forestry, Sept. 1983. pp. 592-595.

Lyon, L. Jack. 1979. Habitat effectiveness for elk as influenced by roads and cover. J. of Forestry, Oct. 1979. pp. 658-660.

Thomas, Jack W., et al. 1988. Habitat effectiveness index for elk on Blue Mountain Winter Ranges. USDA Forest Service, Gen. Tech. Rpt. PNW-GTR-218.

Table 4.1. Existing Condition Open Road and Open Motorized Trail Route Density for each Watershed, and EHE Value.

1	2	3	4	5	6	7	8	9
Subsection	Watershed Number	Total Square Miles	Open Road Miles	Open Road Density mi/sq mi	Open Motorized Trail Miles	Open Motorized Trail Density mi/sq mi	OROMTRD mi/sq mi	EHE VALUE
Big Hole/Palisades	002I	13.35	15.20	1.14	3.40	0.25	1.39	0.56
Big Hole/Palisades	002W	41.69	17.50	0.42	43.50	1.04	1.46	0.55
Big Hole/Palisades	003I	34.47	16.90	0.49	5.10	0.15	0.64	0.74
Big Hole/Palisades	003W	38.35	0.00	0.00	11.30	0.29	0.29	0.88
Big Hole/Palisades	004I&W	79.85	19.10	0.24	7.90	0.10	0.34	0.86
Big Hole/Palisades	005	42.60	6.50	0.15	33.20	0.78	0.93	0.63
Big Hole/Palisades	006	70.12	23.60	0.34	66.50	0.95	1.28	0.57
Big Hole/Palisades	007 & 033	67.51	37.30	0.55	56.70	0.84	1.39	0.56
Centennial Mtns. & Island Park	008	184.53	219.80	1.19	17.80	0.10	1.29	0.57
Centennial Mtns.	009A	96.10	55.40	0.58	0.00	0.00	0.58	0.77
Island Park	009B	62.92	92.50	1.47	0.00	0.00	1.47	0.55
Island Park & Madison Plateau	010	68.59	124.10	1.81	7.00	0.10	1.91	0.50
Island Park	011	185.27	247.10	1.33	1.80	0.01	1.34	0.56
Island Park & Madison Plateau	012	130.94	105.10	0.80	31.80	0.24	1.05	0.59
Island Park & Madison Plateau	013	72.66	62.90	0.87	0.50	0.01	0.87	0.65
Island Park	014 & 034	48.20	38.70	0.80	0.00	0.00	0.80	0.68
Island Park & Madison Plateau	015I	25.57	25.60	1.00	0.00	0.00	1.00	0.60
Madison Plateau	015W	32.91	15.40	0.47	10.30	0.31	0.78	0.69
Island Park & Madison Plateau	016I	26.25	26.20	1.00	0.00	0.00	1.00	0.60
Madison Plateau	016W	66.46	30.00	0.45	8.10	0.12	0.57	0.77
Big Hole/Palisades	017I	10.70	7.60	0.71	5.30	0.50	1.21	0.58
Teton Range & Big Hole/Palisades	017W	52.03	13.60	0.26	7.70	0.15	0.41	0.84
Teton Range	018	37.00	11.50	0.31	2.30	0.06	0.37	0.85
Teton Range	019	51.84	15.10	0.29	12.90	0.25	0.54	0.78
Teton Range	020	45.82	17.70	0.39	12.40	0.27	0.66	0.74
Island Park & Madison Plateau	021I	27.53	25.40	0.92	8.70	0.32	1.24	0.57
Teton Range & Madison Plateau	021W	90.85	41.00	0.45	12.20	0.13	0.59	0.77
Big Hole/Palisades	022	66.68	49.40	0.74	50.30	0.75	1.50	0.55
Big Hole/Palisades	023 & 024	69.55	95.30	1.37	64.60	0.93	2.30	0.46
Centennial Mtns.	025	105.86	98.40	0.93	23.70	0.22	1.15	0.58
Centennial Mtns.	026A	69.22	91.40	1.32	20.70	0.30	1.62	0.53
Centennial Mtns.	026B	63.86	104.30	1.63	14.10	0.22	1.85	0.51
Medicine Lodge & Centennial Mtns	027 & 028	121.99	85.10	0.70	35.40	0.29	0.99	0.60
Medicine Lodge	029	113.45	97.00	0.86	12.40	0.11	0.96	0.61
Lemhi	030A	67.27	49.70	0.74	8.00	0.12	0.86	0.66
Medicine Lodge	030B	76.26	50.40	0.66	16.50	0.22	0.88	0.65
Lemhi	031A	75.84	25.10	0.33	11.80	0.16	0.49	0.81
Medicine Lodge	031B	23.14	31.90	1.38	0.50	0.02	1.40	0.56
Caribou	035	15.42	14.20	0.92	1.20	0.08	1.00	0.60
Caribou	036	27.51	19.50	0.71	10.30	0.37	1.08	0.59
Caribou	037	102.05	27.60	0.27	68.50	0.67	0.94	0.62
Caribou	038	123.97	102.80	0.83	66.40	0.54	1.36	0.56
Caribou	039	24.09	15.20	0.63	16.00	0.66	1.30	0.57
Caribou	040	29.41	35.80	1.22	0.00	0.00	1.22	0.58
			2303.90		786.80			

Col. 1: Subsection.
Col. 2: Watershed number.
Col. 3: Total square miles in each watershed; includes private, state, and BLM lands.
Col. 4: Road miles used by motorized vehicles during the spring, summer, fall seasons; includes "ghost" roads.
Col. 5: Column 4 divided by column 3.
Col. 6: Trail miles used by motorized vehicles during the spring, summer, fall seasons; includes "ghost" trails.
Col. 7: Column 6 divided by column 3.
Col. 8: Column 5 plus column 7.
Col. 9: This is the EHE road & trail value based on column 8 and Figure 1.

Table 4.2. Existing Condition Hiding Cover for each Principle Watershed and EHE Value for Cover.

1	2	3	4	5	6
Subsection	Wtrshed No.	National Forest Acres	Hiding Cover Acres	Percent Hiding Cover	EHE Value Cover
Lemhi	030A	42,627	5,136	12.05	0.32
Lemhi	031A	48,530	5,445	11.22	0.30
Medicine Lodge	030B	48,013	5,271	10.98	0.30
Medicine Lodge	031B	14,369	1,723	11.99	0.32
Medicine Lodge	029	72,259	4,605	6.37	0.21
Medicine Lodge & Centennial Mtns.	027/028	76,739	7,109	9.26	0.27
Centennial Mtns.	026A	41,287	4,899	11.87	0.31
Centennial Mtns.	026B	39,184	5,306	13.54	0.34
Centennial Mtns.	025	65,716	13,505	20.55	0.47
Centennial Mtns.	009A	61,507	14,417	23.44	0.52
Centennial Mtns. & Island Park	008	118,344	31,603	26.70	0.58
Island Park & Madison Plateau	010	43,906	11,580	26.37	0.57
Island Park	009B	40,267	10,510	26.10	0.57
Island Park	011	118,565	28,886	24.36	0.54
Island Park	014/034	30,767	9,584	31.15	0.66
Island Park & Madison Plateau	012	83,740	22,716	27.13	0.59
Island Park & Madison Plateau	013	46,802	14,592	31.18	0.66
Island Park & Madison Plateau	016I	16,800	4,789	28.51	0.61
Madison Plateau	016W	42,397	13,312	31.40	0.67
Island Park & Madison Plateau	016I&W	59,197	18,101	30.58	0.65
Island Park & Madison Plateau	015I	16,353	4,630	28.31	0.61
Madison Plateau	015W	21,045	5,397	25.65	0.56
Island Park & Madison Plateau	015I&W	37,398	10,027	26.81	0.58
Island Park & Madison Plateau	021I	17,580	4,316	24.55	0.54
Teton Range & Madison Plateau	021W	58,119	14,201	24.43	0.54
Is. Park & Madison & Teton Range	021I&W	75,699	18,517	24.46	0.54
Teton Range	020	29,284	4,594	15.69	0.38
Teton Range	019	32,548	4,241	13.03	0.33
Teton Range	018	23,515	2,902	12.34	0.32
Teton Range & Big Hole/Palisades	017W	33,063	5,828	17.63	0.42
Big Hole/Palisades	017I	6,601	1,604	24.30	0.54
Teton Range & Big Hole/Palisades	017I&W	39,664	7,432	18.74	0.44
Big Hole/Palisades	022	41,038	8,745	21.31	0.48
Big Hole/Palisades	023/024	44,030	10,215	23.20	0.52
Big Hole/Palisades	007/033	42,168	6,161	14.61	0.36
Big Hole/Palisades	006	44,703	7,369	16.48	0.40
Big Hole/Palisades	005	27,261	4,925	18.07	0.43
Big Hole/Palisades	004I&W	49,909	7,826	15.68	0.38
Big Hole/Palisades	003I	20,593	3,014	14.64	0.36
Big Hole/Palisades	003W	24,544	4,153	16.92	0.40
Big Hole/Palisades	003I&W	45,137	7,167	15.88	0.39
Big Hole/Palisades	002I	8,112	1,569	19.34	0.45
Big Hole/Palisades	002W	25,412	3,943	15.52	0.38
Big Hole/Palisades	002I&W	33,524	5,513	16.44	0.40
Caribou	035	9,016	1,245	13.81	0.35
Caribou	036	16,673	3,479	20.87	0.48
Caribou	037	65,255	10,970	16.81	0.40
Caribou	038	75,346	9,358	12.42	0.32
Caribou	039	15,336	1,955	12.75	0.33
Caribou	040	17,859	2,258	12.64	0.33

Footnotes:
Col. 1: Subsection.
Col. 2: Watershed number.
Col. 3: National Forest acres.
Col. 4: Hiding cover acres are from hiding cover analysis using the HIDE2 Cover Model developed by Dr. L. Jac
Col. 5: Column 4 divided by column 3.
Col. 6: This is the EHE cover value based on column 5 and Figure 2.

Table 4.3. Summary for Elk Habitat Effectiveness (EHE) for each Principal Watershed for the Existing Condition.

1	2	3	4	5		
Subsection	Wtrshed No.	EHE Value Cover	EHE Value Road & Trail	TOTAL EHE VALUE	Total Square Miles	Weighted Average
Big Hole/Palisades	002I	0.45	0.56	0.53	13.35	7.08
Big Hole/Palisades	002W	0.38	0.55	0.50	41.69	20.90
Big Hole/Palisades	003I	0.36	0.74	0.62	34.47	21.30
Big Hole/Palisades	003W	0.40	0.88	0.72	38.35	27.71
Big Hole/Palisades	004I&W	0.38	0.86	0.70	79.85	55.99
Big Hole/Palisades	005	0.43	0.63	0.57	42.60	24.39
Big Hole/Palisades	006	0.40	0.57	0.52	70.12	36.58
Big Hole/Palisades	007/033	0.36	0.56	0.50	67.51	33.85
Centennial Mtns. & Island Park	008	0.58	0.57	0.57	184.53	105.64
Centennial Mtns.	009A	0.52	0.77	0.70	96.10	67.08
Island Park	009B	0.57	0.55	0.55	62.92	34.92
Island Park & Madison Plateau	010	0.57	0.50	0.52	68.59	35.44
Island Park	011	0.54	0.56	0.55	185.27	102.81
Island Park & Madison Plateau	012	0.59	0.59	0.59	130.94	77.25
Island Park & Madison Plateau	013	0.66	0.65	0.65	72.66	47.41
Island Park	014/034	0.66	0.68	0.67	48.20	32.53
Island Park & Madison Plateau	015I	0.61	0.60	0.60	25.57	15.41
Madison Plateau	015W	0.56	0.69	0.65	32.91	21.55
Island Park & Madison Plateau	016I	0.61	0.60	0.60	26.25	15.82
Madison Plateau	016W	0.67	0.77	0.74	66.46	49.43
Big Hole/Palisades	017I	0.54	0.58	0.57	10.70	6.10
Teton Range & Big Hole/Palisades	017W	0.42	0.84	0.71	52.03	36.75
Teton Range	018	0.32	0.85	0.67	37.00	24.64
Teton Range	019	0.33	0.78	0.63	51.84	32.61
Teton Range	020	0.38	0.74	0.63	45.82	28.70
Island Park & Madison Plateau	021I	0.54	0.57	0.56	27.53	15.48
Teton Range & Madison Plateau	021W	0.54	0.77	0.70	90.85	64.02
Big Hole/Palisades	022	0.48	0.55	0.53	66.68	35.45
Big Hole/Palisades	023/024	0.52	0.46	0.47	68.55	32.51
Centennial Mtns.	025	0.47	0.58	0.55	105.86	58.25
Centennial Mtns.	026A	0.31	0.53	0.46	69.22	32.08
Centennial Mtns.	026B	0.34	0.51	0.46	63.86	29.43
Medicine Lodge & Centennial Mtns.	027/028	0.27	0.60	0.49	121.99	59.95
Medicine Lodge	029	0.21	0.61	0.47	113.45	53.01
Lemhi	030A	0.32	0.66	0.55	67.27	37.05
Medicine Lodge	030B	0.30	0.65	0.54	76.26	40.86
Lemhi	031A	0.30	0.81	0.63	75.84	47.92
Medicine Lodge	031B	0.32	0.56	0.49	23.14	11.27
Caribou	035	0.35	0.60	0.52	15.42	8.09
Caribou	036	0.48	0.59	0.56	27.51	15.41
Caribou	037	0.40	0.62	0.56	102.05	56.71
Caribou	038	0.32	0.56	0.49	123.97	60.36
Caribou	039	0.33	0.57	0.50	24.09	11.98
Caribou	040	0.33	0.58	0.50	29.41	14.81
					2878.68	0.57

Footnotes:
Col. 1: Subsection.
Col. 2: Watershed number.
Col. 3: This is the EHE cover value from Table 4.2.
Col. 4: This is the EHE value for roads and trails from Table 4.1.
Col. 5: Total EHE value.

Table 4.4. EHE - Motorized Access in Principal Watersheds for Each Alternative.

Wsh #	Alt. 1 OROMT miles	Alt. 1 Density mi/sq.mi	Alt. 2 OROMT miles	Alt. 2 Density mi/sq.mi	Alt. 3 OROMT miles	Alt. 3 Density mi/sq.mi	Alt. 3M OROMT miles	Alt. 3M Density mi/sq.mi	Alt. 4 OROMT miles	Alt. 4 Density mi/sq.mi	Alt. 5 OROMT miles	Alt. 5 Density mi/sq.mi	Alt. 6 OROMT miles	Alt. 6 Density mi/sq.mi	Square Miles in Wtrshd
002I	22.30	1.67	22.30	1.67	17.20	1.29	18.30	1.37	17.20	1.29	17.20	1.29	16.00	1.20	13.35
002W	48.30	1.16	48.30	1.16	45.70	1.10	47.00	1.13	38.60	0.93	34.10	0.82	17.90	0.43	41.69
003I	27.20	0.79	26.80	0.78	21.00	0.61	21.00	0.61	22.60	0.66	22.60	0.66	23.20	0.67	34.47
003W	8.20	0.21	4.00	0.10	4.00	0.10	4.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	38.35
004I&W	23.40	0.29	19.80	0.25	20.40	0.26	22.30	0.28	20.80	0.26	18.70	0.23	18.60	0.23	79.85
005	33.60	0.79	18.80	0.44	18.80	0.44	19.10	0.45	18.80	0.44	18.50	0.43	3.70	0.09	42.60
006	70.70	1.01	52.40	0.75	53.10	0.76	55.70	0.79	46.30	0.66	27.10	0.39	24.10	0.34	70.12
007	92.60	1.37	68.40	1.01	73.00	1.08	80.70	1.20	72.60	1.08	33.30	0.49	29.00	0.43	67.51
008	201.80	1.09	238.90	1.29	225.20	1.22	193.70	1.05	190.30	1.03	188.60	1.02	201.70	1.09	184.53
009A	50.50	0.53	60.40	0.63	50.40	0.52	50.40	0.52	36.20	0.38	50.80	0.53	45.30	0.47	96.10
009B	69.90	1.11	87.60	1.39	69.60	1.11	73.50	1.17	77.80	1.24	77.80	1.24	74.50	1.18	62.92
010	148.20	2.16	140.00	2.04	113.30	1.65	110.50	1.61	112.20	1.64	101.50	1.48	113.60	1.66	68.59
011	267.60	1.44	266.60	1.44	232.80	1.26	223.50	1.21	211.60	1.14	142.70	0.77	194.70	1.05	185.27
012	143.10	1.09	152.50	1.16	104.70	0.80	100.10	0.76	91.60	0.70	80.30	0.61	85.10	0.65	130.94
013	68.90	0.95	71.00	0.98	56.20	0.77	56.00	0.77	53.30	0.73	51.80	0.71	51.40	0.71	72.66
014	40.40	0.84	38.70	0.80	27.70	0.57	27.80	0.58	27.90	0.58	24.70	0.51	27.90	0.58	48.20
015I	30.60	1.20	22.20	0.87	20.10	0.79	17.20	0.67	17.60	0.69	17.60	0.69	17.60	0.69	25.57
015W	23.80	0.72	14.00	0.43	13.70	0.42	15.60	0.47	12.00	0.36	11.90	0.36	11.40	0.35	32.91
016I	19.60	0.75	18.40	0.70	16.20	0.62	16.20	0.62	13.70	0.52	9.10	0.35	9.10	0.35	26.25
016W	31.10	0.47	29.20	0.44	23.40	0.35	23.80	0.36	23.40	0.35	21.60	0.33	22.00	0.33	66.46
017I	11.00	1.03	8.40	0.79	6.10	0.57	8.20	0.77	6.10	0.57	8.40	0.79	8.40	0.79	10.70
017W	15.60	0.30	12.10	0.23	11.50	0.22	8.90	0.17	12.20	0.23	8.90	0.17	9.70	0.19	52.03
018	14.60	0.39	14.60	0.39	13.50	0.36	13.70	0.37	14.60	0.39	14.40	0.39	13.70	0.37	37.00
019	24.90	0.48	20.10	0.39	23.30	0.45	20.80	0.40	23.90	0.46	19.20	0.37	16.30	0.31	51.84
020	39.00	0.85	22.50	0.49	22.00	0.48	19.50	0.43	23.90	0.52	13.40	0.29	29.70	0.65	45.82
021I	63.70	2.31	52.40	1.90	27.40	1.00	22.80	0.83	24.90	0.90	31.20	1.13	27.30	0.99	27.53
021W	76.20	0.84	74.40	0.82	38.80	0.43	33.20	0.37	34.80	0.38	27.50	0.30	31.40	0.35	90.85
022	93.00	1.39	96.80	1.45	80.00	1.20	97.80	1.47	85.10	1.28	67.10	1.01	37.90	0.57	66.68
023	155.30	2.23	93.60	1.35	97.40	1.40	110.60	1.59	89.40	1.29	48.70	0.70	53.80	0.77	69.55
025	101.40	0.96	103.10	0.97	99.80	0.94	67.80	0.64	82.30	0.78	51.30	0.48	50.90	0.48	105.86
026A	72.50	1.05	77.70	1.12	54.90	0.79	78.20	1.13	57.50	0.83	56.80	0.82	41.90	0.61	69.22
026B	70.50	1.10	58.90	0.92	63.00	0.99	51.80	0.81	55.60	0.87	40.10	0.63	35.00	0.55	63.86
027	74.50	0.61	79.90	0.65	69.30	0.57	92.80	0.76	68.40	0.56	30.10	0.25	18.50	0.15	121.99
029	77.70	0.68	88.30	0.78	60.90	0.54	72.00	0.63	50.60	0.45	32.80	0.29	10.40	0.09	113.45
030A	51.40	0.76	53.00	0.79	50.20	0.75	43.70	0.65	9.90	0.15	3.80	0.06	3.80	0.06	67.27
030B	43.40	0.57	42.30	0.55	41.30	0.54	43.80	0.57	24.10	0.32	10.00	0.13	10.10	0.13	76.26
031A	36.30	0.48	33.90	0.45	35.60	0.47	39.90	0.53	14.10	0.19	1.90	0.03	0.00	0.00	75.84
031B	17.90	0.77	13.50	0.58	15.30	0.66	14.90	0.64	8.30	0.36	7.40	0.32	7.40	0.32	23.14
035I&W	18.80	1.22	18.10	1.17	18.20	1.18	18.20	1.18	18.20	1.18	18.20	1.18	16.70	1.08	15.42
036	30.70	1.12	24.00	0.87	23.10	0.84	23.10	0.84	23.10	0.84	23.10	0.84	23.00	0.84	27.51
037	89.50	0.88	81.70	0.80	82.40	0.81	80.30	0.79	77.90	0.76	76.90	0.75	19.70	0.19	102.05
038	181.60	1.46	155.00	1.25	146.70	1.18	147.90	1.19	141.70	1.14	143.30	1.16	81.20	0.65	123.97
039	31.20	1.30	31.20	1.30	31.00	1.29	30.50	1.27	30.80	1.28	31.00	1.29	31.20	1.30	24.09
040	38.60	1.31	28.70	0.98	28.80	0.98	28.80	0.98	25.00	0.85	26.20	0.89	23.10	0.79	29.41
	2,851.10		2,684.50		2,347.00		2,345.60		2,106.90		1,741.60		1,587.90		2879.68

Table 4.5. EHE - Access Value.

Wsh #	Alt. 1 EHE Access Value	Alt. 2 EHE Access Value	Alt. 3 EHE Access Value	Alt. 3-M EHE Access Value	Alt. 4 EHE Access Value	Alt. 5 EHE Access Value	Alt. 6 EHE Access Value
002I	0.53	0.53	0.57	0.56	0.57	0.57	0.58
002W	0.58	0.58	0.59	0.59	0.63	0.67	0.83
003I	0.68	0.69	0.76	0.76	0.74	0.74	0.73
003W	0.91	0.96	0.96	0.96	1.00	1.00	1.00
004I&W	0.88	0.90	0.90	0.89	0.90	0.91	0.91
005	0.68	0.82	0.82	0.82	0.82	0.83	0.97
006	0.60	0.70	0.70	0.68	0.74	0.85	0.86
007	0.56	0.60	0.59	0.58	0.59	0.80	0.83
008	0.59	0.57	0.58	0.59	0.60	0.60	0.59
009A	0.79	0.75	0.79	0.79	0.85	0.79	0.81
009B	0.59	0.56	0.59	0.58	0.57	0.57	0.58
010	0.47	0.49	0.53	0.53	0.53	0.55	0.53
011	0.55	0.55	0.57	0.58	0.58	0.69	0.59
012	0.59	0.58	0.68	0.69	0.72	0.75	0.74
013	0.62	0.61	0.69	0.69	0.71	0.71	0.72
014	0.66	0.68	0.77	0.77	0.77	0.80	0.77
015I	0.58	0.65	0.69	0.73	0.72	0.72	0.72
015W	0.71	0.83	0.83	0.81	0.85	0.86	0.86
016I	0.70	0.72	0.75	0.75	0.79	0.86	0.86
016W	0.81	0.82	0.86	0.86	0.86	0.87	0.87
017I	0.60	0.69	0.77	0.69	0.77	0.69	0.69
017W	0.88	0.91	0.91	0.93	0.91	0.93	0.93
018	0.84	0.84	0.85	0.85	0.84	0.84	0.85
019	0.81	0.84	0.82	0.84	0.82	0.85	0.87
020	0.66	0.80	0.81	0.83	0.79	0.88	0.74
021I	0.46	0.50	0.60	0.67	0.64	0.59	0.60
021W	0.66	0.67	0.83	0.85	0.85	0.88	0.86
022	0.56	0.55	0.58	0.55	0.57	0.60	0.77
023	0.46	0.56	0.56	0.54	0.57	0.72	0.69
025	0.62	0.61	0.62	0.74	0.69	0.81	0.81
026A	0.59	0.59	0.68	0.59	0.67	0.67	0.76
026B	0.59	0.63	0.61	0.68	0.65	0.75	0.78
027	0.76	0.74	0.77	0.70	0.78	0.90	0.94
029	0.73	0.69	0.79	0.75	0.82	0.88	0.96
030A	0.69	0.68	0.70	0.74	0.94	0.98	0.98
030B	0.77	0.78	0.78	0.77	0.87	0.95	0.95
031A	0.81	0.82	0.81	0.79	0.93	0.99	1.00
031B	0.69	0.77	0.74	0.74	0.86	0.87	0.87
035I	0.58	0.58	0.58	0.58	0.58	0.58	0.59
036	0.59	0.65	0.66	0.66	0.66	0.66	0.67
037	0.65	0.68	0.68	0.69	0.69	0.70	0.92
038	0.55	0.57	0.58	0.58	0.58	0.58	0.74
039	0.57	0.57	0.57	0.57	0.57	0.57	0.57
040	0.57	0.61	0.61	0.61	0.66	0.64	0.69

Table 4.6. Estimated Acres of Timber Harvest for the 1st Decade (includes both ASQ and non-ASQ).

		Alt. 1			Alt. 2			Alt. 3			Alt 3M			Alt. 4			Alt. 5			Alt. 6		
WSH NO.	Prcnt	ASQ	Non-ASQ	Total	ASQ	Non-ASQ	Total	ASQ	Non-ASQ	Total	ASQ	Non-ASQ	Total	ASQ	Non-ASQ	Total	ASQ	Non-ASQ	Total	ASQ	Non-ASQ	Total
002I	0.20	80	290	74	100	230	66	90	90	36	60	90	30	0	100	20	0	100	20	0	70	14
002W	0.80	80	290	296	100	230	264	90	90	144	60	90	120	0	100	80	0	100	80	0	70	56
003I	0.50	110	200	155	210	170	190	120	70	95	60	130	95	0	90	45	0	90	45	0	120	60
003W	0.50	110	200	155	210	170	190	120	70	95	60	130	95	0	90	45	0	90	45	0	120	60
004	1.00	90	110	200	140	100	240	80	100	180	30	100	130	0	370	370	0	140	140	0	30	30
005	1.00	0	630	630	0	690	690	0	650	650	0	620	620	0	280	280	0	380	380	0	0	0
006	1.00	0	860	860	0	990	990	0	930	930	0	890	890	0	790	790	0	140	140	0	100	100
007	1.00	250	680	930	290	770	1,060	240	720	960	190	680	870	190	610	800	190	140	330	0	160	160
008	1.00	520	0	520	520	0	520	520	0	520	520	0	520	460	0	460	0	520	520	0	520	520
009A	0.63	4,440	0	2,797	5,170	0	3,257	4,340	0	2,734	3,050	0	1,922	2,300	0	1,449	1,370	0	863	0	0	0
009B	0.37	4,440	0	1,643	5,170	0	1,913	4,340	0	1,606	3,050	0	1,129	2,300	0	851	1,370	0	507	0	0	0
010	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
011	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
012	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
013	1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
014	1.00	3,060	0	3,060	3,560	0	3,560	2,990	0	2,990	2,210	0	2,210	2,210	0	2,210	0	0	0	0	120	120
015I	0.50	1,800	0	900	210	0	105	1,760	60	910	1,300	440	870	0	620	310	0	590	295	0	620	310
015W	0.50	1,800	0	900	210	0	105	1,760	60	910	1,300	440	870	0	620	310	0	590	295	0	620	310
016I	0.60	2,970	0	1,782	3,470	110	2,148	2,910	100	1,806	2,150	170	1,392	0	630	378	0	600	360	0	620	372
016W	0.40	2,970	0	1,188	3,470	110	1,432	2,910	100	1,204	2,150	170	928	0	630	252	0	600	240	0	620	248
017I	0.50	0	270	135	0	440	220	0	360	180	0	340	170	0	300	150	0	320	160	0	210	105
017W	0.50	0	270	135	0	440	220	0	360	180	0	340	170	0	300	150	0	320	160	0	210	105
018	1.00	0	230	230	0	260	260	0	230	230	0	220	220	0	200	200	0	180	180	0	200	200
019	1.00	100	240	340	110	330	440	90	310	400	70	260	330	0	280	280	140	220	360	0	280	280
020	1.00	320	0	320	370	170	540	310	170	480	220	180	400	220	160	380	300	60	360	0	280	280
021I	0.50	1,520	0	760	1,770	0	885	1,470	90	780	1,100	270	685	1,100	220	660	0	790	395	0	840	420
021W	0.50	1,520	0	760	1,770	0	885	1,470	90	780	1,100	270	685	1,100	220	660	0	790	395	0	840	420
022	1.00	480	760	1,240	560	570	1,130	470	870	1,340	350	670	1,020	350	740	1,090	240	600	840	0	360	360
023	1.00	800	230	1,030	930	300	1,230	790	500	1,290	580	480	1,060	580	440	1,020	580	220	800	0	560	560
025	1.00	5,310	0	5,310	6,190	0	6,190	5,200	0	5,200	3,830	0	3,830	3,830	0	3,830	3,440	0	3,440	0	1,350	1,350
026A	0.30	4,650	0	1,395	5,420	0	1,626	4,550	0	1,365	3,370	0	1,011	3,370	0	1,011	2,510	0	753	0	1,160	348
026B	0.70	4,650	0	3,255	5,420	0	3,794	4,550	0	3,185	3,370	0	2,359	3,370	0	2,359	2,510	0	1,757	0	1,160	812
027	1.00	610	240	850	710	0	710	600	240	840	440	290	730	440	220	660	230	260	490	0	130	130
029	1.00	180	450	630	210	560	770	180	420	600	130	440	570	0	400	400	0	360	360	0	20	20
030A	0.50	0	780	390	0	1,050	525	0	720	360	0	530	265	0	610	305	0	580	290	0	380	190
030B	0.50	0	780	390	0	1,050	525	0	720	360	0	530	265	0	610	305	0	580	290	0	380	190
031A	0.50	0	600	300	0	650	325	0	580	290	0	410	205	0	500	250	0	500	250	0	380	190
031B	0.50	0	600	300	0	650	325	0	580	290	0	410	205	0	500	250	0	500	250	0	380	190
035	1.00	150	130	280	180	0	180	150	30	180	120	40	160	90	60	150	0	160	160	0	160	160
036	1.00	100	430	530	110	30	140	100	100	200	180	120	300	180	120	300	0	350	350	0	330	330
037	1.00	0	1,050	1,050	0	1,090	1,090	0	1,130	1,130	0	1,130	1,130	0	940	940	0	990	990	0	250	250
038	1.00	570	1,410	1,980	660	1,080	1,740	560	1,090	1,650	410	1,060	1,470	0	930	930	0	1,180	1,180	0	210	210
039	1.00	30	330	360	30	330	360	30	320	350	0	310	310	0	280	280	0	270	270	0	280	280
040	1.00	240	80	320	270	80	350	230	120	350	150	130	280	150	110	260	0	260	260	0	260	260
				38,380			41,190			37,780			30,520			25,470			19,000			10,000

Table 4.7. Hiding Cover Acres and Percent of Each Watershed at the End of the First Decade - includes growth and timber harvest estimates.

Wtrshed No.	National Forest Acres	Alt. 1 1st Decade Hide Cov Acres	Alt. 1 1st Decade Percent Hide Cov	Alt. 2 1st Decade Hide Cov Acres	Alt. 2 1st Decade Percent Hide Cov	Alt. 3 1st Decade Hide Cov Acres	Alt. 3 1st Decade Percent Hide Cov	Alt. 3-M 1st Decade Hide Cov Acres	Alt. 3-M 1st Decade Percent Hide Cov	Alt. 4 1st Decade Hide Cov Acres	Alt. 4 1st Decade Percent Hide Cov	Alt. 5 1st Decade Hide Cov Acres	Alt. 5 1st Decade Percent Hide Cov	Alt. 6 1st Decade Hide Cov Acres	Alt. 6 1st Decade Percent Hide Cov
0021	8,112	1,530	18.86	1,532	18.89	1,539	18.97	1,540	18.99	1,543	19.02	1,543	19.02	1,544	19.03
002W	25,412	3,879	15.26	3,887	15.29	3,917	15.41	3,923	15.44	3,933	15.47	3,933	15.47	3,939	15.50
0031	20,593	3,040	14.76	3,031	14.72	3,054	14.83	3,054	14.83	3,066	14.89	3,066	14.89	3,062	14.87
003W	24,544	4,282	17.45	4,273	17.41	4,299	17.52	4,299	17.52	4,313	17.57	4,313	17.57	4,309	17.56
004	49,909	7,870	15.77	7,859	15.75	7,876	15.78	7,890	15.81	7,823	15.67	7,887	15.80	7,918	15.86
005	27,261	4,945	18.14	4,929	18.08	4,940	18.12	4,948	18.15	5,040	18.49	5,013	18.39	5,115	18.76
006	44,703	7,156	16.01	7,119	15.93	7,136	15.96	7,147	15.99	7,175	16.05	7,357	16.46	7,368	16.48
007/033	42,168	5,862	13.90	5,829	13.82	5,855	13.88	5,878	13.94	5,896	13.98	6,018	14.27	6,063	14.38
008	118,344	34,571	29.21	34,571	29.21	34,571	29.21	34,571	29.21	34,591	29.23	34,571	29.21	34,571	29.21
009A	61,507	14,654	23.82	14,511	23.59	14,673	23.86	14,925	24.27	15,072	24.50	15,253	24.80	15,521	25.23
009B	40,267	11,217	27.86	11,120	27.61	11,230	27.89	11,402	28.32	11,502	28.56	11,626	28.87	11,808	29.33
010	43,906	14,868	33.86	14,868	33.86	14,868	33.86	14,868	33.86	14,868	33.86	14,868	33.86	14,868	33.86
011	118,565	35,951	30.32	35,951	30.32	35,951	30.32	35,951	30.32	35,951	30.32	35,951	30.32	35,951	30.32
012	83,740	27,152	32.42	27,152	32.42	27,152	32.42	27,152	32.42	27,152	32.42	27,152	32.42	27,152	32.42
013	46,802	15,816	33.79	15,816	33.79	15,816	33.79	15,816	33.79	15,816	33.79	15,816	33.79	15,816	33.79
014/034	30,767	8,759	28.47	8,604	27.96	8,781	28.54	9,022	29.32	9,022	29.32	9,707	31.55	9,670	31.43
0151	16,353	4,942	30.22	5,221	31.92	4,939	30.20	4,953	30.29	5,149	31.49	5,154	31.52	5,149	31.49
015W	21,045	5,467	25.98	5,745	27.30	5,463	25.96	5,477	26.03	5,673	26.96	5,678	26.98	5,673	26.96
0161	16,800	4,306	25.63	4,189	24.93	4,298	25.59	4,431	26.37	4,755	28.31	4,761	28.34	4,757	28.32
016W	42,397	12,927	30.49	12,839	30.28	12,921	30.48	13,021	30.71	13,264	31.28	13,268	31.30	13,265	31.29
0171	6,601	1,561	23.65	1,538	23.30	1,549	23.46	1,551	23.50	1,557	23.58	1,554	23.54	1,569	23.77
017W	33,063	5,843	17.67	5,819	17.60	5,830	17.63	5,833	17.64	5,839	17.66	5,836	17.65	5,852	17.70
018	23,515	2,840	12.08	2,831	12.04	2,840	12.08	2,842	12.09	2,848	12.11	2,853	12.13	2,848	12.11
019	32,548	4,152	12.76	4,122	12.66	4,134	12.70	4,155	12.77	4,170	12.81	4,146	12.74	4,170	12.81
020	29,284	4,692	16.02	4,624	15.79	4,643	15.85	4,667	15.94	4,674	15.96	4,680	15.98	4,705	16.07
0211	17,580	5,013	28.52	4,971	28.27	5,006	28.48	5,039	28.66	5,047	28.71	5,137	29.22	5,129	29.17
021W	58,119	15,289	26.31	15,247	26.23	15,282	26.29	15,315	26.35	15,323	26.36	15,413	26.52	15,405	26.51
022	41,038	8,474	20.65	8,506	20.73	8,445	20.58	8,538	20.81	8,518	20.76	8,590	20.93	8,730	21.27
023/024	44,030	10,103	22.95	10,037	22.80	10,018	22.75	10,094	22.92	10,107	22.95	10,179	23.12	10,259	23.30
025	65,716	12,606	19.18	12,334	18.77	12,641	19.24	13,065	19.88	13,065	19.88	13,186	20.07	13,834	21.05
026A	41,287	4,560	11.04	4,493	10.88	4,569	11.07	4,671	11.31	4,671	11.31	4,746	11.50	4,863	11.78
026B	39,184	4,456	11.37	4,300	10.97	4,477	11.42	4,716	12.04	4,716	12.04	4,891	12.48	5,165	13.18
027/028	76,739	7,367	9.60	7,409	9.65	7,370	9.60	7,403	9.65	7,424	9.67	7,475	9.74	7,583	9.88
029	72,259	5,213	7.21	5,171	7.16	5,222	7.23	5,231	7.24	5,282	7.31	5,294	7.33	5,396	7.47
030A	42,627	5,177	12.15	5,137	12.05	5,186	12.17	5,215	12.23	5,203	12.20	5,207	12.22	5,237	12.29
030B	48,013	6,794	14.15	6,753	14.06	6,803	14.17	6,831	14.23	6,819	14.20	6,824	14.21	6,854	14.27
031A	48,530	5,374	11.07	5,367	11.06	5,377	11.08	5,403	11.13	5,389	11.10	5,389	11.10	5,407	11.14
031B	14,369	1,653	11.50	1,646	11.45	1,656	11.52	1,682	11.70	1,668	11.61	1,668	11.61	1,686	11.73
035	9,016	1,162	12.89	1,188	13.18	1,188	13.18	1,193	13.23	1,196	13.26	1,193	13.23	1,193	13.23
036	16,673	3,420	20.51	3,529	21.16	3,512	21.06	3,484	20.90	3,484	20.90	3,470	20.81	3,476	20.85
037	65,255	10,502	16.09	10,492	16.08	10,482	16.06	10,482	16.06	10,529	16.14	10,517	16.12	10,702	16.40
038	75,346	9,111	12.09	9,167	12.17	9,187	12.19	9,229	12.25	9,353	12.41	9,295	12.34	9,518	12.63
039	15,336	1,932	12.60	1,932	12.60	1,935	12.61	1,943	12.67	1,949	12.71	1,951	12.72	1,949	12.71
040	17,859	2,170	12.15	2,162	12.11	2,162	12.11	2,179	12.20	2,184	12.23	2,184	12.23	2,184	12.23

Table 4.8. EHE - Cover Value.

Wtrshed No.	Alt. 1 1st Decade EHE Cover Value	Alt. 2 1st Decade EHE Cover Value	Alt. 3 1st Decade EHE Cover Value	Alt. 3-M 1st Decade EHE Cover Value	Alt. 4 1st Decade EHE Cover Value	Alt. 5 1st Decade EHE Cover Value	Alt. 6 1st Decade EHE Cover Value
002I	0.44	0.44	0.44	0.44	0.44	0.44	0.44
002W	0.37	0.38	0.38	0.38	0.38	0.38	0.38
003I	0.37	0.36	0.37	0.37	0.37	0.37	0.37
003W	0.41	0.41	0.42	0.42	0.42	0.42	0.42
004	0.38	0.38	0.38	0.38	0.38	0.38	0.39
005	0.43	0.43	0.43	0.43	0.43	0.43	0.44
006	0.39	0.39	0.39	0.39	0.39	0.40	0.40
007/033	0.35	0.35	0.35	0.35	0.35	0.36	0.36
008	0.63	0.63	0.63	0.63	0.63	0.63	0.63
009A	0.53	0.52	0.53	0.54	0.54	0.55	0.55
009B	0.60	0.60	0.60	0.61	0.61	0.62	0.63
010	0.71	0.71	0.71	0.71	0.71	0.71	0.71
011	0.65	0.65	0.65	0.65	0.65	0.65	0.65
012	0.68	0.68	0.68	0.68	0.68	0.68	0.68
013	0.71	0.71	0.71	0.71	0.71	0.71	0.71
014/034	0.61	0.60	0.61	0.63	0.63	0.67	0.67
015I	0.64	0.67	0.64	0.65	0.67	0.67	0.67
015W	0.57	0.59	0.57	0.57	0.59	0.59	0.59
016I	0.56	0.55	0.56	0.57	0.61	0.61	0.61
016W	0.65	0.65	0.65	0.65	0.66	0.66	0.66
017I	0.53	0.52	0.52	0.52	0.52	0.52	0.53
017W	0.42	0.42	0.42	0.42	0.42	0.42	0.42
018	0.32	0.32	0.32	0.32	0.32	0.32	0.32
019	0.33	0.33	0.33	0.33	0.33	0.33	0.33
020	0.39	0.38	0.39	0.39	0.39	0.39	0.39
021I	0.61	0.61	0.61	0.62	0.62	0.63	0.63
021W	0.57	0.57	0.57	0.57	0.57	0.58	0.58
022	0.47	0.47	0.47	0.47	0.47	0.48	0.48
023/024	0.51	0.51	0.51	0.51	0.51	0.52	0.52
025	0.45	0.44	0.45	0.46	0.46	0.46	0.48
026A	0.30	0.30	0.30	0.30	0.30	0.31	0.31
026B	0.30	0.30	0.31	0.32	0.32	0.32	0.34
027/028	0.27	0.27	0.27	0.27	0.27	0.28	0.28
029	0.23	0.23	0.23	0.23	0.23	0.23	0.23
030A	0.32	0.32	0.32	0.32	0.32	0.32	0.32
030B	0.35	0.35	0.36	0.36	0.36	0.36	0.36
031A	0.30	0.30	0.30	0.30	0.30	0.30	0.30
031B	0.31	0.31	0.31	0.31	0.31	0.31	0.31
035	0.33	0.34	0.34	0.34	0.34	0.34	0.34
036	0.47	0.48	0.48	0.48	0.48	0.47	0.48
037	0.39	0.39	0.39	0.39	0.39	0.39	0.40
038	0.32	0.32	0.32	0.32	0.32	0.32	0.33
039	0.33	0.33	0.33	0.33	0.33	0.33	0.33
040	0.32	0.32	0.32	0.32	0.32	0.32	0.32

Table 4.9. Total EHE for Principal Watersheds for Each Alternative.

Wsh #	Alt. 1	Alt. 2	Alt. 3	Alt. 3-M	Alt. 4	Alt. 5	Alt. 6
002I	0.50	0.50	0.53	0.53	0.53	0.53	0.54
002W	0.52	0.52	0.53	0.53	0.55	0.58	0.68
003I	0.59	0.59	0.63	0.63	0.62	0.62	0.62
003W	0.75	0.78	0.78	0.78	0.81	0.81	0.81
004I&W	0.72	0.73	0.72	0.72	0.72	0.73	0.73
005	0.61	0.70	0.70	0.70	0.70	0.70	0.79
006	0.54	0.61	0.60	0.59	0.63	0.70	0.71
007	0.50	0.52	0.52	0.51	0.52	0.66	0.67
008	0.60	0.58	0.59	0.60	0.60	0.61	0.60
009A	0.71	0.68	0.72	0.72	0.76	0.72	0.74
009B	0.59	0.57	0.59	0.59	0.58	0.59	0.59
010	0.52	0.53	0.57	0.57	0.57	0.58	0.57
011	0.57	0.57	0.59	0.59	0.60	0.68	0.61
012	0.61	0.61	0.68	0.69	0.71	0.74	0.72
013	0.64	0.63	0.70	0.70	0.71	0.71	0.72
014	0.65	0.66	0.73	0.73	0.73	0.76	0.74
015I	0.59	0.66	0.67	0.71	0.71	0.71	0.71
015W	0.67	0.76	0.76	0.74	0.78	0.78	0.78
016I	0.66	0.67	0.70	0.70	0.74	0.79	0.79
016W	0.77	0.78	0.80	0.80	0.80	0.81	0.81
017I	0.58	0.64	0.70	0.65	0.70	0.64	0.64
017W	0.73	0.75	0.75	0.76	0.75	0.76	0.76
018	0.66	0.66	0.67	0.67	0.66	0.66	0.67
019	0.65	0.67	0.65	0.66	0.65	0.67	0.69
020	0.58	0.67	0.67	0.69	0.66	0.72	0.63
021I	0.49	0.53	0.60	0.66	0.63	0.60	0.61
021W	0.64	0.65	0.76	0.77	0.77	0.79	0.78
022	0.53	0.53	0.55	0.53	0.54	0.57	0.69
023	0.48	0.55	0.54	0.53	0.55	0.66	0.64
025	0.57	0.56	0.57	0.66	0.62	0.70	0.71
026A	0.50	0.50	0.56	0.50	0.55	0.55	0.61
026B	0.50	0.52	0.51	0.56	0.55	0.61	0.63
027	0.58	0.57	0.59	0.55	0.60	0.67	0.69
029	0.54	0.52	0.58	0.56	0.60	0.63	0.67
030A	0.57	0.57	0.58	0.60	0.72	0.74	0.74
030B	0.63	0.64	0.64	0.64	0.70	0.74	0.74
031A	0.63	0.64	0.63	0.62	0.70	0.73	0.74
031B	0.57	0.61	0.59	0.60	0.66	0.67	0.67
035I	0.50	0.51	0.51	0.51	0.51	0.51	0.51
036	0.56	0.60	0.61	0.61	0.61	0.61	0.61
037	0.57	0.59	0.59	0.60	0.60	0.60	0.75
038	0.48	0.49	0.50	0.50	0.50	0.50	0.60
039	0.50	0.50	0.50	0.50	0.50	0.50	0.50
040	0.49	0.52	0.52	0.52	0.55	0.54	0.57
Weighted Avg.	0.60	0.61	0.63	0.64	0.66	0.69	0.70

ELK VULNERABILITY (EV)

Introduction

Elk vulnerability (EV) is defined as a measure of elk susceptibility to being killed during the hunting season (Lyon and Christensen 1992; IDFG letter May 12, 1995). EV models (Unsworth et al. 1993) have been proposed as a predictive tool that managers can use to predict mortality rates and monitor elk vulnerability (IDFG letter May 12, 1995).

For the Idaho portion of the Forest, this EV analysis is used to predict percent mortality of bull elk during the general antlered elk rifle hunting season, which usually occurs in the month of October. For the Wyoming portion of the Forest, this EV analysis is used to predict percent mortality of bull elk during the general license any elk rifle hunting season, which usually occurs during the months of September and October.

Research conducted by the Idaho Department of Fish and Game and the University of Idaho provides the basis for this EV analysis (Unsworth et al, 1993). In the 1993 publication (Unsworth et al, 1993), three parameters were determined to be most important for EV analysis:

1) aspect variability;

2) hunter-day densities (measured in total hunter-days/sq. mi.);

3) motorized road and trail densities (measured in mi./sq.mi).

However, Unsworth recently developed a new version of the elk vulnerability model which does not require the computation or use of aspect variability (Unsworth, personal communication, Elk Vulnerability Analysis Workshop, March 31, 1995). The reasons for this new version of the model are:

1. The original model was developed from research along the Lochsa river in north-central Idaho. This new version is a simpler model which better fits off-Lochsa site conditions.

2. There are theoretical questions about whether aspect variability is measuring what we think it is measuring.

3. The effect that aspect variability has on model outputs is small in relation to the amount of effort it takes to calculate aspect variability to use in the model. From an efficiency viewpoint, it makes sense to drop it.

In the analysis for the Targhee Forest Plan Revision, we are using the new version of the elk vulnerability model. The formula for this model is:

$$m = \frac{e^u}{1 + e^u}$$ where:

m = percent mortality of bull elk
u = -2.036 + (0.067 x hunter-day density) + (0.635 x motorized road and trail density)
e = 2.718

EV analysis for the Forest Plan Revision is being done on a watershed basis. Figure 4.3 (in the previous EHE section) displays the 38 principal watersheds being used for the analysis. Idaho Department of Fish and Game (IDFG) and Wyoming Game and Fish Department (WGF) recommended separate analysis for Idaho and Wyoming portions of watersheds split by the State line. This was done.

Hunter-day Density Analysis

For the Idaho portion of the Forest, hunter-day data was supplied by the Idaho Department of Fish and Game from annual hunter survey data. For this analysis, hunter-day data is for the general antlered elk rifle season, for the years 1986 to 1990. More recent hunter data was not used because beginning in 1991 a spike-only hunting season was instituted for 6 Game Management Units, which significantly altered the number of hunters and the bull elk mortality. IDFG requested that the analysis be done using hunter data prior to the beginning of the spike-only hunting seasons.

For the Wyoming portion of the Forest, hunter-day data was supplied by the Wyoming Game and Fish Department from annual hunter survey data. For this analysis, hunter-day data is for the general license any elk rifle season, for the years 1987 to 1994. The Wyoming elk hunting season allows hunters to kill any elk, therefore bull elk mortality may be overestimated without an allowance for some hunters killing females. WGF suggested that hunter-day data be reduced by 15 percent to allow for this (Joe Bohne, personal communication, May 18 & 19, 1995).

For this EV model, the total hunter-day density for the entire general elk rifle season is used (rather than hunter density or hunter-days per day). This was based on personal discussions with Dr. James Unsworth, June 20, 1994.

Hunter data is compiled by "Game Management Units" (GMU's) for the Idaho portion of the Forest, and "Hunt Areas" (HA's) for the Wyoming portion of the Forest. Figure 5.1 shows the GMU's and HA's which encompass the Targhee National Forest. Since some of these GMU's and HA's include land outside of the Forest, IDFG and WGF estimated what portion of hunting activity occurs on the Forest.

Tables 5.1 and 5.2 display the hunter data as estimated for the Idaho and Wyoming portions of the Targhee National Forest. For Idaho, the average hunter-day density ranged from 2.56 hunter-days per square mile in GMU 58 to 37.10 hunter-days per square mile in GMU 60. For Wyoming, the average hunter-day density ranged from 4.97 in HA 73 to 9.86 in HA 85.

IDFG suggested that their hunter-day density data was not accurate for GMU's 59 and 59A (too high for GMU 59 and too low for GMU 59A). They suggested that a better hunter-day density figure could be obtained by combining the data from both GMU's and calculating an average hunter-day density for the combined area of both GMU's. Table 5.1 also displays the results of combining GMU's 59 and 59A.

Since the EV analysis was to be done by the principal watersheds, the hunter data for the GMU's or HA's needed to be apportioned by watershed. Most watersheds were contained entirely within a GMU or HA, so the hunter data was the same for the watershed as for the GMU or HA. Where some watersheds were

Targhee National Forest
IDFG Game Management Units
WGF Elk Hunt Areas

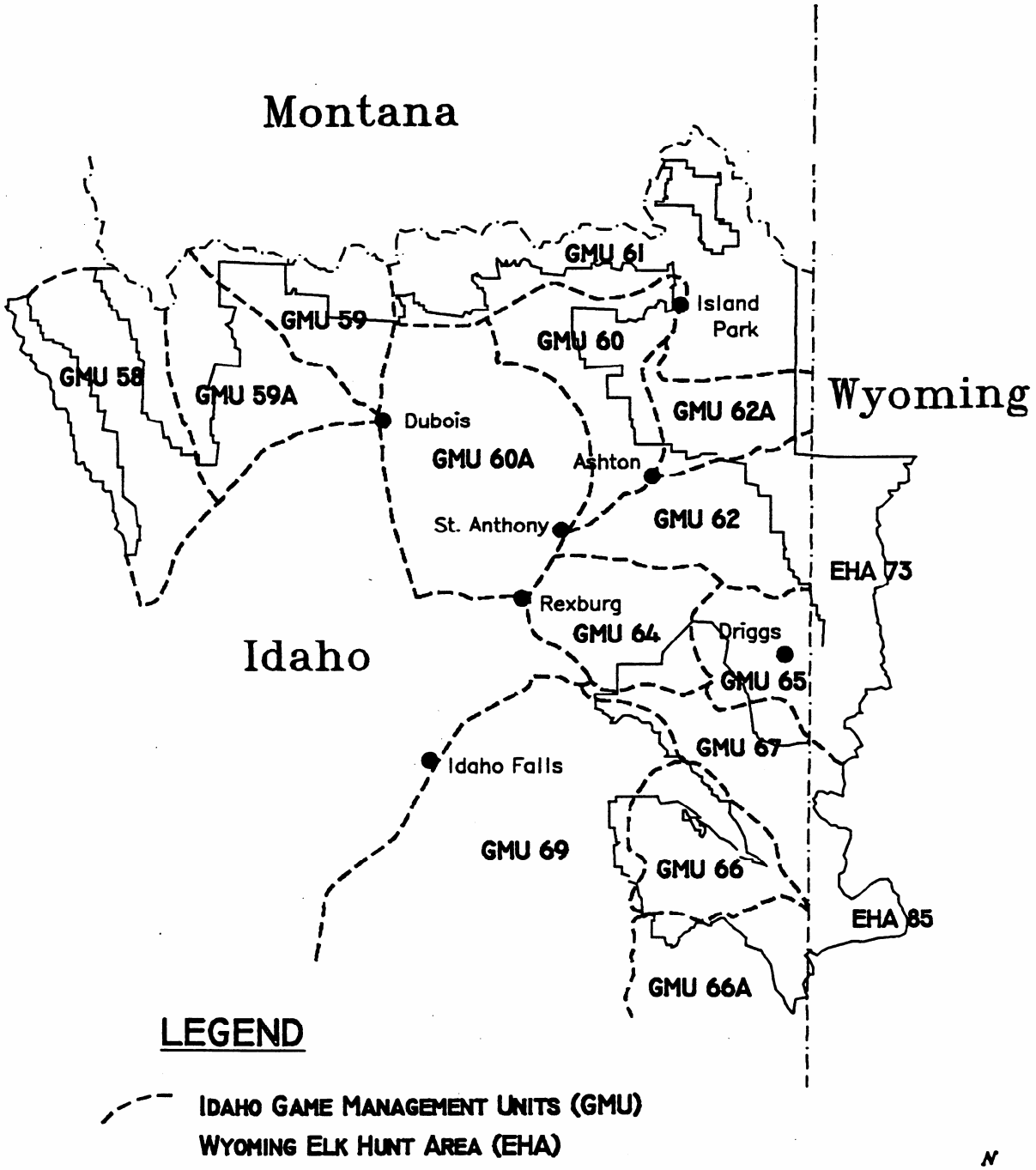


Figure 5.1.

Table 5.1 Hunter Data for IDFG Game Management Units on the Targhee N. F.

1 Game Mgn't Unit	2 Percent Elk Hunters on Forest	3 Number of Hunters on Forest	4 Number of Hunter-days on Forest	5 National Forest Sq.Miles	6 Total Hunter-days per Sq. Mile
58	80	154	622	242.60	2.56
59	90	1,805	2,383	117.96	20.20
59A	80	143	514	186.54	2.76
59 & 59A	80 to 90	1,948	2,897	304.50	9.51
60	90	1,313	6,603	178.00	37.10
61	100	2,068	8,273	604.10	13.69
62A	100	235	1,005	204.60	4.91
62	85	354	1,506	110.10	13.68
64	60	188	732	69.50	10.53
65	75	131	458	57.70	7.94
67	100	717	2,758	324.30	8.50
66	100	1,408	5,388	269.50	19.99
69	10	128	439	23.90	18.37
Total		10,592	33,578	2,693.30	12.47

Footnotes:
Col. 1: IDFG Game Management Units.
Col. 2: IDFG estimate of percent of elk hunters occurring on the Forest.
Col. 3: Average annual number of elk hunters on the Forest 1986 to 1990, data provided by IDFG.
Col. 4: Average annual elk hunter days on the Forest 1986 to 1990, data provided by IDFG.
Col. 5: National Forest square miles in each Game Management Unit.
Col. 6: Hunter day density, Column 4 divided by Column 5.

Table 5.2 Hunter Data for WGF Hunt Areas on the Targhee N. F.

1 Hunt Area	2 Percent Elk Hunters on Forest	3 Number of Hunters on Forest	4 Number of Hunter-days on Forest	5 National Forest Sq.Miles	6 Total Hunter-days per Sq. Mile
73	100	430	1,839	369.80	4.97
85	15	225	893	90.60	9.86
Total		655	2,732	460.40	5.93

Footnotes:
Col. 1: WGF Elk Hunt Areas.
Col. 2: WGF estimate of percent of elk hunters occurring on the Forest.
Col. 3: Average annual number of elk hunters on the Forest 1987 to 1994, data provided by WGF.
Col. 4: Average annual elk hunter days on the Forest 1987 to 1994, data provided by WGF.
Col. 5: National Forest square miles in each Elk Hunt Area.
Col. 6: Hunter day density, Column 4 divided by Column 5.

split by two or more GMU's or HA's, the hunter data was calculated on a weighted average, based on the percent of the watershed within each GMU or HA. Tables 5.3 and 5.4 displays that hunter data for the principal watersheds on the Forest.

To analyze the 7 alternatives being considered for the Targhee Forest Plan Revision, the hunter-day densities were held constant. This was done in order to show how differences in motorized access density between the 7 alternatives would affect elk vulnerability.

Motorized Road and Trail Density Analysis

To obtain information for the existing miles of roads and trails being used by motorized vehicles during the general elk hunting seasons, the Ranger Districts in cooperation with the local State Fish and Game officers inventoried each principal watershed. The criteria used for this inventory was as follows:

1. Accurately describe & quantify the existing situation for motorized use on roads, trails, open ridges, etc. during the Idaho general antlered elk rifle season and the Wyoming general license any elk rifle season.

2. Include all roads and trails within each of the watersheds and within the outer boundary of the Forest. Include all system roads and trails and all "ghost" (non-system) roads and trails. Include ridges and open terrain that are used by motorized vehicles during the general elk rifle seasons (estimate miles for these cases).

   For system roads and trails, use the official road or trail number. If an official number does not exist (i.e., for ghost roads and trails), use a logical name or number that means something.

3. Open miles of roads and trails means miles of roads and trails (including system, ghost, open ridges, etc.) that are used by motorized vehicles during the general elk rifle seasons. Do not rely on the Forest/District travel plan maps - some closures are not effective and we want to account for this.

   Closed miles of roads and trails means miles of roads and trails that are not used by motorized vehicles during the general elk rifle seasons.

5. For roads and trails that fall on a watershed boundary, put the miles in the tables for both watersheds - AND NOTE IN THE COMMENTS SECTION OF THE TABLE THAT SO MANY MILES ARE ALSO BEING COUNTED IN WATERSHED XXX. This will double count some road and trail miles, and we want to keep track of how much double counting is occurring.

Table 5.5 presents a summary of the existing road and trail information for each watershed.

Table 5.3 Hunter Density Data for Idaho Watersheds on the Targhee N. F.

1	2	3	4	5	6
Game Mgn't Unit	Total Hunter-days per Sq. Mile	Watersheds in each Game Mgn't Unit	Percent of Watershed in each Unit	Watersheds	Total Hunter-days per Sq. Mile
58	2.56	030A	100	030A	2.56
		030B	100	030B	2.56
		031A	100	031A	2.56
		031B	100	031B	2.56
				027/028	9.51
59 & 59A	9.51	027/028	100	029	9.51
		029	100	026A	9.51
		026A	100	009B	37.10
				011	19.95
60	37.10	009B	100	034/014	30.66
		011	41	026B	13.69
		034/014	80	025	13.69
				009A	13.69
61	13.69	026B	100	008	13.69
		025	100	010	13.69
		009A	100	012	7.81
		008	100	013	8.59
		010	100	016I	13.68
		011	21	015I	13.68
		012	33	021I	13.68
				024/023	10.53
62A	4.91	011	38	022	8.01
		012	67	017I	8.50
		013	58	033/007	8.50
		034/014	20	006	8.50
				005	8.50
62	13.68	013	42	004I	8.50
		016I	100	003I	8.50
		015I	100	002I	8.50
		021I	100	036	19.99
				037	19.99
64	10.53	024/023	100	038	19.99
				039	19.59
65	7.94	022	87	040	19.00
67	8.50	022	13		
		017I	100		
		033/007	100		
		006	100		
		005	100		
		004I	100		
		003I	100		
		002I	100		
66	19.99	036	100		
		037	100		
		038	100		
		039	75		
		040	39		
69	18.37	040	61		
		039	25		

Footnotes:
Col. 1: IDFG Game Management Units.
Col. 2: Total hunter days per sq. mi. from Table 2.
Col. 3: List of the principal watersheds in each Game Management Unit.
Col. 4: Percent of each principal watershed within each Game Management Unit.
Col. 5: List of the principal watersheds.
Col. 6: Weighted average of total hunter days per sq. mile for each watershed.

Table 5.4 Hunter Density Data for Wyoming Watersheds on the Targhee N. F.

1	2	3	4	5
Hunt Area	Total Hunter-days per Sq. Mile	Watersheds in each Hunt Area	Percent of Watershed in each Hunt Area	Total Hunter-days per Sq. Mile
73	5.56	016W	100	4.97
		015W	100	4.97
		021W	100	4.97
		020	100	4.97
		019	100	4.97
		018	100	4.97
		017W	86	5.65
85	18.36	017W	14	5.65
		004W	100	9.86
		003W	100	9.86
		002W	100	9.86

Footnotes:
Col. 1: WGF Hunt Areas.
Col. 2: Total hunter days per sq. mi. from Table 2A.
Col. 3: List of the principal watersheds in each Hunt Area.
Col. 4: Percent of each principle watershed within each Hunt Area.
Col. 5: Weighted average of total hunter days per sq. mile for each watershed.

Table 5.5 Existing Open Road and Open Motorized Trail Route Density for each Watershed.

1	2	3	4	5	6	7	8
Subsection	Watershed Number	Total Square Miles	Open Road Miles	Open Road Density mi/sq mi	Open Motorized Trail Miles	Open Motorized Trail Density mi/sq mi	OROMTRD mi/sq mi
Big Hole/Palisades	002I	13.35	15.00	1.12	3.40	0.25	1.38
Big Hole/Palisades	002W	41.69	16.50	0.40	43.50	1.04	1.44
Big Hole/Palisades	003I	34.47	16.90	0.49	5.10	0.15	0.64
Big Hole/Palisades	003W	38.35	0.00	0.00	11.30	0.29	0.29
Big Hole/Palisades	004I&W	79.85	19.10	0.24	7.90	0.10	0.34
Big Hole/Palisades	005	42.60	3.60	0.08	33.00	0.77	0.86
Big Hole/Palisades	006	70.12	23.60	0.34	62.70	0.89	1.23
Big Hole/Palisades	007 & 033	67.51	30.60	0.45	56.70	0.84	1.29
Centennial Mtns. & Island Park	008	184.53	219.80	1.19	17.80	0.10	1.29
Centennial Mtns.	009A	96.10	55.40	0.58	0.00	0.00	0.58
Island Park	009B	62.92	84.20	1.34	0.00	0.00	1.34
Island Park & Madison Plateau	010	68.59	124.10	1.81	7.00	0.10	1.91
Island Park	011	185.27	246.80	1.33	1.80	0.01	1.34
Island Park & Madison Plateau	012	130.94	105.10	0.80	31.80	0.24	1.05
Island Park & Madison Plateau	013	72.66	62.90	0.87	0.50	0.01	0.87
Island Park	014 & 034	48.20	33.60	0.70	0.00	0.00	0.70
Island Park & Madison Plateau	015I	25.57	25.60	1.00	0.00	0.00	1.00
Madison Plateau	015W	32.91	15.40	0.47	10.30	0.31	0.78
Island Park & Madison Plateau	016I	26.25	26.20	1.00	0.00	0.00	1.00
Madison Plateau	016W	66.46	30.00	0.45	8.10	0.12	0.57
Big Hole/Palisades	017I	10.70	7.60	0.71	5.30	0.50	1.21
Teton Range & Big Hole/Palisades	017W	52.03	13.60	0.26	7.70	0.15	0.41
Teton Range	018	37.00	10.70	0.29	2.30	0.06	0.35
Teton Range	019	51.84	14.60	0.28	12.90	0.25	0.53
Teton Range	020	45.82	17.70	0.39	12.40	0.27	0.66
Island Park & Madison Plateau	021I	27.53	25.40	0.92	8.70	0.32	1.24
Teton Range & Madison Plateau	021W	90.85	41.00	0.45	12.20	0.13	0.59
Big Hole/Palisades	022	66.68	49.40	0.74	50.30	0.75	1.50
Big Hole/Palisades	023 & 024	69.55	82.50	1.19	64.60	0.93	2.12
Centennial Mtns.	025	105.86	81.40	0.77	23.70	0.22	0.99
Centennial Mtns.	026A	69.22	83.30	1.20	20.70	0.30	1.50
Centennial Mtns.	026B	63.86	104.00	1.63	14.10	0.22	1.85
Medicine Lodge & Centennial Mtns	027 & 028	121.99	85.10	0.70	35.40	0.29	0.99
Medicine Lodge	029	113.45	97.00	0.86	12.40	0.11	0.96
Lemhi	030A	67.27	49.70	0.74	8.00	0.12	0.86
Medicine Lodge	030B	76.26	50.40	0.66	16.50	0.22	0.88
Lemhi	031A	75.84	25.10	0.33	11.80	0.16	0.49
Medicine Lodge	031B	23.14	31.90	1.38	0.50	0.02	1.40
Caribou	035	18.62	14.20	0.76	1.20	0.06	0.83
Caribou	036	27.51	18.90	0.69	10.30	0.37	1.06
Caribou	037	102.05	26.40	0.26	68.50	0.67	0.93
Caribou	038	123.97	75.10	0.61	66.40	0.54	1.14
Caribou	039	24.09	15.20	0.63	16.00	0.66	1.30
Caribou	040	29.41	35.60	1.21	0.00	0.00	1.21
			2210.20		782.80		

Col. 1: Subsection.
Col. 2: Watershed number.
Col. 3: Total square miles in each watershed; includes private, state, and BLM lands.
Col. 4: Road miles used by motorized vehicles during the general elk hunting season; includes "ghost" roads.
Col. 5: Column 4 divided by column 3.
Col. 6: Trail miles used by motorized vehicles during the general big game hunting season; includes "ghost" trails.
Col. 7: Column 6 divided by column 3.
Col. 8: Column 5 plus column 7.

After this motorized road and trail analysis was done, there was concern expressed by IDFG that not all of the motorized access was accounted for. The concern was that some areas of the Forest have vegetation and terrain which allow for unrestricted cross-country off-highway-vehicle (OHV) use. Additional analysis using vegetation and slope was done to identify areas of the Forest which could be more accessible to OHV use (see Attachment F for the agreement on this analysis). We have called this analysis the "infinitely open analysis." Table 5.6 presents the results of this analysis for the existing conditions in each of the principal watersheds. Watersheds currently range from less than 1 percent "infinitely open" to 95 percent "infinitely open."

Since the EV model requires a motorized road and trail density value, the infinitely open areas needed to be converted to a road and trail density value for the model. At this time, we have agreed with IDFG to add an additional 6 miles of motorized road for each square mile of infinitely open area in each watershed. The result of this is an additional 4,668.67 miles of motorized road were added to the previously inventoried road and trail miles for the EV analysis.

Table 5.7 presents the current total motorized access densities for each principal watershed, incorporating both the road and trail inventory and the infinitely open analysis. The total access densities presented in Table 5.7 are used in the EV analysis for the existing condition.

To analyze the 7 alternatives being considered for the Targhee Forest Plan Revision, each Ranger District mapped the roads and trails which would be open for motorized use under each alternative. These mapped roads and trails were digitized into the Forest's GIS database to calculate the miles which would be open in each watershed. Also, each alternative changed the amount of land open for cross-country OHV use. An "infinitely open" analysis was done for each alternative to account for this motorized use. Table 5.8 presents the motorized access analysis for each of the 7 alternatives.

State Fish and Game Goals and EV Thresholds

The IDFG and WGF goals and EV thresholds for the game management units encompassing the Targhee N. F. are briefly described as follows:

Idaho Department of Fish and Game:

Game Management Units 60, 61, 62, 62A, 64, 65, 66, 69: These game management units are known as "Ready Access Units." For these units, the IDFG goal for the post hunting season population is > 15 bulls per 100 cows (this equates to a maximum of 60 percent bull elk mortality), with 40% of bulls branch-antlered; and maintain the percentage of yearling bulls in the antlered segment of the harvest at or below 50% and the percentage of mature bulls (having 6 points on one antler) at or above 10%. (IDFG letters: May 12, 1995 and Nov. 15, 1995)

Game Management Units 58, 59, 59A, 67: These game management units are known as "Front Range Units." For these units, the IDFG goal for the post hunting season population is > 20 bulls per 100 cows (this equates to a maximum of 50 percent bull elk mortality), with

Table 5.6 Existing Amount of Area Available for OHV/Cross-country Travel in each Watershed

1	2	3	4	5
Subsection	Watershed Number	Total Square Miles	Acres Available For OHV/ Cross-Country Travel	Percent of Watershed Available for OHV/ Cross-country
Lemhi	030A	67.27	12,346.00	28.68
Lemhi	031A	75.84	10,800.00	22.25
Medicine Lodge	030B	76.26	9,202.00	18.85
Medicine Lodge	031B	23.14	3,041.00	20.53
Medicine Lodge	029	113.45	33,781.00	46.53
Medicine Lodge & Centennial Mtns.	027 & 028	121.99	24,944.00	31.95
Centennial Mtns.	026A	69.22	11,013.00	24.86
Centennial Mtns.	026B	63.86	18,382.00	44.98
Centennial Mtns.	025	105.86	9,179.00	13.55
Centennial Mtns.	009A	96.10	1,298.00	2.11
Centennial Mtns. & Island Park	008	184.53	24,961.00	21.14
Island Park & Madison Plateau	010	68.59	37,767.00	86.03
Island Park	009B	62.92	12,355.00	30.68
Island Park	011	185.27	90,051.00	75.95
Island Park	014 & 034	48.20	506.00	1.64
Island Park & Madison Plateau	012	130.94	79,700.00	95.11
Island Park & Madison Plateau	013	72.66	9,073.00	19.51
Island Park & Madison Plateau	016I	26.25	2,161.00	12.86
Madison Plateau	016W	66.46	1,397.00	3.28
Island Park & Madison Plateau	016I&W	92.71	3,558.00	6.00
Island Park & Madison Plateau	015I	25.57	3,389.00	20.71
Madison Plateau	015W	32.91	1,195.00	5.67
Island Park & Madison Plateau	015I&W	58.48	4,584.00	12.25
Island Park & Madison Plateau	021I	27.53	5,297.00	30.06
Teton Range & Madison Plateau	021W	90.85	1,360.00	2.34
Is. Park & Madison & Teton Range	021I&W	118.38	6,657.00	8.79
Teton Range	020	45.82	1,810.00	6.17
Teton Range	019	51.84	4,003.00	12.07
Teton Range	018	37.00	2,471.00	10.43
Teton Range & Big Hole/Palisades	017W	52.03	585.00	1.76
Big Hole/Palisades	017I	10.70	199.00	2.91
Teton Range & Big Hole/Palisades	017I&W	62.73	784.00	1.95
Big Hole/Palisades	022	66.68	7,360.00	17.25
Big Hole/Palisades	023 & 024	69.55	10,333.00	23.21
Big Hole/Palisades	007 & 033	67.51	6,148.00	14.23
Big Hole/Palisades	006	70.12	8,413.00	18.75
Big Hole/Palisades	005	42.60	473.00	1.73
Big Hole/Palisades	004I&W	79.85	572.00	1.12
Big Hole/Palisades	003I	34.47	265.00	1.20
Big Hole/Palisades	003W	38.35	0.00	0.00
Big Hole/Palisades	003I&W	72.82	265.00	0.57
Big Hole/Palisades	002I	13.35	966.00	11.31
Big Hole/Palisades	002W	41.69	1,474.00	5.52
Big Hole/Palisades	002I&W	55.04	2,440.00	6.93
Caribou	035	15.42	2,679.00	27.15
Caribou	036	27.51	4,004.00	22.74
Caribou	037	102.05	9,134.00	13.99
Caribou	038	123.97	23,211.00	29.25
Caribou	039	24.09	3,030.00	19.65
Caribou	040	29.41	7,661.00	40.70

Col. 1: Subsection.
Col. 2: Watershed number.
Col. 3: Total square miles in each watershed; includes private, State, BLM and National Forest land.
Col. 4: Acres of each watershed available for OHV cross country motorized travel.
Col. 5: Percent of each watershed available for OHV cross country motorized travel.

Table 5.7 Existing Total Motorized Access (includes all roads & trails and 'infinitely open' analysis).

1	2	3	4	5	6	7	8	9	10
Watershed Number	Total Square Miles	Open Road Miles	Open Road Density mi/sq mi	Open Motorized Trail Miles	Open Motorized Trail Density mi/sq mi	OROMTRD mi/sq mi	Infinitely Open Acres	Infinitely Open Road Miles	Total Access Density Mi./Sq.Mi.
002I	13.35	15.00	1.12	3.40	0.25	1.38	966.00	9.06	2.06
002W	41.69	16.50	0.40	43.50	1.04	1.44	1,474.00	13.82	1.77
003I	34.47	16.90	0.49	5.10	0.15	0.64	265.00	2.48	0.71
003W	38.35	0.00	0.00	11.30	0.29	0.29	0.00	0.00	0.29
004I&W	79.85	19.10	0.24	7.90	0.10	0.34	572.00	5.36	0.41
005	42.60	3.60	0.08	33.00	0.77	0.86	473.00	4.43	0.96
006	70.12	23.60	0.34	62.70	0.89	1.23	8,413.00	78.87	2.36
007 & 033	67.51	30.60	0.45	56.70	0.84	1.29	6,148.00	57.64	2.15
008	184.53	219.80	1.19	17.80	0.10	1.29	24,961.00	234.01	2.56
009A	96.10	55.40	0.58	0.00	0.00	0.58	1,298.00	12.17	0.70
009B	62.92	84.20	1.34	0.00	0.00	1.34	12,355.00	115.83	3.18
010	68.59	124.10	1.81	7.00	0.10	1.91	37,767.00	354.07	7.07
011	185.27	246.80	1.33	1.80	0.01	1.34	90,051.00	844.23	5.90
012	130.94	105.10	0.80	31.80	0.24	1.05	79,700.00	747.19	6.75
013	72.66	62.90	0.87	0.50	0.01	0.87	9,073.00	85.06	2.04
014 & 034	48.20	33.60	0.70	0.00	0.00	0.70	506.00	4.74	0.80
015I	25.57	25.60	1.00	0.00	0.00	1.00	3,389.00	31.77	2.24
015W	32.91	15.40	0.47	10.30	0.31	0.78	1,195.00	11.20	1.12
016I	26.25	26.20	1.00	0.00	0.00	1.00	2,161.00	20.26	1.77
016W	66.46	30.00	0.45	8.10	0.12	0.57	1,397.00	13.10	0.77
017I	10.70	7.60	0.71	5.30	0.50	1.21	199.00	1.87	1.38
017W	52.03	13.60	0.26	7.70	0.15	0.41	585.00	5.48	0.51
018	37.00	10.70	0.29	2.30	0.06	0.35	2,471.00	23.17	0.98
019	51.84	14.60	0.28	12.90	0.25	0.53	4,003.00	37.53	1.25
020	45.82	17.70	0.39	12.40	0.27	0.66	1,810.00	16.97	1.03
021I	27.53	25.40	0.92	8.70	0.32	1.24	5,297.00	49.66	3.04
021W	90.85	41.00	0.45	12.20	0.13	0.59	1,360.00	12.75	0.73
022	66.68	49.40	0.74	50.30	0.75	1.50	7,360.00	69.00	2.53
023 & 024	69.55	82.50	1.19	64.60	0.93	2.12	10,333.00	96.87	3.51
025	105.86	81.40	0.77	23.70	0.22	0.99	9,179.00	86.05	1.81
026A	69.22	83.30	1.20	20.70	0.30	1.50	11,013.00	103.25	2.99
026B	63.86	104.00	1.63	14.10	0.22	1.85	18,382.00	172.33	4.55
027 & 028	121.99	85.10	0.70	35.40	0.29	0.99	24,944.00	233.85	2.90
029	113.45	97.00	0.86	12.40	0.11	0.96	33,781.00	316.70	3.76
030A	67.27	49.70	0.74	8.00	0.12	0.86	12,346.00	115.74	2.58
030B	76.26	50.40	0.66	16.50	0.22	0.88	9,202.00	86.27	2.01
031A	75.84	25.10	0.33	11.80	0.16	0.49	10,800.00	101.25	1.82
031B	23.14	31.90	1.38	0.50	0.02	1.40	3,041.00	28.51	2.63
035	18.62	14.20	0.76	1.20	0.06	0.83	2,679.00	25.12	2.18
036	27.51	18.90	0.69	10.30	0.37	1.06	4,004.00	37.54	2.43
037	102.05	26.40	0.26	68.50	0.67	0.93	9,134.00	85.63	1.77
038	123.97	75.10	0.61	66.40	0.54	1.14	23,211.00	217.60	2.90
039	24.09	15.20	0.63	16.00	0.66	1.30	3,030.00	28.41	2.47
040	29.41	35.60	1.21	0.00	0.00	1.21	7,661.00	71.82	3.65
	2882.88	2210.20		782.80				4668.65	

Col. 1: Watershed number.
Col. 2: Total square miles in each watershed; includes private, state, and BLM lands.
Col. 3: Road miles used by motorized vehicles during the general elk hunting season; includes "ghost" road miles.
Col. 4: Column 3 divided by column 2.
Col. 5: Trail miles used by motorized vehicles during the general big game hunting season.
Col. 6: Column 5 divided by column 2.
Col. 7: Column 4 plus column 6.
Col. 8: Acres which have vegetation and terrain allowing for cross country OHV use and there are no travel plan restrictions prohibiting such use.
Col. 9: For EV modeling purposes, a factor of 6 miles of road per sq. mile of infinitely open area is used.
Col. 10: Column 3 plus column 5 plus column 9 divided by column 2.

Table 5.8. EV - Motorized Access in Each Alternative.

Wsh #	Alt. 1 OROMT miles	Alt. 1 Inf.Open miles	Alt. 1 Density mi/sq.mi	Alt. 2 OROMT miles	Alt. 2 Inf.Open miles	Alt. 2 Density mi/sq.mi	Alt. 3 OROMT miles	Alt. 3 Inf.Open miles	Alt. 3 Density mi/sq.mi	Alt. 3-M OROMT miles	Alt. 3-M Inf.Open miles	Alt. 3-M Density mi/sq.mi	Alt. 4 OROMT miles	Alt. 4 Inf.Open miles	Alt. 4 Density mi/sq.mi
002I	22.30	8.40	2.30	22.30	5.34	2.07	17.20	2.40	1.47	18.30	2.10	1.53	17.20	2.34	1.46
002W	48.10	13.68	1.48	48.10	13.08	1.47	45.50	12.36	1.39	46.80	12.00	1.41	38.40	12.24	1.21
003I	27.20	1.68	0.84	26.80	1.62	0.82	21.00	1.44	0.65	21.00	1.47	0.65	22.60	1.32	0.69
003W	8.20	0.00	0.21	4.00	0.00	0.10	4.00	0.00	0.10	4.00	0.00	0.10	0.00	0.00	0.00
004I&W	23.40	1.14	0.31	19.80	0.84	0.26	20.40	0.84	0.27	22.30	0.84	0.29	20.80	0.78	0.27
005	33.60	0.42	0.80	18.80	0.24	0.45	17.50	0.00	0.41	19.10	0.00	0.45	18.30	0.00	0.43
006	70.70	68.46	1.98	46.00	58.92	1.50	46.70	8.58	0.79	55.70	0.57	0.80	37.60	8.58	0.66
007	86.50	41.94	1.90	66.00	37.92	1.54	67.50	5.82	1.09	78.00	5.32	1.23	67.10	5.82	1.08
008	201.80	220.20	2.29	234.80	109.86	1.87	218.20	60.06	1.51	192.10	35.37	1.23	180.60	60.90	1.31
009A	48.30	11.82	0.63	60.40	10.14	0.73	50.40	10.14	0.63	50.40	10.09	0.63	36.20	9.90	0.48
009B	67.80	114.30	2.89	85.50	94.56	2.86	67.50	74.40	2.26	71.40	83.61	2.46	75.50	67.38	2.27
010	146.50	345.66	7.18	140.00	80.58	3.22	109.40	80.64	2.77	110.50	62.79	2.53	102.90	80.04	2.67
011	266.50	776.16	5.63	266.60	811.62	5.82	232.80	275.16	2.74	223.50	257.66	2.60	211.60	152.52	1.97
012	143.10	746.58	6.79	152.50	150.54	2.31	104.70	54.48	1.22	100.10	44.63	1.11	91.60	24.00	0.88
013	68.90	79.98	2.05	71.00	3.66	1.03	56.20	3.66	0.82	56.00	3.58	0.82	53.30	0.84	0.75
014	38.40	3.54	0.87	38.70	4.74	0.90	27.70	1.26	0.60	27.80	1.12	0.60	27.90	0.12	0.58
015I	26.10	31.74	2.26	22.20	29.94	2.04	20.10	0.96	0.82	17.20	0.98	0.71	17.60	0.96	0.73
015W	23.80	11.16	1.06	14.00	7.02	0.64	13.70	3.66	0.53	15.60	3.64	0.58	12.00	3.66	0.48
016I	19.60	19.26	1.48	18.40	5.70	0.92	16.20	3.72	0.76	16.20	0.56	0.64	13.70	3.36	0.65
016W	31.10	12.48	0.66	29.20	4.32	0.50	23.40	0.48	0.36	23.80	0.50	0.37	23.40	0.48	0.36
017I	9.10	1.68	1.01	6.50	1.38	0.74	6.10	0.84	0.65	8.20	0.82	0.84	6.10	1.14	0.68
017W	15.60	5.04	0.40	12.10	2.70	0.28	11.50	2.40	0.27	8.90	2.30	0.22	12.20	1.92	0.27
018	14.60	22.08	0.99	14.60	20.34	0.94	13.50	14.76	0.76	13.70	16.42	0.81	14.60	0.90	0.42
019	24.90	31.50	1.09	20.10	28.38	0.94	23.30	11.40	0.67	20.80	23.49	0.85	23.90	2.82	0.52
020	23.00	12.00	0.76	19.20	4.26	0.51	19.60	4.26	0.52	17.10	4.05	0.46	20.00	3.90	0.52
021I	31.00	47.52	2.85	29.90	6.18	1.31	24.90	0.00	0.90	22.80	0.00	0.83	20.60	0.00	0.75
021W	24.00	12.42	0.40	54.60	0.24	0.60	36.00	0.00	0.40	33.20	0.00	0.37	22.40	0.00	0.25
022	79.60	43.68	1.85	77.00	21.54	1.48	66.60	4.38	1.06	88.20	4.35	1.39	72.20	4.32	1.15
023	113.00	96.12	3.01	77.80	87.36	2.37	85.20	2.76	1.26	105.60	2.77	1.56	82.90	2.76	1.23
025	78.00	84.18	1.53	58.60	68.82	1.20	59.30	68.76	1.21	58.20	24.21	0.78	57.30	24.24	0.77
026A	70.00	78.12	2.14	77.70	73.38	2.18	52.00	73.38	1.81	76.50	37.95	1.65	57.50	37.20	1.37
026B	66.30	171.72	3.73	53.60	121.68	2.74	46.60	121.68	2.64	51.80	45.49	1.52	45.70	45.48	1.43
027	74.50	216.42	2.38	79.90	192.18	2.23	69.30	192.24	2.14	92.80	7.50	0.82	68.40	7.50	0.62
029	72.40	316.14	3.42	88.30	270.96	3.17	60.90	273.72	2.95	72.00	24.79	0.85	50.60	2.82	0.47
030A	51.40	115.02	2.47	53.00	58.80	1.66	50.20	58.80	1.62	43.70	10.89	0.81	9.90	0.36	0.15
030B	42.30	84.42	1.66	42.30	80.94	1.62	38.40	80.94	1.56	43.80	70.44	1.50	24.10	2.64	0.35
031A	36.30	97.14	1.76	33.90	0.06	0.45	35.60	0.00	0.47	39.90	0.00	0.53	14.10	0.00	0.19
031B	17.90	28.50	2.01	13.50	22.80	1.57	15.30	22.80	1.65	14.90	9.68	1.06	8.30	0.66	0.39
035I&W	18.80	31.32	2.69	18.10	23.82	2.25	18.20	15.96	1.83	18.20	17.17	1.90	18.20	15.48	1.81
036	29.10	36.24	2.38	24.00	7.38	1.14	23.10	6.24	1.07	23.10	3.24	0.96	23.10	6.18	1.06
037	89.00	83.70	1.69	81.20	5.58	0.85	81.90	5.58	0.86	80.30	0.76	0.79	77.40	5.58	0.81
038	176.90	206.40	3.09	150.80	126.66	2.24	142.50	33.84	1.42	147.80	26.67	1.41	137.50	33.06	1.38
039	31.20	28.32	2.47	31.20	27.12	2.42	31.00	1.56	1.35	30.50	0.74	1.30	30.80	1.56	1.34
040	38.60	71.70	3.75	28.70	18.78	1.61	28.80	4.08	1.12	28.80	4.06	1.12	25.00	4.08	0.99
	2,629.40	4,429.98		2,531.70	2,701.98		2,219.90	1,600.44		2,310.60	864.62		1,991.10	639.84	

Table 5.8. Continued

OROMT miles	Alt. 5 Inf.Open miles	Density mi/sq.mi	OROMT miles	Alt. 6 Inf.Open miles	Density mi/sq.mi	Square Miles in Wtrshd
17.20	2.34	1.46	16.00	1.50	1.31	13.35
33.90	12.24	1.11	17.70	11.58	0.70	41.69
22.60	1.32	0.69	23.20	0.96	0.70	34.47
0.00	0.00	0.00	0.00	0.00	0.00	38.35
18.70	0.72	0.24	18.60	0.54	0.24	79.85
18.50	0.00	0.43	3.70	0.00	0.09	42.60
20.50	8.58	0.41	17.20	8.58	0.37	70.12
31.70	5.82	0.56	26.50	5.58	0.48	67.51
181.60	76.98	1.40	186.00	60.78	1.34	184.53
50.80	10.38	0.64	45.30	10.38	0.58	96.10
75.50	65.70	2.24	72.20	65.64	2.19	62.92
96.00	79.86	2.56	104.30	79.80	2.68	68.59
142.70	107.22	1.35	186.10	106.98	1.58	185.27
79.30	25.08	0.80	85.10	25.08	0.84	130.94
51.80	0.84	0.72	51.40	0.84	0.72	72.66
24.70	0.06	0.51	27.90	0.06	0.58	48.20
17.60	0.96	0.73	17.60	0.96	0.73	25.57
11.90	3.66	0.47	11.40	3.66	0.46	32.91
9.10	3.36	0.47	9.10	3.36	0.47	26.25
21.60	0.48	0.33	22.00	0.48	0.34	66.46
6.50	0.84	0.69	6.50	0.84	0.69	10.70
8.90	0.66	0.18	9.70	0.66	0.20	52.03
14.40	0.90	0.41	13.70	0.90	0.39	37.00
19.20	4.26	0.45	16.30	2.88	0.37	51.84
11.80	0.24	0.26	17.90	0.06	0.39	45.82
25.40	0.00	0.92	25.40	0.00	0.92	27.53
23.30	0.00	0.26	23.30	0.00	0.26	90.85
50.70	4.38	0.83	31.30	3.72	0.53	66.68
48.70	2.76	0.74	53.80	2.76	0.81	69.55
49.40	24.30	0.70	49.00	17.16	0.62	105.86
56.80	37.26	1.36	41.90	17.04	0.85	69.22
39.00	37.20	1.19	33.90	15.30	0.77	63.86
30.10	7.50	0.31	18.50	7.50	0.21	121.99
32.80	2.82	0.31	10.40	2.82	0.12	113.45
3.80	0.36	0.06	3.80	0.36	0.06	67.27
7.20	2.64	0.13	7.20	2.64	0.13	76.26
1.90	0.00	0.03	0.00	0.00	0.00	75.84
7.40	0.66	0.35	7.40	0.66	0.35	23.14
18.20	12.60	1.65	16.70	12.60	1.57	18.62
23.10	5.94	1.06	23.00	5.88	1.05	27.51
76.40	5.58	0.80	19.20	5.58	0.24	102.05
139.10	26.70	1.34	78.90	26.64	0.85	123.97
31.00	0.72	1.32	31.20	0.72	1.33	24.09
26.20	4.08	1.03	23.10	4.08	0.92	29.41
1,677.00	588.00		1,503.40	517.56		2,882.88

50% of bulls branch-antlered; and maintain the percentage of yearling bulls in the antlered segment of the harvest at or below 35% and the percentage of mature bulls (having 6 points on one antler) at or above 20%. (IDFG letters: May 12, 1995 and Nov. 15, 1995)

Wyoming Game and Fish Department:

For all of the Wyoming units on the Forest, the WGF goal for the post hunting season population is > 20 bulls per 100 cows. This equates to a maximum of 50 percent bull elk mortality.

The mortality percentages indicate EV threshold levels, which if exceeded would likely require additional management actions to be initiated (IDFG letter, May 12, 1995).

EV for the Existing Condition

Table 5.9 presents the existing estimated EV (percent bull elk mortality) for each principal watershed. The existing EV ranges from 21 percent in watershed 017W (Trail Creek-Wyoming), to 97 percent in watershed 010 (Buffalo River).

For the existing condition, 48 percent of the Forest does not exceed the State Fish and Game Departments threshold levels for EV (Figure 5.2).

EV for the Alternatives

Tables 5.10 through 5.16 present the estimated EV (percent bull elk mortality) for each principal watershed for each of the 7 alternatives. Generally, EV is highest in Alternative 1 and lowest in Alternatives 5 and 6.

The percent of the Forest not exceeding the State Fish and Game Department threshold levels for EV is as follows:

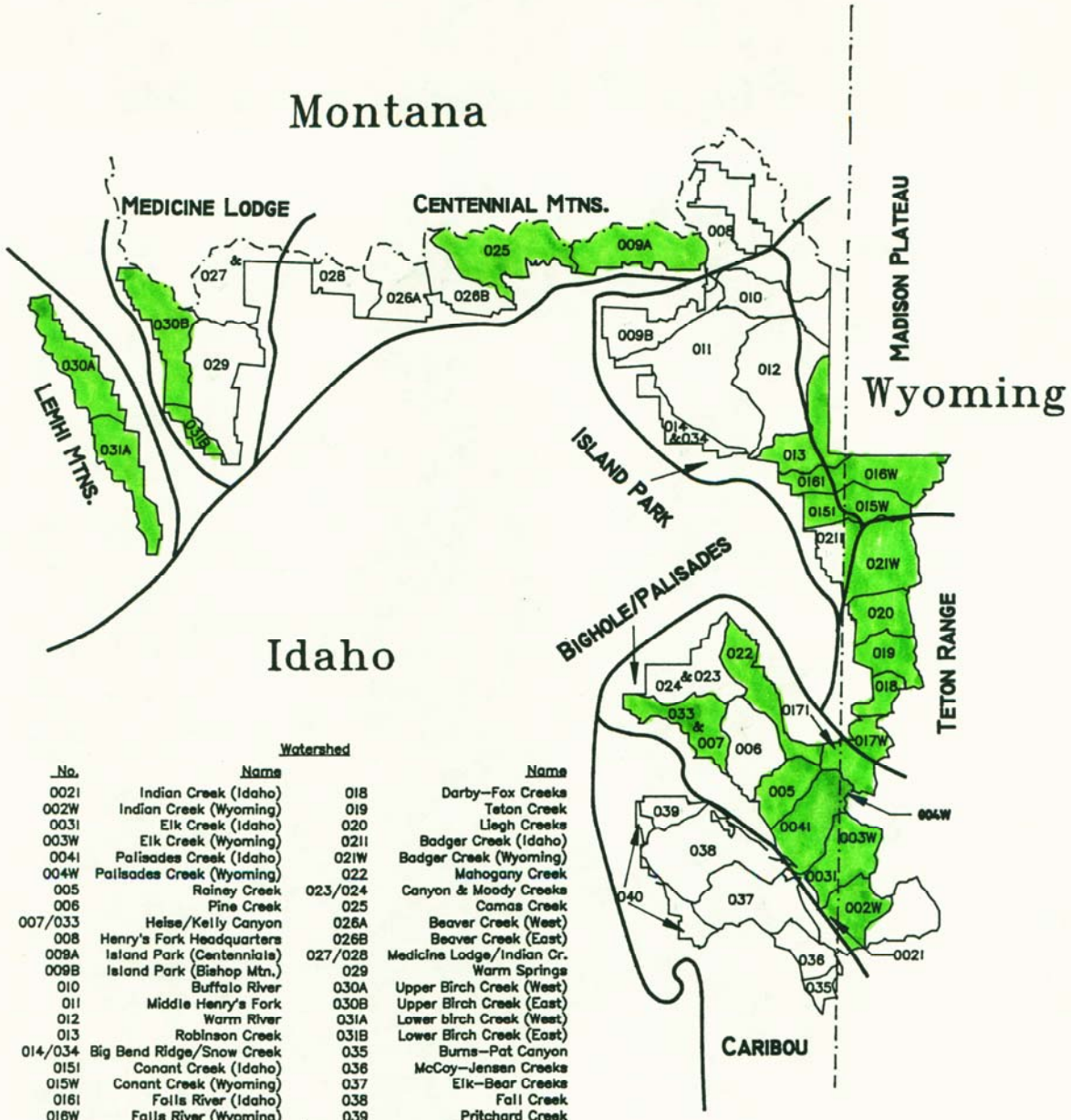
Alternative 1:	62 percent
Alternative 2:	76 percent
Alternative 3:	83 percent
Alternative 3-M:	89 percent
Alternative 4:	89 percent
Alternative 5:	95 percent
Alternative 6:	95 percent

Figures 5.3 through 5.9 display the areas of the Forest which do not exceed the State Fish and Game Department threshold levels for EV for each alternative.

Table 5.9 Existing Condition

Water-shed	Hunter-day Density	Motorized Access Density	u	Eu	1+EU	Est. % Bull Elk Mortality
2I	8.5	2.06	-0.1584	0.85351	1.85351	46
3I	8.5	0.71	-1.01565	0.36217	1.36217	27
4iw	8.5	0.41	-1.20615	0.29935	1.29935	23
5	8.5	0.96	-0.8569	0.42448	1.42448	30
6	8.5	2.36	0.0321	1.03262	2.03262	51
7/33	8.5	2.15	-0.10125	0.90371	1.90371	47
8	13.69	2.56	0.50683	1.66002	2.66002	62
9a	13.69	0.7	-0.67427	0.50953	1.50953	34
9b	37.1	3.18	2.469	11.81063	12.8106	92
10	13.69	7.07	3.37068	29.09831	30.0983	97
11	19.95	5.9	3.04715	21.05525	22.0553	95
12	7.81	6.75	2.77352	16.01491	17.0149	94
13	8.59	2.04	-0.16507	0.84783	1.84783	46
14/34	30.66	0.8	0.52622	1.69252	2.69252	63
15i	13.68	2.24	0.30296	1.35386	2.35386	58
16i	13.68	1.77	0.00451	1.00452	2.00452	50
17i	8.5	1.38	-0.5902	0.55422	1.55422	36
21i	13.68	3.04	0.81096	2.25007	3.25007	69
22	8.01	2.53	0.10722	1.11318	2.11318	53
23/24	10.53	3.51	0.89836	2.45557	3.45557	71
25	13.69	1.81	0.03058	1.03105	2.03105	51
26a	9.51	2.99	0.49982	1.64842	2.64842	62
26b	13.69	4.55	1.77048	5.87367	6.87367	85
27/28	9.51	2.9	0.44267	1.55686	2.55686	61
29	9.51	3.76	0.98877	2.68793	3.68793	73
30a	2.56	2.58	-0.22618	0.79757	1.79757	44
30b	2.56	2.01	-0.58813	0.55536	1.55536	36
31a	2.56	1.82	-0.70878	0.49224	1.49224	33
31b	2.56	2.63	-0.19443	0.82330	1.8233	45
36	19.99	2.43	0.84638	2.33119	3.33119	70
37	19.99	1.77	0.42728	1.53308	2.53308	61
38	19.99	2.9	1.14483	3.14191	4.14191	76
39	19.59	2.47	0.84498	2.32793	3.32793	70
40	19	3.65	1.55475	4.73390	5.7339	83
16W	4.97	0.77	-1.21406	0.29699	1.29699	23
15W	4.97	1.12	-0.99181	0.37090	1.3709	27
021W	4.97	0.73	-1.23946	0.28954	1.28954	22
020	4.97	1.03	-1.04896	0.35030	1.3503	26
019	4.97	1.25	-0.90926	0.40282	1.40282	29
018	4.97	0.98	-1.08071	0.33935	1.33935	25
017W	5.65	0.51	-1.3336	0.26353	1.26353	21
004W	9.86	0.41	-1.11503	0.32791	1.32791	25
003W	9.86	0.29	-1.19123	0.30385	1.30385	23
002W	9.86	1.77	-0.25143	0.77769	1.77769	44

Targhee National Forest
Principal Watersheds



Watershed

No.	Name	No.	Name
0021	Indian Creek (Idaho)	018	Darby–Fox Creeks
002W	Indian Creek (Wyoming)	019	Teton Creek
003I	Elk Creek (Idaho)	020	Liegh Creeks
003W	Elk Creek (Wyoming)	021I	Badger Creek (Idaho)
004I	Palisades Creek (Idaho)	021W	Badger Creek (Wyoming)
004W	Palisades Creek (Wyoming)	022	Mahogany Creek
005	Rainey Creek	023/024	Canyon & Moody Creeks
006	Pine Creek	025	Camas Creek
007/033	Heise/Kelly Canyon	026A	Beaver Creek (West)
008	Henry's Fork Headquarters	026B	Beaver Creek (East)
009A	Island Park (Centennials)	027/028	Medicine Lodge/Indian Cr.
009B	Island Park (Bishop Mtn.)	029	Warm Springs
010	Buffalo River	030A	Upper Birch Creek (West)
011	Middle Henry's Fork	030B	Upper Birch Creek (East)
012	Warm River	031A	Lower birch Creek (West)
013	Robinson Creek	031B	Lower Birch Creek (East)
014/034	Big Bend Ridge/Snow Creek	035	Burns–Pat Canyon
015I	Conant Creek (Idaho)	036	McCoy–Jensen Creeks
015W	Conant Creek (Wyoming)	037	Elk–Bear Creeks
016I	Falls River (Idaho)	038	Fall Creek
016W	Falls River (Wyoming)	039	Pritchard Creek
017I	Trail Creek (Idaho)	040	Brockman Creek
017W	Trail Creek (Wyoming)		

At or below EV thresholds. Existing Condition

N

Not To Scale

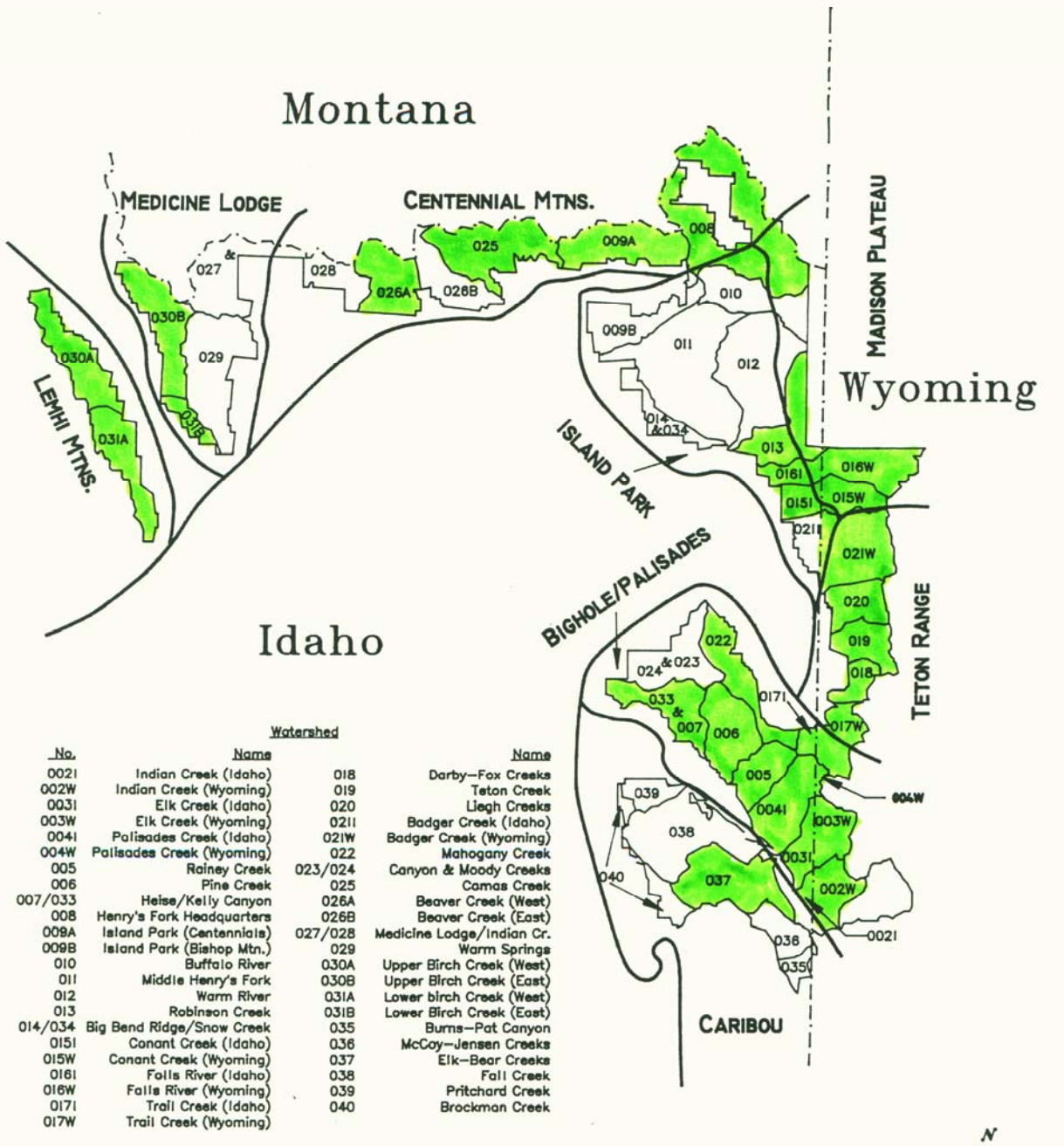
Figure 5.2

Table 5.10

Alt. 1

Water-shed	Hunter-day Density	Motorized Access Density	u	Eu	1+EU	Est. % Bull Elk Mortality
2I	8.5	2.3	-0.006	0.99402	1.99402	50
3I	8.5	0.84	-0.9331	0.39333	1.39333	28
4iw	8.5	0.31	-1.26965	0.28093	1.28093	22
5	8.5	0.8	-0.9585	0.38347	1.38347	28
6	8.5	1.98	-0.2092	0.81123	1.81123	45
7/33	8.5	1.9	-0.26	0.77105	1.77105	44
8	13.69	2.29	0.33538	1.39847	2.39847	58
9a	13.69	0.63	-0.71872	0.48738	1.48738	33
9b	37.1	2.89	2.28485	9.82421	10.8242	91
10	13.69	7.18	3.44053	31.20349	32.2035	97
11	19.95	5.63	2.8757	17.73784	18.7378	95
12	7.81	6.79	2.79892	16.42690	17.4269	94
13	8.59	2.05	-0.15872	0.85324	1.85324	46
14/34	30.66	0.87	0.57067	1.76945	2.76945	64
15i	13.68	2.26	0.31566	1.37116	2.37116	58
16i	13.68	1.48	-0.17964	0.83557	1.83557	46
17i	8.5	1.01	-0.82515	0.43817	1.43817	30
21i	13.68	2.85	0.69031	1.99433	2.99433	67
22	8.01	1.85	-0.32458	0.72283	1.72283	42
23/24	10.53	3.01	0.58086	1.78758	2.78758	64
25	13.69	1.53	-0.14722	0.86310	1.8631	46
26a	9.51	2.14	-0.03993	0.96086	1.96086	49
26b	13.69	3.73	1.24978	3.48958	4.48958	78
27/28	9.51	2.38	0.11247	1.11904	2.11904	53
29	9.51	3.42	0.77287	2.16597	3.16597	68
30a	2.56	2.47	-0.29603	0.74377	1.74377	43
30b	2.56	1.66	-0.81038	0.44469	1.44469	31
31a	2.56	1.76	-0.74688	0.47384	1.47384	32
31b	2.56	2.01	-0.58813	0.55536	1.55536	36
36	19.99	2.38	0.81463	2.25834	3.25834	69
37	19.99	1.69	0.37648	1.45715	2.45715	59
38	19.99	3.09	1.26548	3.54479	4.54479	78
39	19.59	2.47	0.84498	2.32793	3.32793	70
40	19	3.75	1.61825	5.04426	6.04426	83
16W	4.97	0.66	-1.28391	0.27695	1.27695	22
15W	4.97	1.06	-1.02991	0.35704	1.35704	26
021W	4.97	0.4	-1.44901	0.23480	1.2348	19
020	4.97	0.76	-1.22041	0.29511	1.29511	23
019	4.97	1.09	-1.01086	0.36391	1.36391	27
018	4.97	0.99	-1.07436	0.34152	1.34152	25
017W	5.65	0.4	-1.40345	0.24575	1.24575	20
004W	9.86	0.31	-1.17853	0.30773	1.30773	24
003W	9.86	0.21	-1.24203	0.28880	1.2888	22
002W	9.86	1.48	-0.43558	0.64689	1.64689	39

Targhee National Forest
Principal Watersheds



No.	Watershed Name	No.	Watershed Name
0021	Indian Creek (Idaho)	018	Darby–Fox Creeks
002W	Indian Creek (Wyoming)	019	Teton Creek
003I	Elk Creek (Idaho)	020	Llegh Creeks
003W	Elk Creek (Wyoming)	021I	Badger Creek (Idaho)
004I	Palisades Creek (Idaho)	021W	Badger Creek (Wyoming)
004W	Palisades Creek (Wyoming)	022	Mahogany Creek
005	Rainey Creek	023/024	Canyon & Moody Creeks
006	Pine Creek	025	Camas Creek
007/033	Heise/Kelly Canyon	026A	Beaver Creek (West)
008	Henry's Fork Headquarters	026B	Beaver Creek (East)
009A	Island Park (Centennials)	027/028	Medicine Lodge/Indian Cr.
009B	Island Park (Bishop Mtn.)	029	Warm Springs
010	Buffalo River	030A	Upper Birch Creek (West)
011	Middle Henry's Fork	030B	Upper Birch Creek (East)
012	Warm River	031A	Lower birch Creek (West)
013	Robinson Creek	031B	Lower Birch Creek (East)
014/034	Big Bend Ridge/Snow Creek	035	Burns–Pat Canyon
015I	Conant Creek (Idaho)	036	McCoy–Jensen Creeks
015W	Conant Creek (Wyoming)	037	Elk–Bear Creeks
016I	Falls River (Idaho)	038	Fall Creek
016W	Falls River (Wyoming)	039	Pritchard Creek
017I	Trail Creek (Idaho)	040	Brockman Creek
017W	Trail Creek (Wyoming)		

At or below EV thresholds - Alternative 1

Figure 5.3

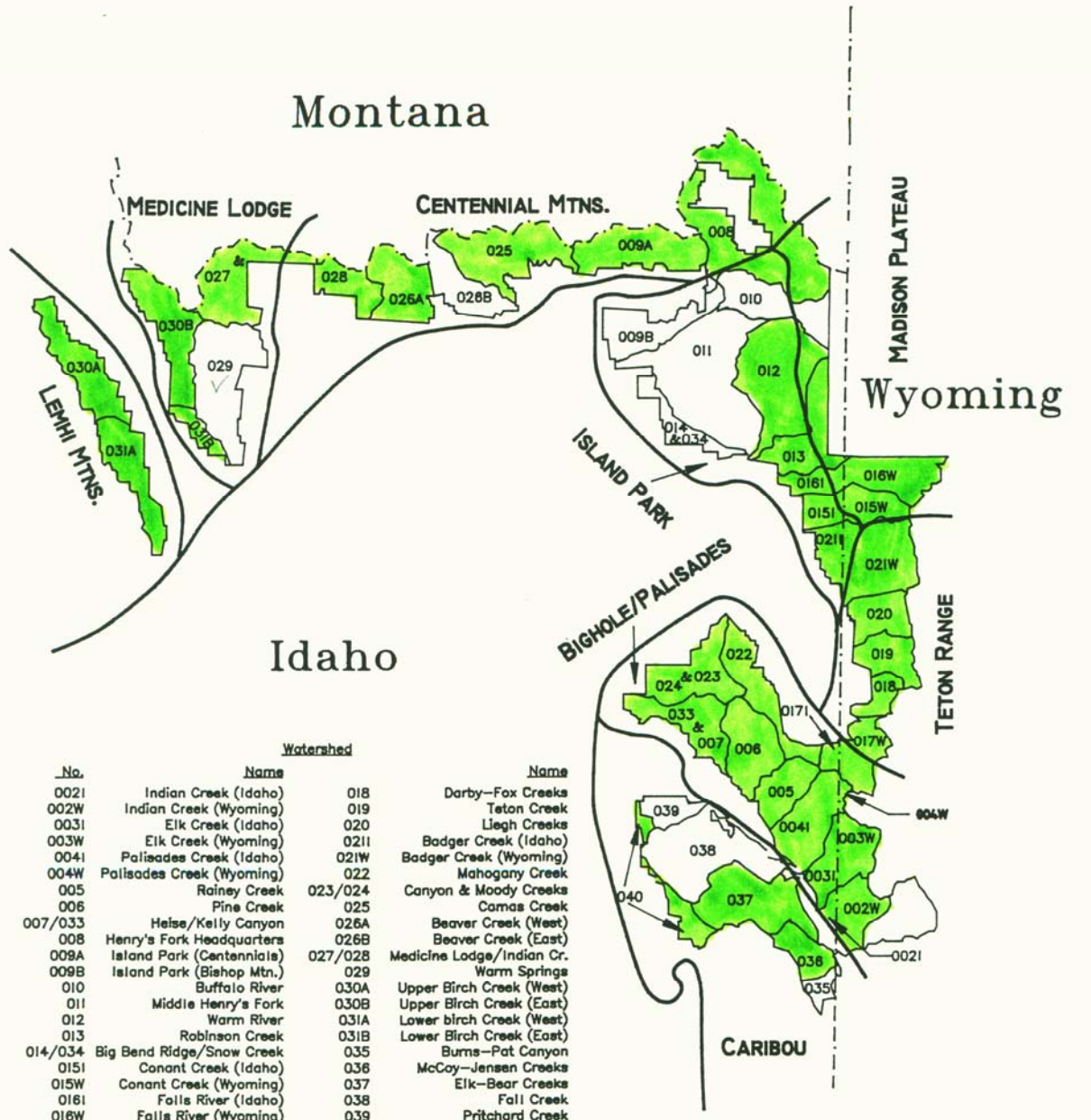
Not To Scale

Table 5.11

Alt. 2

Water-shed	Hunter-day Density	Motorized Access Density	u	Eu	1+EU	Est. % Bull Elk Mortality
2I	8.5	2.07	-0.15205	0.85895	1.85895	46
3I	8.5	0.82	-0.9458	0.38837	1.38837	28
4iw	8.5	0.26	-1.3014	0.27215	1.27215	21
5	8.5	0.45	-1.18075	0.30705	1.30705	23
6	8.5	1.5	-0.514	0.59810	1.5981	37
7/33	8.5	1.54	-0.4886	0.61348	1.61348	38
8	13.69	1.87	0.06868	1.07109	2.07109	52
9a	13.69	0.73	-0.65522	0.51933	1.51933	34
9b	37.1	2.86	2.2658	9.63883	10.6388	91
10	13.69	3.22	0.92593	2.52421	3.52421	72
11	19.95	5.82	2.99635	20.01236	21.0124	95
12	7.81	2.31	-0.04588	0.95516	1.95516	49
13	8.59	1.03	-0.80642	0.44645	1.44645	31
14/34	30.66	0.9	0.58972	1.80348	2.80348	64
15i	13.68	2.04	0.17596	1.19239	2.19239	54
16i	13.68	0.92	-0.53524	0.58553	1.58553	37
17i	8.5	0.74	-0.9966	0.36913	1.36913	27
21i	13.68	1.31	-0.28759	0.75007	1.75007	43
22	8.01	1.48	-0.55953	0.57148	1.57148	36
23/24	10.53	2.37	0.17446	1.19060	2.1906	54
25	13.69	1.2	-0.35677	0.69993	1.69993	41
26a	9.51	2.18	-0.01453	0.98558	1.98558	50
26b	13.69	2.74	0.62113	1.86103	2.86103	65
27/28	9.51	2.23	0.01722	1.01737	2.01737	50
29	9.51	3.17	0.61412	1.84803	2.84803	65
30a	2.56	1.66	-0.81038	0.44469	1.44469	31
30b	2.56	1.62	-0.83578	0.43354	1.43354	30
31a	2.56	0.45	-1.57873	0.20624	1.20624	17
31b	2.56	1.57	-0.86753	0.41999	1.41999	30
36	19.99	1.14	0.02723	1.02760	2.0276	51
37	19.99	0.85	-0.15692	0.85477	1.85477	46
38	19.99	2.24	0.72573	2.06624	3.06624	67
39	19.59	2.42	0.81323	2.25518	3.25518	69
40	19	1.61	0.25935	1.29609	2.29609	56
16W	4.97	0.5	-1.38551	0.25020	1.2502	20
15W	4.97	0.64	-1.29661	0.27346	1.27346	21
021W	4.97	0.6	-1.32201	0.26660	1.2666	21
020	4.97	0.51	-1.37916	0.25179	1.25179	20
019	4.97	0.94	-1.10611	0.33084	1.33084	25
018	4.97	0.94	-1.10611	0.33084	1.33084	25
017W	5.65	0.28	-1.47965	0.22772	1.22772	19
004W	9.86	0.26	-1.21028	0.29811	1.29811	23
003W	9.86	0.1	-1.31188	0.26931	1.26931	21
002W	9.86	1.47	-0.44193	0.64279	1.64279	39

Targhee National Forest
Principal Watersheds



Watershed No.	Name	Watershed No.	Name
0021	Indian Creek (Idaho)	018	Darby–Fox Creeks
002W	Indian Creek (Wyoming)	019	Teton Creek
0031	Elk Creek (Idaho)	020	Liegh Creeks
003W	Elk Creek (Wyoming)	0211	Badger Creek (Idaho)
0041	Palisades Creek (Idaho)	021W	Badger Creek (Wyoming)
004W	Palisades Creek (Wyoming)	022	Mahogany Creek
005	Rainey Creek	023/024	Canyon & Moody Creeks
006	Pine Creek	025	Camas Creek
007/033	Heise/Kelly Canyon	026A	Beaver Creek (West)
008	Henry's Fork Headquarters	026B	Beaver Creek (East)
009A	Island Park (Centennials)	027/028	Medicine Lodge/Indian Cr.
009B	Island Park (Bishop Mtn.)	029	Warm Springs
010	Buffalo River	030A	Upper Birch Creek (West)
011	Middle Henry's Fork	030B	Upper Birch Creek (East)
012	Warm River	031A	Lower birch Creek (West)
013	Robinson Creek	031B	Lower Birch Creek (East)
014/034	Big Bend Ridge/Snow Creek	035	Burns–Pat Canyon
0151	Conant Creek (Idaho)	036	McCoy–Jensen Creeks
015W	Conant Creek (Wyoming)	037	Elk–Bear Creeks
0161	Falls River (Idaho)	038	Fall Creek
016W	Falls River (Wyoming)	039	Pritchard Creek
0171	Trail Creek (Idaho)	040	Brockman Creek
017W	Trail Creek (Wyoming)		

At or below EV thresholds - Alternative 2

N

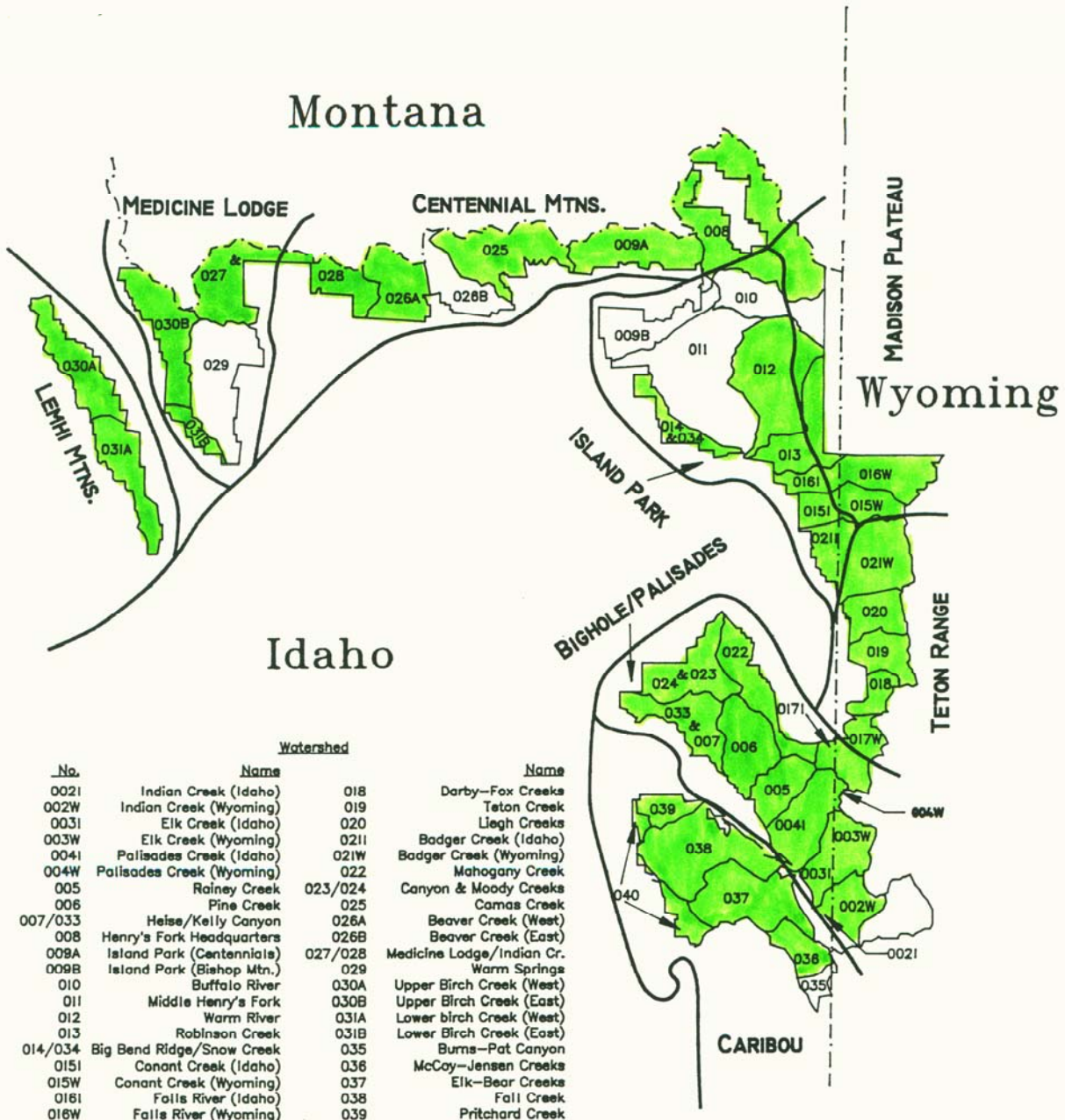
Figure 5.4

Not To Scale

Table 5.12 Alt. 3

Water-shed	Hunter-day Density	Motorized Access Density	u	Eu	1+EU	Est. % Bull Elk Mortality
2I	8.5	1.47	-0.53305	0.58681	1.58681	37
3I	8.5	0.65	-1.05375	0.34863	1.34863	26
4iw	8.5	0.27	-1.29505	0.27388	1.27388	21
5	8.5	0.41	-1.20615	0.29935	1.29935	23
6	8.5	0.79	-0.96485	0.38104	1.38104	28
7/33	8.5	1.09	-0.77435	0.46100	1.461	32
8	13.69	1.51	-0.15992	0.85221	1.85221	46
9a	13.69	0.63	-0.71872	0.48738	1.48738	33
9b	37.1	2.26	1.8848	6.58504	7.58504	87
10	13.69	2.77	0.64018	1.89682	2.89682	65
11	19.95	2.74	1.04055	2.83077	3.83077	74
12	7.81	1.22	-0.73803	0.47805	1.47805	32
13	8.59	0.82	-0.93977	0.39072	1.39072	28
14/34	30.66	0.6	0.39922	1.49066	2.49066	60
15i	13.68	0.82	-0.59874	0.54950	1.5495	35
16i	13.68	0.76	-0.63684	0.52896	1.52896	35
17i	8.5	0.65	-1.05375	0.34863	1.34863	26
21i	13.68	0.9	-0.54794	0.57814	1.57814	37
22	8.01	1.06	-0.82623	0.43770	1.4377	30
23/24	10.53	1.26	-0.53039	0.58838	1.58838	37
25	13.69	1.21	-0.35042	0.70439	1.70439	41
26a	9.51	1.81	-0.24948	0.77921	1.77921	44
26b	13.69	2.64	0.55763	1.74653	2.74653	64
27/28	9.51	2.14	-0.03993	0.96086	1.96086	49
29	9.51	2.95	0.47442	1.60708	2.60708	62
30a	2.56	1.62	-0.83578	0.43354	1.43354	30
30b	2.56	1.56	-0.87388	0.41733	1.41733	29
31a	2.56	0.47	-1.56603	0.20887	1.20887	17
31b	2.56	1.65	-0.81673	0.44187	1.44187	31
36	19.99	1.07	-0.01722	0.98293	1.98293	50
37	19.99	0.86	-0.15057	0.86022	1.86022	46
38	19.99	1.42	0.20503	1.22756	2.22756	55
39	19.59	1.35	0.13378	1.14314	2.14314	53
40	19	1.12	-0.0518	0.94952	1.94952	49
16W	4.97	0.63	-1.30296	0.27173	1.27173	21
15W	4.97	0.53	-1.36646	0.25501	1.25501	20
021W	4.97	0.4	-1.44901	0.23480	1.2348	19
020	4.97	0.52	-1.37281	0.25339	1.25339	20
019	4.97	0.67	-1.27756	0.27872	1.27872	22
018	4.97	0.76	-1.22041	0.29511	1.29511	23
017W	5.65	0.27	-1.486	0.22628	1.22628	18
004W	9.86	0.27	-1.20393	0.30001	1.30001	23
003W	9.86	0.1	-1.31188	0.26931	1.26931	21
002W	9.86	1.39	-0.49273	0.61096	1.61096	38

Targhee National Forest
Principal Watersheds



Watershed No.	Name		Name
0021	Indian Creek (Idaho)	018	Darby–Fox Creeks
002W	Indian Creek (Wyoming)	019	Teton Creek
0031	Elk Creek (Idaho)	020	Llegh Creeks
003W	Elk Creek (Wyoming)	0211	Badger Creek (Idaho)
0041	Palisades Creek (Idaho)	021W	Badger Creek (Wyoming)
004W	Palisades Creek (Wyoming)	022	Mahogany Creek
005	Rainey Creek	023/024	Canyon & Moody Creeks
006	Pine Creek	025	Camas Creek
007/033	Heise/Kelly Canyon	026A	Beaver Creek (West)
008	Henry's Fork Headquarters	026B	Beaver Creek (East)
009A	Island Park (Centennials)	027/028	Medicine Lodge/Indian Cr.
009B	Island Park (Bishop Mtn.)	029	Warm Springs
010	Buffalo River	030A	Upper Birch Creek (West)
011	Middle Henry's Fork	030B	Upper Birch Creek (East)
012	Warm River	031A	Lower birch Creek (West)
013	Robinson Creek	031B	Lower Birch Creek (East)
014/034	Big Bend Ridge/Snow Creek	035	Burns–Pat Canyon
0151	Conant Creek (Idaho)	036	McCoy–Jensen Creeks
015W	Conant Creek (Wyoming)	037	Elk–Bear Creeks
0161	Falls River (Idaho)	038	Fall Creek
016W	Falls River (Wyoming)	039	Pritchard Creek
0171	Trail Creek (Idaho)	040	Brockman Creek
017W	Trail Creek (Wyoming)		

At or below EV thresholds - Alternative 3

N

Not To Scale

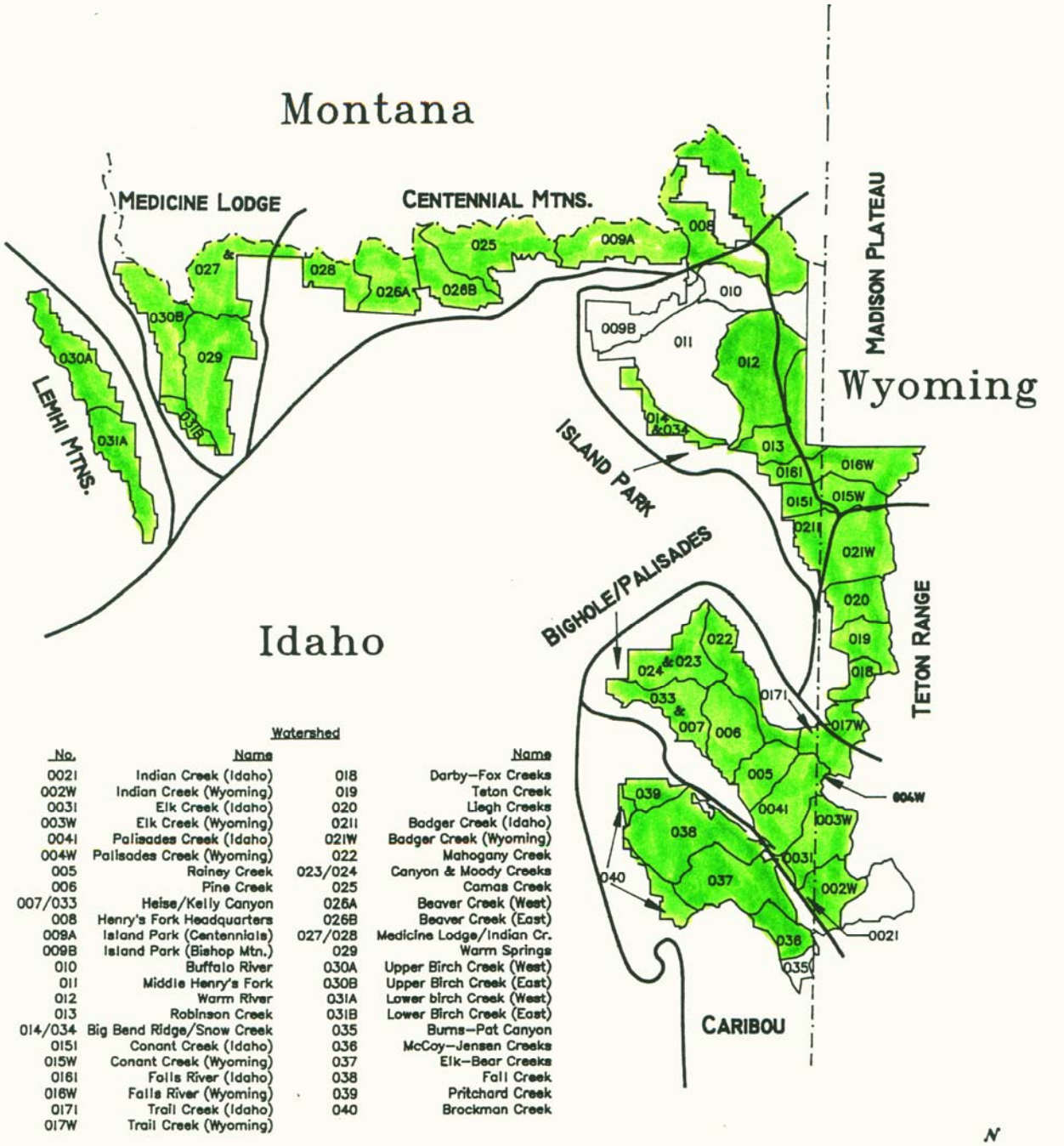
Figure 5.5

Table 5.13

Alt. 3-M

Water-shed	Hunter-day Density	Motorize Access Density	u	Eu	1+EU	Est. % Bull Elk Mortality
2I	8.5	1.53	-0.49495	0.60960	1.6096	38
3I	8.5	0.65	-1.05375	0.34863	1.34863	26
4iw	8.5	0.29	-1.28235	0.27738	1.27738	22
5	8.5	0.45	-1.18075	0.30705	1.30705	23
6	8.5	0.8	-0.9585	0.38347	1.38347	28
7/33	8.5	1.23	-0.68545	0.50386	1.50386	34
8	13.69	1.23	-0.33772	0.71340	1.7134	42
9a	13.69	0.63	-0.71872	0.48738	1.48738	33
9b	37.1	2.46	2.0118	7.47676	8.47676	88
10	13.69	2.53	0.48778	1.62870	2.6287	62
11	19.95	2.6	0.95165	2.58998	3.58998	72
12	7.81	1.11	-0.80788	0.44580	1.4458	31
13	8.59	0.82	-0.93977	0.39072	1.39072	28
14/34	30.66	0.6	0.39922	1.49066	2.49066	60
15i	13.68	0.71	-0.66859	0.51243	1.51243	34
16i	13.68	0.64	-0.71304	0.49015	1.49015	33
17i	8.5	0.84	-0.9331	0.39333	1.39333	28
21i	13.68	0.83	-0.59239	0.55300	1.553	36
22	8.01	1.39	-0.61668	0.53973	1.53973	35
23/24	10.53	1.56	-0.33989	0.71185	1.71185	42
25	13.69	0.78	-0.62347	0.53608	1.53608	35
26a	9.51	1.65	-0.35108	0.70393	1.70393	41
26b	13.69	1.52	-0.15357	0.85764	1.85764	46
27/28	9.51	0.82	-0.87813	0.41556	1.41556	29
29	9.51	0.85	-0.85908	0.42355	1.42355	30
30a	2.56	0.81	-1.35013	0.25921	1.25921	21
30b	2.56	1.5	-0.91198	0.40173	1.40173	29
31a	2.56	0.53	-1.52793	0.21698	1.21698	18
31b	2.56	1.06	-1.19138	0.30380	1.3038	23
36	19.99	0.96	-0.08707	0.91661	1.91661	48
37	19.99	0.79	-0.19502	0.82282	1.82282	45
38	19.99	1.41	0.19868	1.21979	2.21979	55
39	19.59	1.3	0.10203	1.10742	2.10742	53
40	19	1.12	-0.0518	0.94952	1.94952	49
16W	4.97	0.37	-1.46806	0.23037	1.23037	19
15W	4.97	0.58	-1.33471	0.26323	1.26323	21
021W	4.97	0.37	-1.46806	0.23037	1.23037	19
020	4.97	0.46	-1.41091	0.24392	1.24392	20
019	4.97	0.85	-1.16326	0.31247	1.31247	24
018	4.97	0.81	-1.18866	0.30463	1.30463	23
017W	5.65	0.22	-1.51775	0.21920	1.2192	18
004W	9.86	0.29	-1.19123	0.30385	1.30385	23
003W	9.86	0.1	-1.31188	0.26931	1.26931	21
002W	9.86	1.41	-0.48003	0.61876	1.61876	38

Targhee National Forest
Principal Watersheds



No.	Watershed Name	No.	Watershed Name
0021	Indian Creek (Idaho)	018	Darby–Fox Creeks
002W	Indian Creek (Wyoming)	019	Teton Creek
0031	Elk Creek (Idaho)	020	Llegh Creeks
003W	Elk Creek (Wyoming)	021I	Badger Creek (Idaho)
004I	Palisades Creek (Idaho)	021W	Badger Creek (Wyoming)
004W	Palisades Creek (Wyoming)	022	Mahogany Creek
005	Rainey Creek	023/024	Canyon & Moody Creeks
006	Pine Creek	025	Camas Creek
007/033	Heise/Kelly Canyon	026A	Beaver Creek (West)
008	Henry's Fork Headquarters	026B	Beaver Creek (East)
009A	Island Park (Centennials)	027/028	Medicine Lodge/Indian Cr.
009B	Island Park (Bishop Mtn.)	029	Warm Springs
010	Buffalo River	030A	Upper Birch Creek (West)
011	Middle Henry's Fork	030B	Upper Birch Creek (East)
012	Warm River	031A	Lower birch Creek (West)
013	Robinson Creek	031B	Lower Birch Creek (East)
014/034	Big Bend Ridge/Snow Creek	035	Burns–Pat Canyon
015I	Conant Creek (Idaho)	036	McCoy–Jensen Creeks
015W	Conant Creek (Wyoming)	037	Elk–Bear Creeks
016I	Falls River (Idaho)	038	Fall Creek
016W	Falls River (Wyoming)	039	Pritchard Creek
017I	Trail Creek (Idaho)	040	Brockman Creek
017W	Trail Creek (Wyoming)		

At or below EV thresholds - Alternative 3M

Figure 5.6

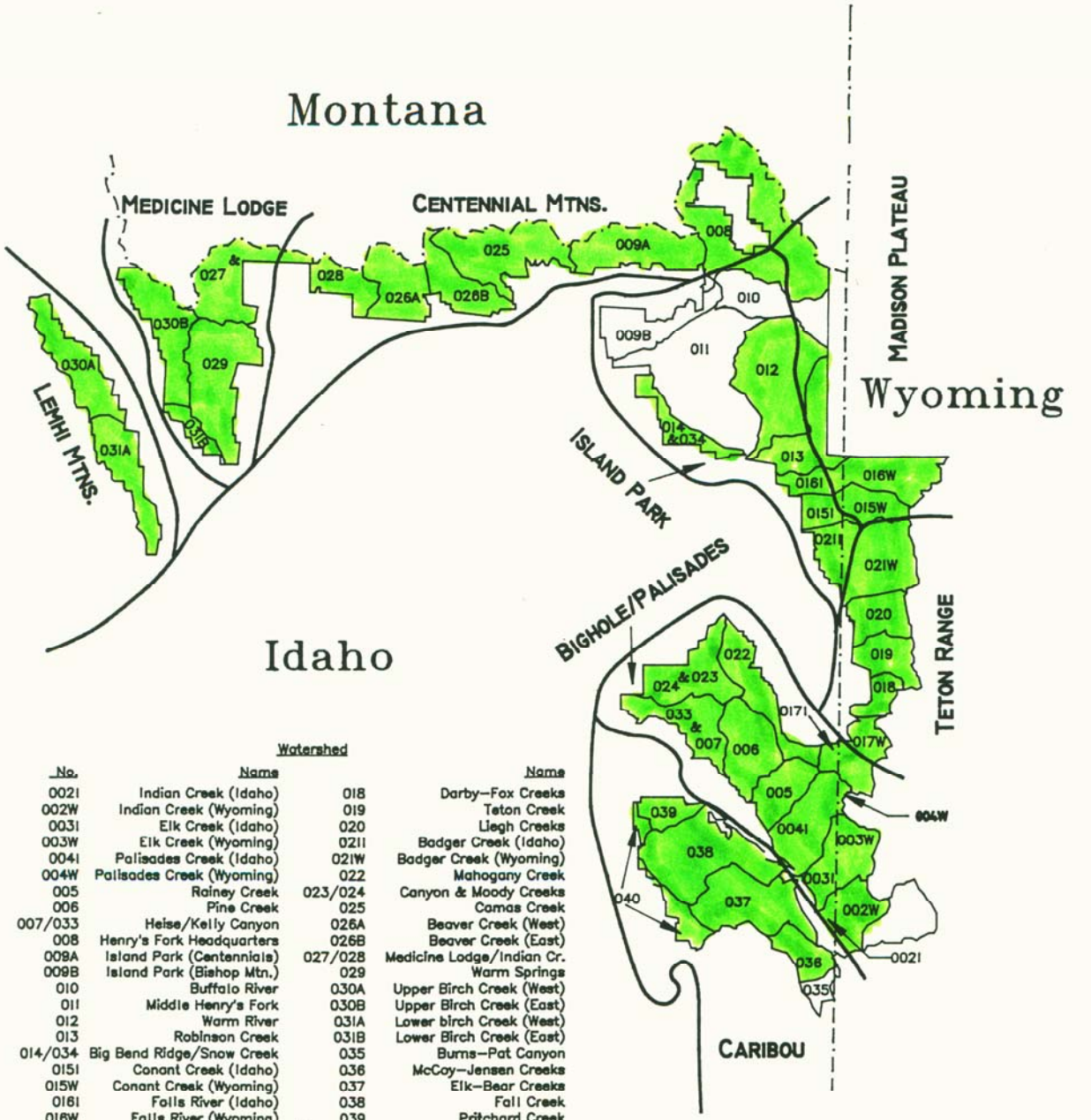
Not To Scale

Table 5.14

Alt. 4

Water-shed	Hunter-day Density	Motorized Access Density	u	Eu	1+EU	Est. % Bull Elk Mortality
2I	8.5	1.46	-0.5394	0.58310	1.5831	37
3I	8.5	0.69	-1.02835	0.35760	1.3576	26
4iw	8.5	0.27	-1.29505	0.27388	1.27388	21
5	8.5	0.43	-1.19345	0.30317	1.30317	23
6	8.5	0.66	-1.0474	0.35085	1.35085	26
7/33	8.5	1.08	-0.7807	0.45809	1.45809	31
8	13.69	1.31	-0.28692	0.75057	1.75057	43
9a	13.69	0.48	-0.81397	0.44310	1.4431	31
9b	37.1	2.27	1.89115	6.62699	7.62699	87
10	13.69	2.67	0.57668	1.78012	2.78012	64
11	19.95	1.97	0.5516	1.73603	2.73603	63
12	7.81	0.88	-0.95393	0.38522	1.38522	28
13	8.59	0.75	-0.98422	0.37373	1.37373	27
14/34	30.66	0.58	0.38652	1.47185	2.47185	60
15i	13.68	0.73	-0.65589	0.51898	1.51898	34
16i	13.68	0.65	-0.70669	0.49327	1.49327	33
17i	8.5	0.68	-1.0347	0.35533	1.35533	26
21i	13.68	0.75	-0.64319	0.52561	1.52561	34
22	8.01	1.15	-0.76908	0.46344	1.46344	32
23/24	10.53	1.23	-0.54944	0.57727	1.57727	37
25	13.69	0.77	-0.62982	0.53269	1.53269	35
26a	9.51	1.37	-0.52888	0.58926	1.58926	37
26b	13.69	1.43	-0.21072	0.81000	1.81	45
27/28	9.51	0.62	-1.00513	0.36600	1.366	27
29	9.51	0.47	-1.10038	0.33274	1.33274	25
30a	2.56	0.15	-1.76923	0.17046	1.17046	15
30b	2.56	0.35	-1.64223	0.19355	1.19355	16
31a	2.56	0.19	-1.74383	0.17485	1.17485	15
31b	2.56	0.39	-1.61683	0.19853	1.19853	17
36	19.99	1.06	-0.02357	0.97671	1.97671	49
37	19.99	0.81	-0.18232	0.83333	1.83333	45
38	19.99	1.38	0.17963	1.19677	2.19677	54
39	19.59	1.34	0.12743	1.13591	2.13591	53
40	19	0.99	-0.13435	0.87428	1.87428	47
16W	4.97	0.36	-1.47441	0.22891	1.22891	19
15W	4.97	0.48	-1.39821	0.24704	1.24704	20
021W	4.97	0.25	-1.54426	0.21347	1.21347	18
020	4.97	0.52	-1.37281	0.25339	1.25339	20
019	4.97	0.52	-1.37281	0.25339	1.25339	20
018	4.97	0.42	-1.43631	0.23780	1.2378	19
017W	5.65	0.27	-1.486	0.22628	1.22628	18
004W	9.86	0.27	-1.20393	0.30001	1.30001	23
003W	9.86	0	-1.37538	0.25274	1.25274	20
002W	9.86	1.21	-0.60703	0.54497	1.54497	35

Targhee National Forest
Principal Watersheds



No.	Watershed Name	No.	Watershed Name
0021	Indian Creek (Idaho)	018	Darby–Fox Creeks
002W	Indian Creek (Wyoming)	019	Teton Creek
003I	Elk Creek (Idaho)	020	Liegh Creeks
003W	Elk Creek (Wyoming)	021I	Badger Creek (Idaho)
004I	Palisades Creek (Idaho)	021W	Badger Creek (Wyoming)
004W	Palisades Creek (Wyoming)	022	Mahogany Creek
005	Rainey Creek	023/024	Canyon & Moody Creeks
006	Pine Creek	025	Camas Creek
007/033	Heise/Kelly Canyon	026A	Beaver Creek (West)
008	Henry's Fork Headquarters	026B	Beaver Creek (East)
009A	Island Park (Centennials)	027/028	Medicine Lodge/Indian Cr.
009B	Island Park (Bishop Mtn.)	029	Warm Springs
010	Buffalo River	030A	Upper Birch Creek (West)
011	Middle Henry's Fork	030B	Upper Birch Creek (East)
012	Warm River	031A	Lower birch Creek (West)
013	Robinson Creek	031B	Lower Birch Creek (East)
014/034	Big Bend Ridge/Snow Creek	035	Burns–Pat Canyon
015I	Conant Creek (Idaho)	036	McCoy–Jensen Creeks
015W	Conant Creek (Wyoming)	037	Elk–Bear Creeks
016I	Falls River (Idaho)	038	Fall Creek
016W	Falls River (Wyoming)	039	Pritchard Creek
017I	Trail Creek (Idaho)	040	Brockman Creek
017W	Trail Creek (Wyoming)		

At or below EV thresholds - Alternative 4

N

Not To Scale

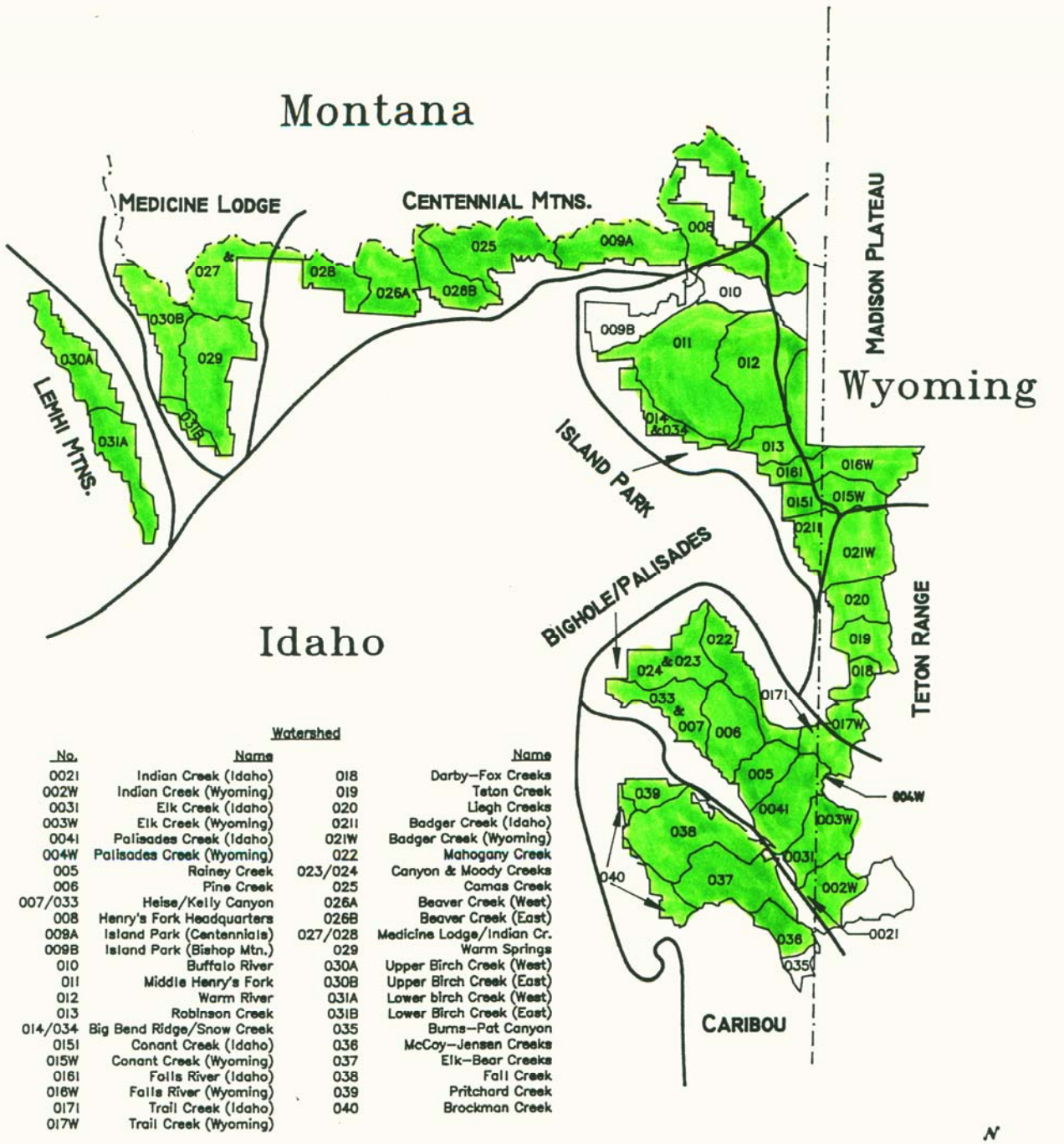
Figure 5.7

Table 5.15

Alt. 5

Water-shed	Hunter-day Density	Motorized Access Density	u	Eu	1+EU	Est. % Bull Elk Mortality
2I	8.5	1.46	-0.5394	0.58310	1.5831	37
3I	8.5	0.69	-1.02835	0.35760	1.3576	26
4iw	8.5	0.24	-1.3141	0.26872	1.26872	21
5	8.5	0.43	-1.19345	0.30317	1.30317	23
6	8.5	0.41	-1.20615	0.29935	1.29935	23
7/33	8.5	0.56	-1.1109	0.32926	1.32926	25
8	13.69	1.4	-0.22977	0.79472	1.79472	44
9a	13.69	0.64	-0.71237	0.49048	1.49048	33
9b	37.1	2.24	1.8721	6.50194	7.50194	87
10	13.69	2.56	0.50683	1.66002	2.66002	62
11	19.95	1.35	0.1579	1.17105	2.17105	54
12	7.81	0.8	-1.00473	0.36614	1.36614	27
13	8.59	0.72	-1.00327	0.36668	1.36668	27
14/34	30.66	0.51	0.34207	1.40786	2.40786	58
15i	13.68	0.73	-0.65589	0.51898	1.51898	34
16i	13.68	0.47	-0.82099	0.44000	1.44	31
17i	8.5	0.69	-1.02835	0.35760	1.3576	26
21i	13.68	0.92	-0.53524	0.58553	1.58553	37
22	8.01	0.83	-0.97228	0.37822	1.37822	27
23/24	10.53	0.74	-0.86059	0.42291	1.42291	30
25	13.69	0.7	-0.67427	0.50953	1.50953	34
26a	9.51	1.36	-0.53523	0.58553	1.58553	37
26b	13.69	1.19	-0.36312	0.69550	1.6955	41
27/28	9.51	0.31	-1.20198	0.30060	1.3006	23
29	9.51	0.31	-1.20198	0.30060	1.3006	23
30a	2.56	0.06	-1.82638	0.16100	1.161	14
30b	2.56	0.13	-1.78193	0.16831	1.16831	14
31a	2.56	0.03	-1.84543	0.15796	1.15796	14
31b	2.56	0.35	-1.64223	0.19355	1.19355	16
36	19.99	1.06	-0.02357	0.97671	1.97671	49
37	19.99	0.8	-0.18867	0.82806	1.82806	45
38	19.99	1.34	0.15423	1.16676	2.16676	54
39	19.59	1.32	0.11473	1.12157	2.12157	53
40	19	1.03	-0.10895	0.89678	1.89678	47
16W	4.97	0.33	-1.49346	0.22459	1.22459	18
15W	4.97	0.47	-1.40456	0.24548	1.24548	20
021W	4.97	0.26	-1.53791	0.21483	1.21483	18
020	4.97	0.26	-1.53791	0.21483	1.21483	18
019	4.97	0.45	-1.41726	0.24238	1.24238	20
018	4.97	0.41	-1.44266	0.23630	1.2363	19
017W	5.65	0.18	-1.54315	0.21371	1.21371	18
004W	9.86	0.24	-1.22298	0.29435	1.29435	23
003W	9.86	0	-1.37538	0.25274	1.25274	20
002W	9.86	1.11	-0.67053	0.51144	1.51144	34

Targhee National Forest
Principal Watersheds



Watershed

No.	Name	No.	Name
0021	Indian Creek (Idaho)	018	Darby–Fox Creeks
002W	Indian Creek (Wyoming)	019	Teton Creek
003I	Elk Creek (Idaho)	020	Liegh Creeks
003W	Elk Creek (Wyoming)	021I	Badger Creek (Idaho)
004I	Palisades Creek (Idaho)	021W	Badger Creek (Wyoming)
004W	Palisades Creek (Wyoming)	022	Mahogany Creek
005	Rainey Creek	023/024	Canyon & Moody Creeks
006	Pine Creek	025	Camas Creek
007/033	Heise/Kelly Canyon	026A	Beaver Creek (West)
008	Henry's Fork Headquarters	026B	Beaver Creek (East)
009A	Island Park (Centennials)	027/028	Medicine Lodge/Indian Cr.
009B	Island Park (Bishop Mtn.)	029	Warm Springs
010	Buffalo River	030A	Upper Birch Creek (West)
011	Middle Henry's Fork	030B	Upper Birch Creek (East)
012	Warm River	031A	Lower birch Creek (West)
013	Robinson Creek	031B	Lower Birch Creek (East)
014/034	Big Bend Ridge/Snow Creek	035	Burns–Pat Canyon
015I	Conant Creek (Idaho)	036	McCoy–Jensen Creeks
015W	Conant Creek (Wyoming)	037	Elk–Bear Creeks
016I	Falls River (Idaho)	038	Fall Creek
016W	Falls River (Wyoming)	039	Pritchard Creek
017I	Trail Creek (Idaho)	040	Brockman Creek
017W	Trail Creek (Wyoming)		

At or below EV thresholds - Alternative 5

N

Not To Scale

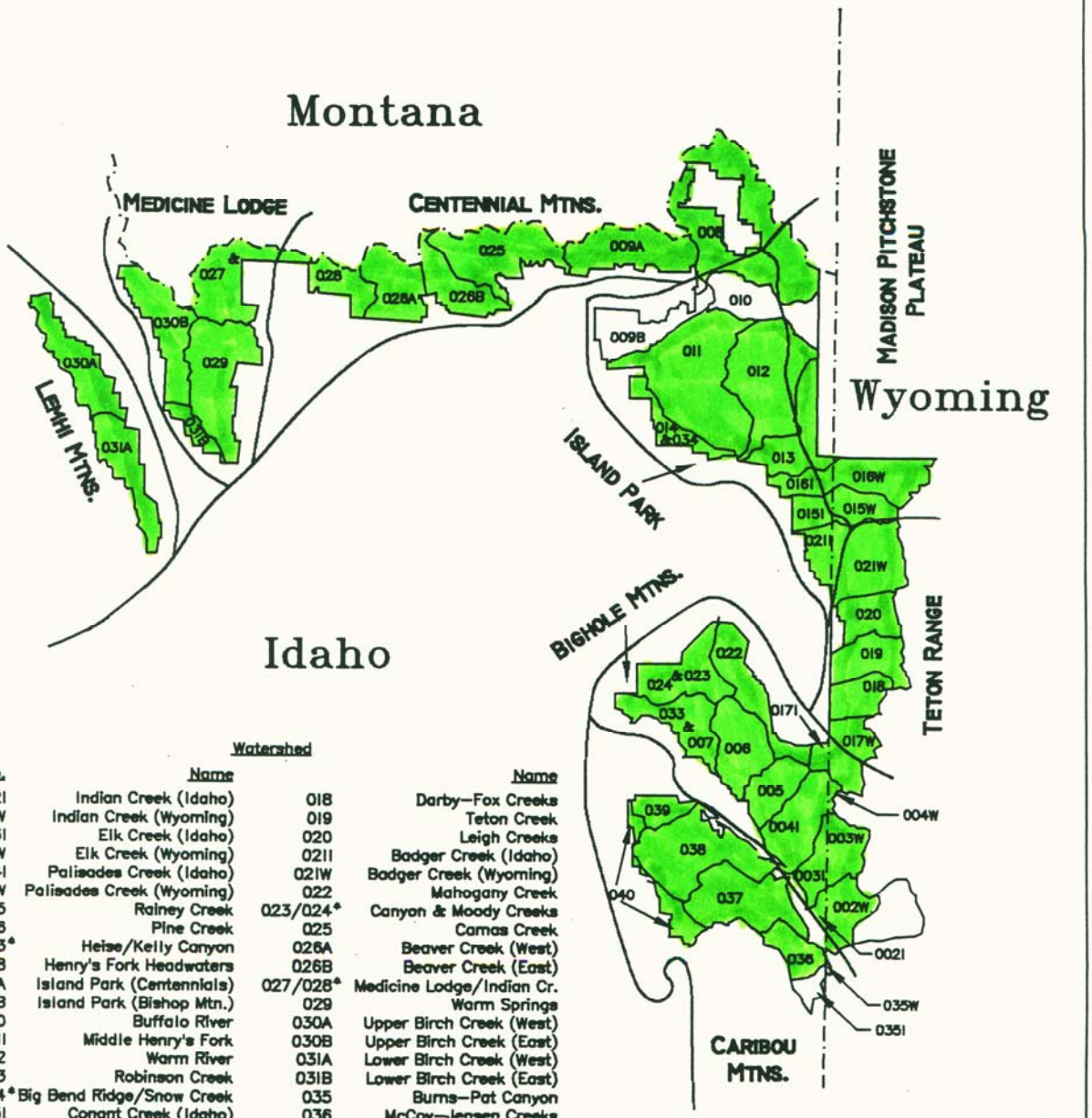
Figure 5.8

Table 5.16

Alt. 6

Water-shed	Hunter-day Density	Motorized Access Density	u	Eu	1+EU	Est. % Bull Elk Mortality
2I	8.5	1.31	-0.63465	0.53012	1.53012	35
3I	8.5	0.7	-1.022	0.35987	1.35987	26
4iw	8.5	0.24	-1.3141	0.26872	1.26872	21
5	8.5	0.09	-1.40935	0.24430	1.2443	20
6	8.5	0.37	-1.23155	0.29184	1.29184	23
7/33	8.5	0.48	-1.1617	0.31295	1.31295	24
8	13.69	1.34	-0.26787	0.76501	1.76501	43
9a	13.69	0.58	-0.75047	0.47214	1.47214	32
9b	37.1	2.19	1.84035	6.29874	7.29874	86
10	13.69	2.68	0.58303	1.79146	2.79146	64
11	19.95	1.58	0.30395	1.35520	2.3552	58
12	7.81	0.84	-0.97933	0.37556	1.37556	27
13	8.59	0.72	-1.00327	0.36668	1.36668	27
14/34	30.66	0.58	0.38652	1.47185	2.47185	60
15i	13.68	0.73	-0.65589	0.51898	1.51898	34
16i	13.68	0.47	-0.82099	0.44000	1.44	31
17i	8.5	0.69	-1.02835	0.35760	1.3576	26
21i	13.68	0.92	-0.53524	0.58553	1.58553	37
22	8.01	0.53	-1.16278	0.31262	1.31262	24
23/24	10.53	0.81	-0.81614	0.44214	1.44214	31
25	13.69	0.62	-0.72507	0.48429	1.48429	33
26a	9.51	0.85	-0.85908	0.42355	1.42355	30
26b	13.69	0.77	-0.62982	0.53269	1.53269	35
27/28	9.51	0.21	-1.26548	0.28210	1.2821	22
29	9.51	0.12	-1.32263	0.26643	1.26643	21
30a	2.56	0.06	-1.82638	0.16100	1.161	14
30b	2.56	0.13	-1.78193	0.16831	1.16831	14
31a	2.56	0	-1.86448	0.15498	1.15498	13
31b	2.56	0.35	-1.64223	0.19355	1.19355	16
36	19.99	1.05	-0.02992	0.97052	1.97052	49
37	19.99	0.24	-0.54427	0.58027	1.58027	37
38	19.99	0.85	-0.15692	0.85477	1.85477	46
39	19.59	1.33	0.12108	1.12872	2.12872	53
40	19	0.92	-0.1788	0.83627	1.83627	46
16W	4.97	0.34	-1.48711	0.22602	1.22602	18
15W	4.97	0.46	-1.41091	0.24392	1.24392	20
021W	4.97	0.26	-1.53791	0.21483	1.21483	18
020	4.97	0.39	-1.45536	0.23332	1.23332	19
019	4.97	0.37	-1.46806	0.23037	1.23037	19
018	4.97	0.39	-1.45536	0.23332	1.23332	19
017W	5.65	0.2	-1.53045	0.21644	1.21644	18
004W	9.86	0.24	-1.22298	0.29435	1.29435	23
003W	9.86	0	-1.37538	0.25274	1.25274	20
002W	9.86	0.7	-0.93088	0.39421	1.39421	28

Targhee National Forest
Principal Watersheds



Watershed

No.	Name	No.	Name
002I	Indian Creek (Idaho)	018	Darby–Fox Creeks
002W	Indian Creek (Wyoming)	019	Teton Creek
003I	Elk Creek (Idaho)	020	Leigh Creeks
003W	Elk Creek (Wyoming)	021I	Badger Creek (Idaho)
004I	Palisades Creek (Idaho)	021W	Badger Creek (Wyoming)
004W	Palisades Creek (Wyoming)	022	Mahogany Creek
005	Rainey Creek	023/024*	Canyon & Moody Creeks
006	Pine Creek	025	Camas Creek
007/033*	Heise/Kelly Canyon	026A	Beaver Creek (West)
008	Henry's Fork Headwaters	026B	Beaver Creek (East)
009A	Island Park (Centennials)	027/028*	Medicine Lodge/Indian Cr.
009B	Island Park (Bishop Mtn.)	029	Warm Springs
010	Buffalo River	030A	Upper Birch Creek (West)
011	Middle Henry's Fork	030B	Upper Birch Creek (East)
012	Warm River	031A	Lower Birch Creek (West)
013	Robinson Creek	031B	Lower Birch Creek (East)
014/034*	Big Bend Ridge/Snow Creek	035	Burns–Pat Canyon
015I	Conant Creek (Idaho)	036	McCoy–Jensen Creeks
015W	Conant Creek (Wyoming)	037	Elk–Bear Creeks
016I	Fall River (Idaho)	038	Fall Creek
016W	Fall River (Wyoming)	039	Pritchard Creek
017I	Trail Creek (Idaho)	040	Brockman Creek
017W	Trail Creek (Wyoming)		

At or below EV thresholds — Alternative 6

Note:

* Both used for watershed analysis in EIS; combined for elk habitat analysis as shown on Forest Plan Map 22.

Figure 5.9

Not To Scale

Discussion

For this analysis, the hunter-day density values were held constant while the motorized access was changed by each alternative. This was done to assess the effect of changing the amount of motorized access. If hunter-day densities change because of the change in motorized access, of a change in State hunting regulations, or some other factors, than this analysis will need to be updated.

For this model, data for the general elk rifle seasons are used. Bull elk mortality from other hunting seasons (such as archery and controlled hunts) is not calculated.

Elk vulnerability results from a variety of factors including access, topography, hunter density and behavior, vegetative cover, season timing and length, and weather (Christensen et al. 1993; IDFG letter May 12, 1995). Mortality models will only be able to explain a portion of this variability and all models will have limits.

The model chosen for the Targhee National Forest is a modification of one developed in north-central Idaho (Unsworth et al. 1993). The appropriateness of this model was evaluated by comparing modeled estimates of mortality with data collected on the Sand Creek elk herd (Pauley 1991). The ranges of access and hunter density estimates were similar between the two areas (IDFG letter, May 12, 1995). However, the north-central Idaho area had higher hunter density and the Targhee Forest had higher road densities (IDFG letter, May 12, 1995). The most precise model estimates are to be expected in areas with road densities of less than 2.5 mi./sq. mi., and areas with hunter densities greater than 9 hunter-days/sq. mi. (IDFG letter dated May 12, 1995).

In Alternative 2, within certain management prescriptions, use of all terrain vehicles (ATV's) is permitted cross-country and on restricted roads and trails during the big game hunting season for retrieval of legally harvested big game animals. Before hunters can use ATV's to do this, certain conditions must be complied with (see specific management prescriptions). There has been no research or monitoring on how this provision might affect elk vulnerability. There is concern from State Fish and Game agencies and individuals that this provision might result in higher EV.

References

Christensen, A. G., L. J. Lyon, and J. W. Unsworth. 1993. Elk Management in the Northern Region: Considerations in Forest Plan Updates or Revisions. Gen Tech. Rep. INT-303, USDA Forest Service Intermountain Research Station, Ogden, UT. lOp.

Lyon, L. J. and A. G. Christensen. 1992. A Partial Glossary of Elk Management Terms. Gen. Tech. Rep. INT-288, USDA Forest Service Intermountain Research Station, Ogden, UT. lOp.

Pauley, G. R. 1991. Sand Creek Elk Study. Idaho Department of Fish and Game, Boise, ID. 86p.

Unsworth, J. W., L. Kuck, M. D. Scott, E. O. Garton. 1993. Elk Mortality in the Clearwater Drainage of Northcentral Idaho. J. Wildl. Manage. 57(3):495-502.

ELK AND DEER WINTER RANGE

Introduction

Generally, elk and deer winter range areas are those areas, usually at lower elevations with lower snow accumulations, used by elk and deer during the winter months (Lyon and Christensen 1992). For the Forest Plan Revision, we identified, with the help 6f the State Fish and Game Departments, the crucial mid-to-late natural winter ranges. We are defining the crucial mid-to-late natural winter ranges as those areas which are considered to be the determining factor in a population's ability to maintain itself at a certain level over the long term. Figure 6.1 displays these winter ranges on the Forest. The areas mapped in Figure 6.1 total 313,825 acres.

The winter range areas on the Forest are the upper elevational limits of elk and deer winter ranges. More winter range acres exist at lower elevations on BLM, State, and private lands. Some elk and deer which summer on the Targhee winter on ranges in Montana and Wyoming. The distribution and number of wintering deer and elk on the Forest depends on winter severity. Generally, a higher proportion of deer and elk winter at lower elevations on BLM, State, and private lands during most winters. Development on private lands is a concern as it can adversely affect areas historically used by wintering deer and elk. Winter ranges on the Targhee National Forest cannot compensate for loss of winter ranges at lower elevations on adjacent lands.

Habitat Overview of Each Winter Range Area

Lemhi Mountains Winter Range

There are 44,740 acres of winter range in the Lemhi Mountains (Figure 6.1 and Table 6.1). About 35 percent of these acres are forested, and most of the forested acres are mature Douglas-fir. About 65 percent of these acres are nonforested, and most of the nonforested acres are tall sage/grass habitats.

Currently, 87 percent of the winter range acres are meeting DVC's for range condition, 1 percent of the winter range acres are improving and moving toward DFC's, and 12 percent of the winter range acres are not improving.

Currently, there are no cross-country snowmachine restrictions; snowmachine use is considered low and intermittent in these areas, and no conflicts with wintering deer and elk have been identified (personal communication with Dubois Ranger District personnel).

The Lemhi Mountains are part of IDFG Game Management Unit 58 (GMU 58). Information available to Forest personnel indicates increasing deer and elk populations for the years 1979 to 1994 in GMU 58.

Targhee National Forest
Elk & Deer Winter Range

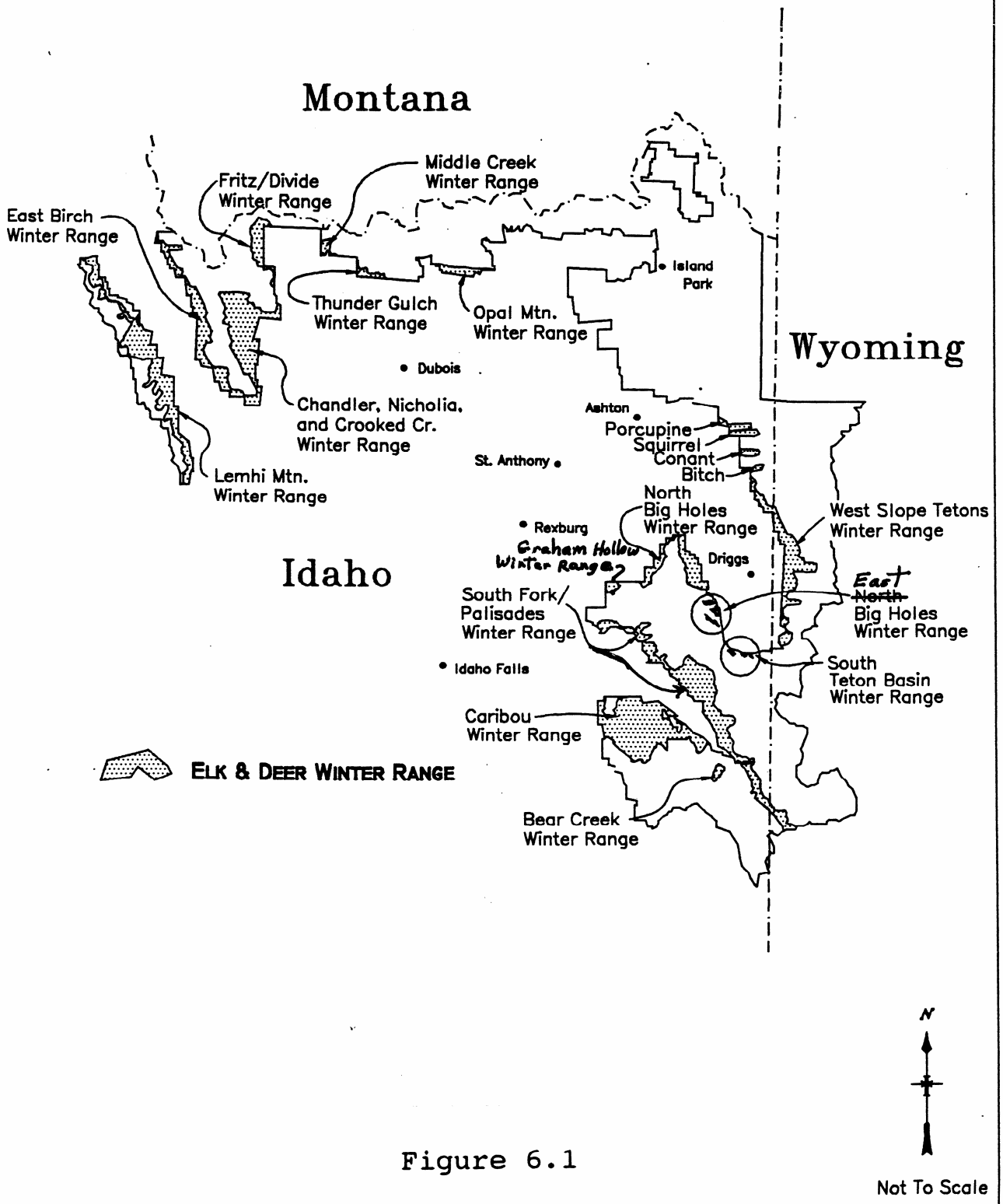


Figure 6.1

Table 6.1. Current Vegetation Conditions on Elk and Deer Winter Ranges.

Winter Range	Veg.Type	Acres	Percent of Area
Lemhi Mtns.		5.69	0.01
Lemhi Mtns.	AS9	5.56	0.01
Lemhi Mtns.	DF6	346.97	0.78
Lemhi Mtns.	DF9	9334.86	20.86
Lemhi Mtns.	GR	35.21	0.08
Lemhi Mtns.	GRB	540.48	1.21
Lemhi Mtns.	GRF	1880.74	4.20
Lemhi Mtns.	GRS	2199.43	4.92
Lemhi Mtns.	LP6	64.80	0.14
Lemhi Mtns.	M	976.50	2.18
Lemhi Mtns.	MB	652.45	1.46
Lemhi Mtns.	MX9	125.08	0.28
Lemhi Mtns.	NDF	5798.60	12.96
Lemhi Mtns.	R	2824.93	6.31
Lemhi Mtns.	TSG	19919.13	44.52
Lemhi Mtns.	WA	30.24	0.07
TOTAL	ACRES	44740.66	100.00
E.Birch,Chandler,Nicholia,Crooked Cr.			
E. Birch et al.	AS9	86.94	0.12
E. Birch et al.	DF9	8654.45	12.18
E. Birch et al.	GR	488.67	0.69
E. Birch et al.	GRF	152.28	0.21
E. Birch et al.	GRS	2507.02	3.53
E. Birch et al.	LP6	3934.24	5.54
E. Birch et al.	M	589.04	0.83
E. Birch et al.	MB	410.25	0.58
E. Birch et al.	NDF9	2727.26	3.84
E. Birch et al.	R	704.63	0.99
E. Birch et al.	TSG	50785.02	71.48
E. Birch et al.	WA	7.12	0.01
TOTAL	ACRES	71046.91	100.00
Fritz/Divide	AS9	6.62	0.06
Fritz/Divide	DF9	775.12	6.95
Fritz/Divide	GR	1529.28	13.71
Fritz/Divide	M	97.50	0.87
Fritz/Divide	MB	3.93	0.04
Fritz/Divide	NDF9	2.67	0.02
Fritz/Divide	TSG	8738.25	78.35
TOTAL	ACRES	11153.38	100.00
Middle Creek	AS9	65.73	2.27
Middle Creek	DF9	106.42	3.68
Middle Creek	GR	160.49	5.54
Middle Creek	GRS	10.23	0.35
Middle Creek	M	3.56	0.12
Middle Creek	NDF9	24.02	0.83
Middle Creek	R	3.78	0.13
Middle Creek	TSG	2456.47	84.85
Middle Creek	TSM	64.30	2.22
TOTAL	ACRES	2895.00	100.00
Thunder Gulch	1DF	144.95	5.40
Thunder Gulch	AS9	72.39	2.70
Thunder Gulch	DF9	694.77	25.88
Thunder Gulch	GR	17.87	0.67
Thunder Gulch	GRF	2.55	0.09
Thunder Gulch	LP9	48.39	1.80
Thunder Gulch	MB	99.37	3.70
Thunder Gulch	MX39	83.31	3.10
Thunder Gulch	NDF9	92.43	3.44
Thunder Gulch	TSG	1381.53	51.47
Thunder Gulch	TSM	46.67	1.74
TOTAL	ACRES	2684.23	100.00
Opal Mt.	1DF	101.41	1.96
Opal Mt.	AS5	8.92	0.17
Opal Mt.	AS8	79.00	1.53
Opal Mt.	AS9	34.78	0.67

Opal Mt.	DF9	1950.72	37.74
Opal Mt.	GR	254.52	4.92
Opal Mt.	GRB	447.60	8.66
Opal Mt.	GRF	42.08	0.81
Opal Mt.	GRS	3.86	0.07
Opal Mt.	MB	128.10	2.48
Opal Mt.	NDF9	507.10	9.81
Opal Mt.	R	21.62	0.42
Opal Mt.	TSG	1579.79	30.57
Opal Mt.	WA	8.97	0.17
TOTAL	ACRES	5168.47	100.00

Porcupine		0.03	0.00
Porcupine	AS5	337.55	14.67
Porcupine	AS9	364.91	15.85
Porcupine	DF5	10.92	0.47
Porcupine	DF9	113.75	4.94
Porcupine	LP5	10.10	0.44
Porcupine	LP6	70.22	3.05
Porcupine	LP7	470.10	20.42
Porcupine	LP9	635.44	27.61
Porcupine	MX8	29.59	1.29
Porcupine	MX9	248.87	10.81
Porcupine	UD	2.61	0.11
Porcupine	WA	7.61	0.33
TOTAL	ACRES	2301.70	100.00

Squirrel		1.13	0.07
Squirrel	1DF9	80.80	4.68
Squirrel	AS6	27.84	1.61
Squirrel	AS7	23.39	1.36
Squirrel	AS9	118.96	6.89
Squirrel	DF7	0.64	0.04
Squirrel	DF9	200.22	11.60
Squirrel	GRF	7.75	0.45
Squirrel	LP6	16.60	0.96
Squirrel	LP7	176.57	10.23
Squirrel	LP8	3.80	0.22
Squirrel	LP9	325.27	18.85
Squirrel	MB	4.57	0.26
Squirrel	MX7	43.25	2.51
Squirrel	MX9	588.11	34.09
Squirrel	TSG	47.14	2.73
Squirrel	TSM	57.99	3.36
Squirrel	UD	1.31	0.08
TOTAL	ACRES	1725.35	100.00

Conant		0.04	0.00
Conant	AS9	47.29	5.53
Conant	DF9	9.58	1.12
Conant	GRF	4.18	0.49
Conant	LP6	94.29	11.02
Conant	LP7	69.68	8.14
Conant	LP9	425.64	49.74
Conant	MB	2.22	0.26
Conant	MX39	0.01	0.00
Conant	MX6	3.25	0.38
Conant	MX9	124.70	14.57
Conant	TSG	31.76	3.71
Conant	TSM	42.58	4.98
Conant	UD	0.51	0.06
TOTAL	ACRES	855.73	100.00

Bitch Cr.	AS9	27.56	3.15
Bitch Cr.	DF9	50.02	5.71
Bitch Cr.	GR	2.45	0.28
Bitch Cr.	GRB	5.09	0.58
Bitch Cr.	LP6	0.44	0.05
Bitch Cr.	LP7	65.60	7.49
Bitch Cr.	LP9	416.94	47.59
Bitch Cr.	MB	39.43	4.50
Bitch Cr.	MX9	242.22	27.65
Bitch Cr.	NMX	7.89	0.90
Bitch Cr.	R	18.46	2.11
TOTAL	ACRES	876.10	100.00

West Slope Tetons		0.55	0.00
West Slope Tetons	1DF9	44.75	0.20
West Slope Tetons	1LP9	54.82	0.25
West Slope Tetons	AS5	52.49	0.24
West Slope Tetons	AS6	10.99	0.05
West Slope Tetons	AS8	171.91	0.78
West Slope Tetons	AS9	3478.22	15.68
West Slope Tetons	DF5	118.17	0.53
West Slope Tetons	DF9	1518.04	6.85
West Slope Tetons	GR	112.23	0.51
West Slope Tetons	GRB	2067.83	9.32
West Slope Tetons	GRF	1802.80	8.13
West Slope Tetons	LP5	301.48	1.36
West Slope Tetons	LP6	855.11	3.86
West Slope Tetons	LP7	222.97	1.01
West Slope Tetons	LP8	16.21	0.07
West Slope Tetons	LP9	2599.32	11.72
West Slope Tetons	MB	527.07	2.38
West Slope Tetons	MX37	136.05	0.61
West Slope Tetons	MX39	1865.17	8.41
West Slope Tetons	MX5	5.94	0.03
West Slope Tetons	MX6	79.23	0.36
West Slope Tetons	MX9	4150.53	18.72
West Slope Tetons	NDF	121.94	0.55
West Slope Tetons	NDF9	164.89	0.74
West Slope Tetons	NLP9	115.35	0.52
West Slope Tetons	NMX	794.10	3.58
West Slope Tetons	NMX9	159.31	0.72
West Slope Tetons	NSF9	28.43	0.13
West Slope Tetons	R	103.36	0.47
West Slope Tetons	SF9	473.05	2.13
West Slope Tetons	TSM	9.62	0.04
West Slope Tetons	WA	13.60	0.06
TOTAL	ACRES	22175.53	100.00

S. Teton Basin	AS9	48.06	10.01
S. Teton Basin	GRB	25.21	5.25
S. Teton Basin	GRF	1.81	0.38
S. Teton Basin	GRS	15.82	3.30
S. Teton Basin	LP5	2.43	0.51
S. Teton Basin	LP8	0.07	0.02
S. Teton Basin	LP9	21.94	4.57
S. Teton Basin	MB	31.82	6.63
S. Teton Basin	MX9	182.62	38.03
S. Teton Basin	NMX	83.53	17.39
S. Teton Basin	TSG	66.91	13.93
TOTAL	ACRES	480.22	100.00

East Bigholes	AS6	5.64	0.32
East Bigholes	AS8	6.91	0.39
East Bigholes	AS9	414.39	23.49
East Bigholes	DF9	148.07	8.39
East Bigholes	GRB	1.11	0.06
East Bigholes	GRF	3.73	0.21
East Bigholes	GRS	78.54	4.45
East Bigholes	LP5	5.30	0.30
East Bigholes	LP9	107.07	6.07
East Bigholes	MB	264.27	14.98
East Bigholes	MX39	47.20	2.68
East Bigholes	MX9	314.61	17.83
East Bigholes	NMX	129.89	7.36
East Bigholes	SF9	0.85	0.05
East Bigholes	TSG	223.58	12.67
East Bigholes	TSM	13.02	0.74
TOTAL	ACRES	1764.18	100.00

North Bigholes		0.84	0.00
North Bigholes	AS9	1379.06	7.75
North Bigholes	DF5	60.71	0.34
North Bigholes	DF8	52.02	0.29
North Bigholes	DF9	922.78	5.18
North Bigholes	GR	135.25	0.76
North Bigholes	GRB	83.53	0.47
North Bigholes	GRF	336.62	1.89

North Bigholes	GRS	419.07	2.35
North Bigholes	LP5	312.11	1.75
North Bigholes	LP6	51.84	0.29
North Bigholes	LP7	29.41	0.17
North Bigholes	LP8	85.41	0.48
North Bigholes	LP9	2172.98	12.21
North Bigholes	MB	1414.27	7.94
North Bigholes	MX35	183.41	1.03
North Bigholes	MX36	9.54	0.05
North Bigholes	MX39	3565.34	20.03
North Bigholes	MX9	3131.56	17.59
North Bigholes	NMX	226.24	1.27
North Bigholes	R	32.19	0.18
North Bigholes	TSG	2674.34	15.02
North Bigholes	TSM	524.23	2.94
TOTAL	ACRES	17802.78	100.00

Graham Hollow		3.21	0.16
Graham Hollow	AS6	80.84	4.07
Graham Hollow	AS9	265.56	13.36
Graham Hollow	GRB	103.45	5.20
Graham Hollow	LP5	61.23	3.08
Graham Hollow	LP6	34.71	1.75
Graham Hollow	LP7	272.63	13.71
Graham Hollow	LP9	142.55	7.17
Graham Hollow	MX5	41.58	2.09
Graham Hollow	MX9	530.32	26.67
Graham Hollow	TSG	452.23	22.74
TOTAL	ACRES	1988.32	100.00

S. Fork/Palisades		0.55	0.00
S. Fork/Palisades	1DF9	0.71	0.00
S. Fork/Palisades	AS9	8947.20	15.24
S. Fork/Palisades	DF9	2727.12	4.64
S. Fork/Palisades	GR	200.44	0.34
S. Fork/Palisades	GRB	1240.81	2.11
S. Fork/Palisades	GRF	2254.46	3.84
S. Fork/Palisades	GRS	454.98	0.77
S. Fork/Palisades	LP6	43.92	0.07
S. Fork/Palisades	LP9	1308.67	2.23
S. Fork/Palisades	MB	11979.88	20.40
S. Fork/Palisades	MX35	13.14	0.02
S. Fork/Palisades	MX36	27.02	0.05
S. Fork/Palisades	MX39	76.88	0.13
S. Fork/Palisades	MX9	16982.26	28.92
S. Fork/Palisades	NDF	44.35	0.08
S. Fork/Palisades	NMX	4903.96	8.35
S. Fork/Palisades	NUS	4.68	0.01
S. Fork/Palisades	R	546.27	0.93
S. Fork/Palisades	SF5	65.66	0.11
S. Fork/Palisades	SF6	18.17	0.03
S. Fork/Palisades	TSG	6596.17	11.23
S. Fork/Palisades	WA	287.95	0.49
TOTAL	ACRES	58725.26	100.00

Bear Ck	AS9	778.47	40.37
Bear Ck	GR	62.45	3.24
Bear Ck	GRB	458.73	23.79
Bear Ck	GRF	1.33	0.07
Bear Ck	GRS	34.42	1.79
Bear Ck	LP9	92.41	4.79
Bear Ck	MB	359.32	18.63
Bear Ck	MX9	85.86	4.45
Bear Ck	NMX	5.34	0.28
Bear Ck	R	31.75	1.65
Bear Ck	TSG	16.92	0.88
Bear Ck	WA	1.34	0.07
TOTAL	ACRES	1928.36	100.00

Caribou		3.43	0.01
Caribou	AS6	51.45	0.08
Caribou	AS8	306.46	0.47
Caribou	AS9	11692.17	17.85
Caribou	DF9	5599.92	8.55
Caribou	GR	716.02	1.09

Caribou	GRB	512.75	0.78
Caribou	GRF	318.96	0.49
Caribou	GRS	3268.45	4.99
Caribou	LP9	8.16	0.01
Caribou	MB	3961.32	6.05
Caribou	MX39	388.06	0.59
Caribou	MX5	211.52	0.32
Caribou	MX9	11444.37	17.47
Caribou	NMX	850.34	1.30
Caribou	R	85.59	0.13
Caribou	SF6	83.82	0.13
Caribou	SF7	213.35	0.33
Caribou	TSG	25530.02	38.97
Caribou	WA	266.61	0.41
TOTAL	ACRES	65512.74	100.00

East Birch Creek, Chandler Creek, Nicholia Creek, Crooked Creek Winter Range

There are 71,047 acres of winter range along the east side of Birch Creek and the lower Medicine Lodge area of Chandler Creek, Nicholia Creek, and Crooked Creek (Figure 6.1 and Table 6.1). About 22 percent of these acres are forested, and most of the forested acres are mature Douglas-fir. About 78 percent of these acres are nonforested, and most of the nonforested acres are tall sage/grass habitats.

Currently, 93 percent of the winter range acres are meeting DVC's for range condition, 4 percent of the winter range acres are improving and moving toward DVC's, and 3 percent of the winter range acres are not improving.

Currently, there are no cross-country snowmachine restrictions; snowmachine use is considered low and intermittent in these areas, and no conflicts with wintering deer and elk have been identified (personal communication with Dubois Ranger District personnel).

This winter range area is part of IDFG GMU's 58 and 59A. Information available to Forest personnel indicates an increasing elk population and stable deer population for the years 1979 to 1994.

Fritz Creek, Divide Creek Winter Range

There are 11,153 acres of winter range in the Fritz Creek and Divide Creek area (Figure 6.1 and Table 6.1). About 7 percent of these acres are forested, and most of the forested acres are mature Douglas-fir. About 93 percent of these acres are nonforested, and most of the nonforested acres are tall sage/grass habitats.

Currently, 77 percent of the winter range acres are meeting DVC's for range condition, 12 percent of the winter range acres are improving and moving toward DVC's, and 11 percent of the winter range acres are not improving.

Currently, there are no cross-country snowmachine restrictions; snowmachine use is considered low and intermittent in these areas, and no conflicts with wintering deer and elk have been identified (personal communication with Dubois Ranger District personnel).

This winter range area is part of IDFG GMU 59A. Information available to Forest personnel indicates an increasing elk population and stable deer population for the years 1979 to 1994.

Middle Creek Winter Range

There are 2,895 acres of winter range in the Middle Creek area (Figure 6.1 and Table 6.1). About 7 percent of these acres are forested, and most of the forested acres are mature Douglas-fir. About 93 percent of these acres are nonforested, and most of the nonforested acres are tall sage/grass habitats.

Currently, 70 percent of the winter range acres are meeting DVC's for range condition, 16 percent of the winter range acres are improving and moving toward DVC's, and 14 percent of the winter range acres are not improving.

Currently, there are no cross-country snowmachine restrictions; snowmachine use is considered low and intermittent in these areas, and no conflicts with wintering deer and elk have been identified (personal communication with Dubois Ranger District personnel).

This winter range area is part of IDFG GMU 59. Information available to Forest personnel indicates an increasing elk population and stable deer population for the years 1979 to 1994.

Thunder Gulch Winter Range

There are 2,684 acres of winter range in the Thunder Gulch area (Figure 6.1 and Table 6.1). About 42 percent of these acres are forested, and most of the forested acres are mature Douglas-fir. About 58 percent of these acres are nonforested, and most of the nonforested acres are tall sage/grass habitats.

Currently, 70 percent of the winter range acres are meeting DVC's for range condition, 16 percent of the winter range acres are improving and moving toward DVC's, and 14 percent of the winter range acres are not improving.

Currently, there are no cross-country snowmachine restrictions; snowmachine use is considered low and intermittent in these areas, and no conflicts with wintering deer and elk have been identified (personal communication with Dubois Ranger District personnel).

This winter range area is part of IDFG GMU 59. Information available to Forest personnel indicates an increasing elk population and stable deer population for the years 1979 to 1994.

Opal Mountain Winter Range

There are 5,168 acres of winter range in the Opal Mountain area (Figure 6.1 and Table 6.1). About 52 percent of these acres are forested, and most of the forested acres are mature Douglas-fir. About 48 percent of these acres are nonforested, and most of the nonforested acres are tall sage/grass habitats.

Currently, 61 percent of the winter range acres are meeting DVC's for range condition, 29 percent of the winter range acres are improving and moving toward DVC's, and 11 percent of the winter range acres are not improving.

Currently, there are no cross-country snowmachine restrictions; existing snowmachine use occurs mostly on roads in this area. Cross-country snowmachine use is considered low and intermittent in these areas, and no conflicts with wintering deer and elk have been identified (personal communication with Dubois Ranger District personnel).

This area is only a very small part of IDFG GMU 61. Information available to Forest personnel indicates that deer and elk populations have been stable during the period from 1979 to 1994.

Porcupine Cr >, Squirrel Cr., Conant Cr., Bitch Cr♦ Winter Range

There are 5,757 acres of winter range in the Porcupine Creek, Squirrel Creek, Conant Creek, and Bitch Creek drainages (Figure 6.1 and Table 6.1). About 95 percent of these acres are forested, with a combination of aspen, Dougals-fir, lodgepole pine, and mixed-conifer habitats. About 5 percent of these acres are nonforested tall sage/grass and tall sage/mountain brush habitats.

Currently/ 87 percent of the winter range acres are meeting DVC's for range condition, 10 percent of the winter range acres are improving and moving toward DVC's, and 2 percent of the winter range acres are not improving.

Currently, there are no cross-country snowmachine restrictions. This general area is a popular snowmachine use area, with use occurring mostly on designated routes and roads. Cross-country snowmachine use is considered low and intermittent in these areas, and no conflicts with wintering deer and elk have been identified (personal communication with Aston Ranger District personnel).

These winter range acres are part of IDFG GMU 62. Information available to Forest personnel indicates that deer and elk populations have been stable during the period from 1979 to 1994.

West Slope of The Tetons Winter Range

There are 22,176 acres of winter range along the west slope of the Tetons (Figure 6.1 and Table 6.1). About 79 percent of these acres are forested, with a combination of mostly mature aspen, Douglas-fir, and lodgepole pine habitats. About 21 percent of these acres are nonforested, with most of the nonforested acres in grass/brush and grass/forb habitats.

Currently, 55 percent of the winter range acres are meeting DVC's for range condition, 5 percent of the winter range acres are improving and moving toward DVC's, and 39 percent of the winter range acres are not improving.

This general area is a popular snowmachine use area. Currently, there are no cross-country snowmachine restrictions. Cross-country snowmachine use has been a concern in this area, and the Teton Basin Ranger District has been studying alternative ways of managing snowmachine use in this area.

This area is within IDFG GMU 62 and WGF elk hunt area 73 (EHA 73). Information available to Forest personnel indicates that deer and elk populations have been stable during the period from 1979 to 1994.

South Teton Basin Winter Range

There are 480 acres of winter range in the South Teton Basin area (Figure 6.1 and Table 6.1). About 71 percent of these acres are forested, and most of the forested acres are mature mixed conifer. About 23 percent of these acres are nonforested, and most of the nonforested acres are tall sage/grass habitats.

This general area is a popular snowmachine use area. Currently, there are no cross-country snowmachine restrictions. Cross-country snowmachine use has

been a concern in this area, and the Teton Basin Ranger District has been studying alternative ways of managing snowmachine use in this area.

This area is within IDFG GMU 67. Information available to Forest personnel indicates that elk populations have increased during the period from 1979 to 1994, and deer populations are currently lower than during the mid-1980's (see Appendix D, Overview of Annual Hunter Survey Data).

East Big Holes Winter Range

There are 1,764 acres of winter range in the East Big Holes area (Figure 6.1 and Table 6.1). About 67 percent of these acres are forested, and most of the forested acres are aspen and mixed conifer. About 33 percent of these acres are nonforested, and most of the nonforested acres are mountain brush and tall sage/grass habitats.

This general area is a popular snowmachine use area. Currently, there are no cross-country snowmachine restrictions. Cross-country snowmachine use has been a concern in this area, and the Teton Basin Ranger District has been studying alternative ways of managing snowmachine use in this area.

This area is within IDFG GMU's 64 and 65. Information available to Forest personnel indicates that elk populations have increased during the period from 1979 to 1994, and deer populations are currently lower than during the mid-1980's.

North Big Holes Winter Range

There are 17,803 acres of winter range in the North Big Holes area (Figure 6.1 and Table 6.1). About 68 percent of these acres are forested, with a combination of mature aspen, Douglas-fir, lodgepole pine and mixed-conifer habitats. About 32 percent of these acres are nonforested, with most of these acres in mountain brush and tall sage/grass habitats.

Currently, 73 percent of the winter range acres are meeting DVC's for range condition, 15 percent of the winter range acres are improving and moving toward DVC's, and 12 percent of the winter range acres are not improving.

This general area is a popular snowmachine use area, and cross-country snowmachine use has been a concern. At the present time, there are cross-country snowmachine use restrictions on 21 percent of the winter range acres in the Big Holes. The Teton Basin Ranger District has been studying alternative ways of managing snowmachine use in this area.

This area is within IDFG GMU's 64 and 65. Information available to Forest personnel indicates that elk populations have increased during the period from 1979 to 1994, and deer populations are currently lower than during the mid-1980's.

Graham Hollow Winter Range

There are 1,988 acres of winter range in the Graham Hollow area (Figure 6.1 and Table 6.1). About 72 percent of these acres are forested, with a

combination of mature aspen, lodgepole pine and mixed-conifer habitats. About 28 percent of these acres are nonforested, with most of these acres in tall sage/grass habitats.

This general area is a popular snowmachine use area, and cross-country snowmachine use has been a concern. At the present time, there are no cross-country snowmachine use restrictions. The Teton Basin Ranger District has been studying alternative ways of managing snowmachine use in this area.

This area is within IDFG GMU's 64 and 65. Information available to Forest personnel indicates that elk populations have increased during the period from 1979 to 1994, and deer populations are currently lower than during the mid-1980's.

South Fork/Palisades Winter Range

There are 58,725 acres of winter range along the South Fork of the Snake River and Palisades Reservoir (Figure 6.1 and Table 6.1). About 60 percent of these acres are forested, with a combination of mostly mature aspen, Douglas-fir, lodgepole pine and mixed-conifer habitats. About 40 percent of these acres are nonforested, with a combination of mountain brush, tall sage/grass, grass/brush and grass/forb habitats.

Currently, 72 percent of the winter range acres are meeting DVC's for range condition, 25 percent of the winter range acres are improving and moving toward DVC's, and 3 percent of the winter range acres are not improving.

This general area is a popular snowmachine use area, but due to the steepness of the terrain and the vegetation types, most of the snowmachine use occurs on designated routes and roads. At the present time, there are cross-country snowmachine use restrictions on 37 percent of the winter range acres.

Currently there is one feed ground for wintering deer and elk on the Forest; this is in Rainey Creek, within the South Fork/Palisades winter range area. The number of animals fed at this site varies each winter, primarily based on the severity of the winter. Table 6.2 displays information from the Idaho Department of Fish and Game for the winter seasons from 1978 to 1995.

This area is within IDFG GMU 67. Information available to Forest personnel indicates that elk populations have increased during the period from 1979 to 1994, and deer populations are currently lower than during the mid-1980's (see Appendix D, Overview of Annual Hunter Survey Data).

Table 6.2. Number of Elk and Deer at the Rainey Creek Feed Ground.

Winter Season	Number of Elk fed	Number of Deer fed
1978-79	no recorded number	no recorded number
1979-80	no feeding done	no feeding done
1980-81	no feeding done	no feeding done
1981-82	no recorded number	no recorded number
1982-83	no feeding done	no feeding done
1983-84	500	no recorded number
1984-85	200	400
1985-86	400	400
1986-87	300	400
1987-88	300	500
1988-89	200	300
1989-90	200	200
1990-91	400	100
1991-92	no recorded number	no recorded number
1992-93	no recorded number	no recorded number
1993-94	no feeding done	no feeding done
1994-95	400	250

Bear Creek Winter Range

There are 1,928 acres of winter range in the Bear Creek area (Figure 6.1 and Table 6.1). About 50 percent of these acres are forested with mostly mature aspen. About 50 percent of these acres are nonforested with grass/brush and mountain brush habitats.

At the present time, there are no cross-country snowmachine use restrictions.

This area is within IDFG GMU 66. Information available to Forest personnel indicates that elk populations have increased during the period from 1979 to 1994, and deer populations have been fairly stable.

Caribou Winter Range

There are 65,513 acres of winter range in the Caribou area (Figure 6.1 and Table 6.1). About 47 percent of these acres are forested, with a combination of mostly mature aspen, Douglas-fir, and mixed conifer habitats. About 53 percent of these acres are nonforested, with a combination of tall sage/grass, mountain brush, and grass/sage habitats.

Currently, 64 percent of the winter range acres are meeting DVC's for range condition, 34 percent of the winter range acres are improving and moving toward DVC's, and 3 percent of the winter range acres are not improving.

This general area is a popular snowmachine use area, and cross-country snowmachine use has been a concern. At the present time, there are cross-country snowmachine use restrictions on 72 percent of the winter range acres.

This area is within IDFG GMU 66. Information available to Forest personnel indicates that elk populations have increased during the period from 1979 to 1994, and deer populations have been fairly stable.

Habitat Evaluation for the Alternatives

The Rainey Creek feed ground will remain in all Alternatives.

The amount of winter range acres meeting DVC'S is expected to increase from existing levels as follows: +3% in Alternative 1; +4% in Alternatives 2, 3, and 3-M; +6% in Alternatives 4, 5, and 6. This improvement is expected because of new riparian and upland forage utilization S&G's.

In all Alternatives, 100 percent of the winter range acres are closed to cross-country snowmachine travel.

The number of deer and elk wintering on Forest winter ranges depends on the severity of the winter. As far as we can analyze, no alternative would decrease the suitability of winter ranges on the Forest for deer and elk from existing habitat conditions. Improvements in the number of acres meeting DVC's, and increased restrictions on cross-country snowmachine use will result in improved winter range conditions for deer and elk, but populations may not increase over existing levels.

References

Lyon, L. J. and A. G. Christensen. 1992. A Partial Glossary of Elk Management Terms. Gen. Tech. Rep. INT-288, USDA Forest Service Intermountain Research Station, Ogden, UT. lOp.

WOLF BIOLOGY AND ECOLOGY

(This section is summarized from USDI Fish and Wildlife Service, 1994)

Physical Characteristics

The wolf is the largest member of the dog family Canidae. Adult males average 90-110 pounds; adult females average 80-90 pounds. Coat color ranges from white to shades of gray and black. Wolf tracks average about 4 inches wide and 5 inches long including the claw marks (wolf and large domestic dog tracks are similar in size, and often impossible to differentiate from each other in the field).

Pack Organization

The basic social unit in wolf populations is the pack. A pack consists of 2 to 30 wolves (average about 10) which have strong social bonds to each other. Breeding within the pack usually occurs only between the top-ranking alpha male and female. Wolves in Yellowstone National Park bred any time from late January to late February and possibly early March.

Pregnant wolves complete digging of dens as early as 3 weeks before the birth of the pups. Most wolf dens are burrows in the ground, usually in sandy soil. Wolves may also den in hollow logs, rock caves, or abandoned beaver lodges. Some dens are used traditionally by a wolf pack from year to year. Also, certain specific areas (on the order of 5 square miles in size) may contain several den sites which are used in different years by the pack. Some wolf packs can be sensitive to human disturbance during this season and may abandon the den if disturbed.

Wolf pups, in general, are born in late March to May after a 63-day gestation period. Litter sizes of wolves usually range from 4 to 7. In Yellowstone National Park, the average litter size taken from dens in the early 1900's was 7.8 pups and varied from 5 to 13. Average litter size in northwestern Montana now averages just over 5 pups per litter.

A wolf pack will usually move from the den site to the first rendezvous site when the pups are 6-10 weeks of age which is in late May through early July. The first rendezvous site is usually within 1-6 miles of the natal den and often consists of meadows and adjacent timber with surface water nearby. A succession of rendezvous sites are used by the pack until the pups are mature enough to travel with the adults, usually by September or early October.

By about October, pups are mature enough to travel with the adults, and the pack moves throughout the territory. Daily travel distances for wolf packs are typically in the range of 1-9 miles, while distances between successive kills vary from 8-34 miles.

In most wolf populations, packs occupy exclusive territories. Territories may range in size from 80 square miles (as in Minnesota) to over 660 square miles (as in Alberta). Territories in northwestern Montana average about 300-400

square miles. Lone wolves may range over areas in excess of 1,000 square miles.

Mortality

Wolves die from a variety of causes: malnutrition, disease, debilitating injuries, interpack strife, and human exploitation or control. In areas with little or no human exploitation, the primary causes of mortality are disease and poor nutrition in pups or yearlings and death of adults from other wolves. Mortality rates in unexploited populations can average about 45% for yearlings and 10% for adults.

Fall and winter may be critical periods for wolf survival. Overwinter (October-March) mortality rates within packs ranged from 0-33% for a minimally exploited population to 14-88% for a heavily exploited population. Established wolf populations apparently can withstand human-caused mortality rates of 28-35% without declining. Protected wolf populations can increase at rates of 28-35%.

Food Habits

In general, wolves depend upon ungulates (elk, moose, deer) for food year around. Smaller mammals can be an important alternative to ungulates in the snow free months. These small mammals include beaver, marmots, ground squirrels, snowshoe hare, pocket gophers, and voles.

On an average, wolves eat 9 pounds of meat per wolf per day during the winter.

The frequency of kills by a wolf pack varies tremendously, depending on many factors including: pack size, diversity, density, and vulnerability of prey, snow conditions, and degree of utilization of the carcasses.

In Minnesota, where wolves eat white-tailed deer almost exclusively, estimated kill rates range from 15-19 deer per wolf per year. In areas where elk are the dominant prey, these kill rates are generally lower. In Riding Mountain National Park, 1 wolf averaged 14 ungulates killed per year which included deer, elk, and moose. Based on prey abundance in Yellowstone, the primary prey is expected to be elk and mule deer. It has been estimated that wolves will kill an average of 12 ungulates per wolf per year.

An overview of ungulate populations in the Yellowstone and Central Idaho areas is presented in the FEIS for the reintroduction of gray wolves, and will not be repeated in this BA.

THE EFFECT OF OPEN ROAD DENSITY ON WOLVES

(This section is summarized from USDI Fish and Wildlife Service, 1994)

Human caused mortality, as indexed by road density (two-wheel drive accessible roads per given amount of area) and thus human access, seems to limit wolf distribution and numbers in the Great Lake area. Data from Wisconsin, Michigan, and Minnesota suggest that under recent and current circumstances,

wolf population persistence is normally unlikely in areas with open road densities greater than about 1 mile of open road per square mile of habitat. However, wolf populations can persist in areas with open road density higher than 1 mile of open road per square mile, if such areas are near large areas of occupied wolf habitat with few or no roads (such as National Parks or Wilderness areas).

The relationship between roads, wolf survival, and wolf habitat use is far more complicated than simply road density alone. Wolf vulnerability is influenced by terrain, topography, cover, traffic, and road distribution in the landscape as well as the ability, opportunity, and desire of people to kill wolves. Because of differences in topography and vegetative cover, it is unknown if the information from the Great Lakes area can be directly applied to the northern Rocky Mountains. Wolves may be less susceptible to human persecution in the Great Lakes area than they would be in the northern Rocky Mountains because in the western U. S., vegetation is less dense, mountainous terrain concentrates wolf movements, and there is more topographical relief. In contrast, wolves in the western U. S. may be less vulnerable to human persecution because of lower overall human densities, different patterns of seasonal road use, and different patterns of human settlement. Hence, road densities necessary to provide security for wolves in the West may be different than reported elsewhere. Two wolf packs in Montana have survived for at lest 3 years in areas with apparently high road density, but in contrast, most documented wolf mortalities have been associated with road access. We examined the issue of road density in the Yellowstone and central Idaho areas to determine if open road density exceeded the threshold recommended in the Great Lakes area.

Determining open road density depends upon the definition of an open road, how much area is analyzed, and how seasonal or temporary roads are measured as well as the methodology used. For simplicity, the miles of open road in the Yellowstone and central Idaho areas were divided by the square miles in each area. The area managed by the federal government in the Yellowstone primary analysis area and the Idaho primary analysis area that was not in national parks or designated wilderness was 8,966 sq. mi. and 14,723 sq. mi., respectively. The USDA Forest Service provided estimates of the miles of roads or trails where motorized vehicles could be used in both areas. Inventories of open, seasonally opened, and closed roads were difficult to obtain; however, an estimate of miles of open roads (including seasonally open roads) was obtained for both the Yellowstone (up to 8,057 miles of open road) and central Idaho (up to 14,470 miles of open road) areas. Open road densities outside of national parks and USDA Forest Service wilderness areas in the Yellowstone (up to 0.90 miles open road per sq. mi.) and central Idaho (up to 0.98 miles open road per sq. mi.) areas were close to but below the theoretical threshold of 1 mile of open road per sq. mi. of habitat. Based upon (1) current open road information, (2) the success of wolf packs in highly roaded habitats in Montana, and (3) that these roaded areas of public land being proposed for wolf recovery are adjacent to large (about 4-5 million acres) roadless areas, it appears unlikely that road density guidelines must be employed as a wide-spread land management strategy to support wolf recovery. However, it should be emphasized that besides being important to wolves, wolf prey, particularly elk, also benefit if there is less than 1 mile of open road per square mile of habitat.

HISTORICAL OBSERVATIONS OF WOLVES (prior to 1995)

The USFWS and the Idaho Natural Heritage Program have maintained records of possible wolf sightings in Idaho. For the Targhee National Forest, 43 possible sightings have been recorded dating from 1912 to 1989. The sightings are distributed on the Forest as follows: 26% on the Dubois Ranger District; 45% on the Island Park Ranger District; 17% on the Ashton Ranger District; 10% on the Palisades Ranger District; 2% on the Teton Basin Ranger District. Most of the sightings (62%) are single animals; sightings of 2 or more animals comprise 31% of the total; 7% of the sightings have no recorded number of animals.

In 1991 and 1992, the Dubois Ranger District received reports of 4 additional wolf sightings (Kim Johnson, personal communication).

None of the above sightings are considered verified wolf observations. There have been no reported sightings of packs or evidence of successful breeding on the Targhee National Forest.

Prior to 1995, for lands adjacent to the Targhee National Forest, possible wolf sightings occurred in the following areas: Lost River R. D. and the Leador R. D. on the Salmon/Challis N. F., BLM Big Butte Management Area, Idaho National Engineering Laboratory, Dillon R. D. and Madison R. D. on the Beaverhead N. F., Hebgen Lake R. D. on the Gallatin N. F., Yellowstone and Grand Teton National Parks, and the Tex Creek area adjacent to the Caribou portion of the Palisades R. D. (Bud Alford, personal communication). There were no confirmed sightings of packs or evidence of successful breeding.

ESTABLISHMENT OF A NONESSENTIAL EXPERIMENTAL POPULATION

Prior to 1994, wolf recovery was outlined in the Northern Rocky Mountain Wolf Recovery Plan developed by the USFWS in 1980 and revised in 1987. In April, 1994, the USDI Fish and Wildlife Service approved the Final EIS for The Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho (USDI Fish and Wildlife Service 1994a). In November, 1994, the USDI Fish and Wildlife Service issued final rules for the establishment of a nonessential experimental population of gray wolves in Yellowstone National Park in Wyoming, Idaho and Montana; and in central Idaho and southwestern Montana (USDI Fish and Wildlife Service 1994b). In late winter 1995, gray wolves from Canada were released into Yellowstone National Park and Central Idaho.

As a result of these actions, the following conditions exist:

> The portion of the Forest east of Interstate 15 is within the Yellowstone Nonessential Experimental Population Area (also referred to as the Yellowstone Management Area) (USDI Fish and Wildlife Service 1994a and b). The portion of the Forest west of Interstate 15 is within the Central Idaho Nonessential Experimental Population Area (also referred to as the Central Idaho Management Area) (USDI Fish and Wildlife Service 1994a and b). Figure 6.2 displays these two areas.

Central Idaho Nonessential Experimental Population Area and Yellowstone Nonessential Experimental Population Area. (USDI Fish and Wildlife Service 1994 b)

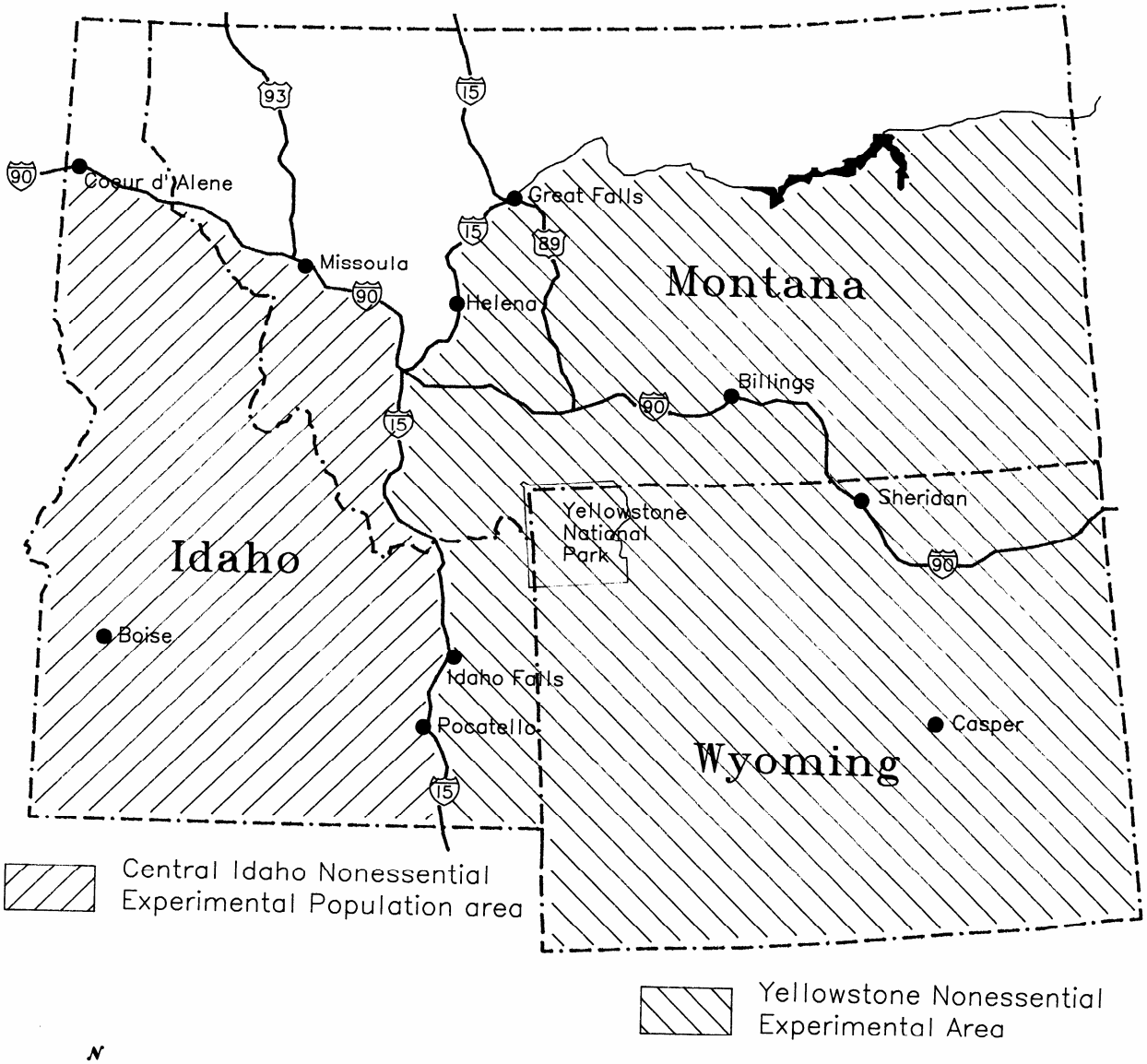


Figure 6.2

All wolves found in the wild within the boundaries of the above management areas, after the first wolf releases, will be considered nonessential experimental animals (USDI Fish and Wildlife Service 1994a and b).

This gray wolf reintroduction does not conflict with existing or anticipated Federal agency actions or traditional public uses of park lands, wilderness areas, or surrounding lands (USDI Fish and Wildlife Service 1994b). The intent of the experimental rule is that land-use restrictions not be routinely used solely to enhance wolf recovery. However, land-use restrictions may be temporarily used by land or resource managers to control intrusive human disturbance, primarily around active den sites between April 1 and June 30, when there are 5 or fewer breeding pairs of wolves in a recovery area. After 6 or more breeding pairs become established in a recovery area, land-use restrictions would not be needed (USDI Fish and Wildlife Service 1994a).

The ability of individuals holding grazing permits on public land to harass adult wolves in an opportunistic, noninjurious manner will become part of their permit conditions so it is clearly understood exactly what can occur. There is a 7 day reporting requirement (USDI Fish and Wildlife Service 1994a).

The following conditions and criteria will apply in determining the problem status of wolves (USDI Fish and Wildlife Service 1994a):

(1) Wounded livestock or some remains of a livestock carcass must be present with clear evidence that wolves were responsible for the damage and there must be reason to believe that additional losses would occur if the problem wolf or wolves were not controlled. Such evidence is essential since wolves may simply feed on carrion they have found while not being responsible for the kill.

(2) Artificial or intentional feeding of wolves must not have occurred. Livestock carcasses not properly disposed of in an area where depredations have occurred will be considered attractants. On federal lands, removal or resolution of such attractants must accompany any control action. Livestock carrion or carcasses on federal land, not being used as bait in an authorized control action (by agencies), must be removed, buried, burned, or otherwise disposed of such that the carcass(es) will not attract wolves.

(3) On federal lands, animal husbandry practices previously identified in existing approved allotment plans and annual operating plans for allotments must have been followed.

If additional livestock depredations were likely, proper animal husbandry practices were employed (proper disposal of livestock carcasses, etc.), artificial feeding did not take place, and federal grazing allotment plans were followed, agencies would harass, capture, move, or kill wolves that attacked livestock (defined as cattle, sheep, horses, or mules only) on public or private land. Prior to the establishment of six breeding pairs, depredating females and their pups will be captured and released at or near the site of capture, one time prior to October 1. If

depredations continue, or if six packs are present, females and their pups will be removed.

Wolf recovery will not result in wolf travel corridors or linkage zones being established. The size and proximity of 3 areas where wolves will be managed for recovery are large enough, close enough, and have enough public land between them that additional areas (travel corridors) are not required in the foreseeable future to maintain a viable wolf population after the 3 subpopulations become established (USDI Fish and Wildlife Service 1994a).

Status of Wolf Reintroductions - 1995 & 1996

In the Yellowstone Nonessential Experimental Population Area:

14 Canadian wolves were released in 1995;

17 Canadian wolves were released in 1996;

2 packs produced 9 pups in 1995;

3 packs produced 10 pups in 1996;

as of September 10, 1996, there were 34 free ranging wolves, and 15 wolves in captivity pens;

6 wolves have died: 3 were illegally shot, 1 was killed by a vehicle on a road, 1 was killed by agents from ADC after twice being involved in killing domestic sheep, 1 was killed in an accident (falling into a thermal pool). (Note: Our records of wolves that died may not be complete)

1 male wolf (the mate of the wolf that died by falling into a thermal pool) was located on the Targhee for a few days in 1996. This wolf has returned to Yellowstone National Park.

In the Central Idaho Nonessential Experimental Population Area:

15 Canadian wolves were released in 1995;

20 Canadian wolves were released in 1996;

no pups were born in 1995;

3 packs produced pups in 1996 (we do not know how many pups);

as of July 1996, there were 26 radio collared wolves with known locations; there were 5 radio collared wolves that have not been located for various periods of time;

there have been 5 wolves that have died: 1 was killed by a mountain lion, 1 was shot, 1 died of starvation, 1 accidentally drowned during a control operation, and 1 was euthanized during release.

Forestwide Objectives, Standards and Guidelines

A forestwide objective, and standards and guidelines implement the provisions and rules of the Final EIS for The Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho in all alternatives (USDI Fish and Wildlife Service 1994a and b).

DETERMINATION OF EFFECTS

Is not likely to jeopardize the continued existence of the gray wolf:

Application of the forestwide objective and standards and guidelines, is expected to allow wolf pairs to establish dens on the Forest if they choose to do so, and to receive the protection of the nonessential experimental population rule.

The grazing of livestock is an existing and traditional public use on National Forest system lands. The designation as a non-essential experimental population provides greater flexibility in the management of wolves and allows greater accommodation in land use activities such as grazing of livestock. In the final rule published in the Federal Register, November 22, 1994, the U. S. Fish and Wildlife Service found that the gray wolf reintroduction does not conflict with existing or anticipated Federal agency actions or traditional public uses of Park lands, wilderness areas, or surrounding lands (USFWS 1994b). In their final rule, the U. S. Fish and Wildlife Service stated, "...there are no conflicts envisioned with any current or anticipated management actions of the Forest Service..."(USFWS 1994b). The issuance of livestock grazing permits, an existing traditional use, is not likely to jeopardize the continued existence of the gray wolf. The management of livestock and wolves according to the final rule published November 22, 1994, will not pose a threat to the gray wolf conservation/recovery effort.

However, human presence will still occur. As long as humans and livestock are present on the Forest, there will be probable occurrences of wolf/human/livestock conflicts, resulting in wolf displacement and possible wolf mortalities. Therefore, the proposed action may have some affect on individual wolves, but is not likely to jeopardize the continued existence of the gray wolf.

In a memorandum dated April 4, 1995, the U. S. Fish and Wildlife Service stated the following:

> "For section 7 consultation purposes, wolves designated as nonessential experimental that are not within units of the National Park System or National Wildlife Refuge System are treated as proposed species. As such, Federal Agencies are only required to confer with the Service when they determine that an action they authorize, fund, or carry out "is likely to jeopardize the continued existence" of the species. The

Service does not anticipate any actions that would result in a "likely to jeopardize the continued existence" determination for the reintroduced, experimental population of wolves,"

"Any protective measures in addition to those outlined in the final rules for managing the nonessential experimental wolf populations, or additional review procedures, are at the discretion of the Federal Agency."

"For section 7 purposes, the rule also allows for taking gray wolves in an experimental area provided that the taking is incidental to an otherwise lawful activity, accidental, unavoidable, unintentional, not resulting from neglectful conduct lacking reasonable due care, and due care was exercised to, avoid taking a gray wolf. Such taking is to be reported within 24 hours to a Service or Service-designated authority. Take that does not conform with such provisions may be referred to the appropriate authorities for prosecution. This means that Federal Agencies must exercise due care to avoid taking a gray wolf when conducting their normal operations."

REFERENCES

USDI Fish and Wildlife Service. 1987. Northern Rocky Mountain Wolf Recovery Plan. USFWS, Portland, Oregon. 119pp.

USDI Fish and Wildlife Service. 1995. Memorandum - Section 7 Consultation Requirements for Wolves Designated as "Nonessential Experimental." USDI Fish and Wildlife Service, Mountain-Prairie Region, Denver/Lakewood, Colorado. 3 pp + attachment.

USDI Fish and Wildlife Service. 1994a. The Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho - Final Environmental Impact Statement. U. S. Fish and Wildlife Service, Helena, MT.

USDI Fish and Wildlife Service. 1994b. Establishment of a Nonessential Experimental Population of Gray Wolves in Yellowstone National Park in Wyoming, Idaho, Montana; Central Idaho and Southwestern Montana; Final Rules. Federal Register, Vol. 59, No. 224. pp. 60252 to 60281.

GRIZZLY BEAR ECOSYSTEMS AND RECOVERY GOALS

In the conterminous 48 States, only five areas in mountainous regions, national parks and wilderness areas of Washington, Idaho, Montana, and Wyoming currently contain either self-perpetuating or remnant populations of grizzly bears (Figure 1)(U. S. Fish and Wildlife Service 1993). Grizzly bears are known to have existed in the recent past in two additional areas, the Bitterroot Mountains in Idaho and the San Juan Mountains in Colorado (Figure 1). These seven areas are referred to as grizzly bear ecosystems (U. S. Fish and Wildlife Service 1993).

Portions of the Targhee National Forest are within the Yellowstone Grizzly Bear Ecosystem (YGBE). The YGBE has been divided into 18 bear management units (BMU's), and some of these BMU's have been divided into subunits. Figure 2 displays the BMU's for the YGBE.

Recovery goals for the YGBE are (U. S. Fish and Wildlife Service 1993):

> 15 females with cubs over a running 6-year average both inside the recovery zone and within a 10 mile area immediately surrounding the recovery zone;
>
> 16 of 18 bear management units (BMU's) occupied by females with young from a running 6-year sum of observations, and within the Plateau and Henry's Lake BMU's, a study will be initiated in 1993 to determine the capability of these BMU's to support females with young; no two adjacent BMU's shall be unoccupied;
>
> known, human-caused mortality not to exceed 4 percent of the population estimate based on the most recent 3-year sum of females with cubs. Furthermore, no more than 30 percent of this 4 percent mortality limit shall be females. These mortality limits cannot be exceeded during any 2 consecutive years for recovery to be achieved."

Table 1 presents grizzly bear population data for the YGBE for the years 1987-1996 (from personal communication with Dr. Chris Servheen, U. S. Fish and Wildlife Service, 1996). As of 1996, the status of the grizzly bear population in relation to the recovery goals was as follows:

> the running 6-year average for unduplicated females with cubs was 22.8, compared to the recovery goal target number of 15;
>
> average annual human-caused mortality was 7.1 bears, compared to the recovery goal target number of 8.8 bears (< 4% mortality limit of the total population estimate);
>
> average annual human-caused female mortality was 2.8 bears, compared to the recovery goal target number of 2.6 bears (< 30% of the total known mortality).
>
> the distribution of females with young was 18 of 18 BMU's, compared to the recovery goal target number of 16 of 18 BMU's.

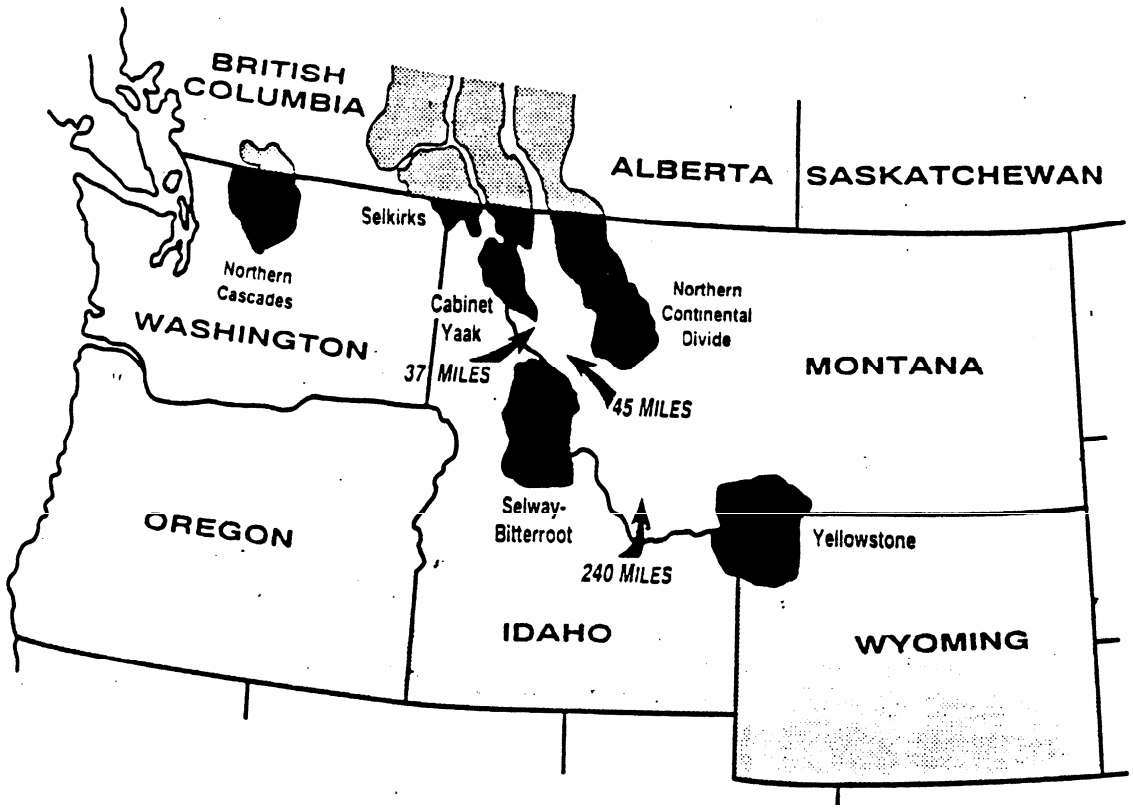


Figure 1. Present grizzly bear ecosystems in the conterminous 48 States, 1990 (the San Juan Mountains area of Colorado is not shown). (from U. S. Fish and Wildlife Service 1993)



LEGEND

Figure 2

Greater Yellowstone area

SCALE : 800, 000

GYE Bear Management Units

COMPOSED: 07-NOV-1996

Table I Annual Yellowstone Grizzly Bear Population and Known Human Caused-Mortality Data

Based on 1993 Grizzly Bear Recovery Plan Criteria. Data From Known, Human-Caused Mortalities, Minim Unduplicated Counts of Females With Cubs, and Distribution of Females With Young.

Year	Annual Undup. FWC's 2/	Annual Adult Female Mortality	Annual All Female Mortality	Annual Total Mortality	4% Total Mortality Limit 1/	30% All Female Mortality Limit	Annual Total Mortality 6yr. avg.	Annual Female Mortality 6yr. avg.
1987	13	2	2	3				
1988	19	0	3	5				
1989	16	0	0	1				
1990	24	4	6	9				
1991	24	0	0	0				
1992	23	0	1	4	9.4	2.8	3.7 (22/6)	2.0 (12/6)
1993	20	2	2	3	9.2	2.8	3.7 (22/6)	2.0 (12/6)
1994	20	3	3	10	8.2	2.5	4.5 (27/6)	2.0 (12/6)
1995	17	3	7	17	6.9	2.1	7.1	3.2
1996	33	3	4	9	8.8	2.6	7.1	2.8

1996 Status of the Yellowstone Population in Relation to the Demographic Recovery Targets: 3/

Target	Target Number	1996 Number
Unduplicated females with cubs (6 year average)	15	22.8
Known mortality limit as 4% of total population estimate	8.8	7.1
Female mortality limit as 30% o total known mortalities	2.6	2.8
Distribution of female with young	16 of 18	18 of 18

1/ Calculated as 4% of the minimum population estimate for the most current year which is based on the minimum number of females with cubs seen over the past three years.
2/ Annual Undup. FWC's = Annual Unduplicated Females with Cubs.
3/ Caculated with updated percentage of adult females in the population as 22.3%. CHECK THIS NUMBER

Knight, et al. (1995) report on appraising the status of the Yellowstone grizzly bear population. Using data collected from 1976 to 1993, they report the following estimated rates of annual increase in the population:

3.9 percent annual increase using the annual totals of distinct family groups.

4.6 percent annual increase using reproductive and survival data.

2.2 percent annual increase using a common probability of sighting distinct family groups.

Portions of the Forest are within three BMU's (Figures 3a & 3b):

Henry's Lake BMU, which is divided into 2 subunits.

Plateau BMU, which is divided into 2 subunits. (Note: These are new subunits approved in the fall of 1996. These subunits are based on grizzly bear use patterns in the Plateau BMU and adjacent BMU's.)

Bechler/Teton BMU, which is not divided into subunits.

FOOD HABITS - GENERAL OVERVIEW

Food habits of grizzly bears in the YGBE have been studied and documented by the Interagency Grizzly Bear Study Team. The following tables and figures are presented to provide a general overview:

Table 2 displays major food items according to diet volume for the years 1974 to 1982. (from Knight and Blanchard 1983)

Table 3 displays major food items by percent frequency of occurrence for the years 1974 to 1982. (from Knight and Blanchard 1983)

Figure 4 displays average volumetric analysis of grizzly bear scats during summer, for the years 1977-1984. (from Knight et al 1985)

Figure 5 displays percent scat volume of food items during 1993 compared to the 1977-87 average. (from Knight and Blanchard 1994)

The broad historic distribution of grizzly bears suggests adaptive flexibility in food habits of different populations. Although the digestive system of bears is essentially that of a carnivore, bears are successful omnivores, and in some areas may be almost entirely herbivorous. Although grizzly bear in many areas are almost entirely herbivorous, they are lacking in multiple stomachs and a caecum and are therefore unable to digest cellulose. Bears feed on animal matter or vegetable matter that is highly digestible and high in starch, sugars, protein, and stored fat. (U. S. Fish and Wildlife Service 1993)

Grizzly bears must avail themselves of foods rich in protein or carbohydrates in excess of maintenance requirements in order to survive denning and

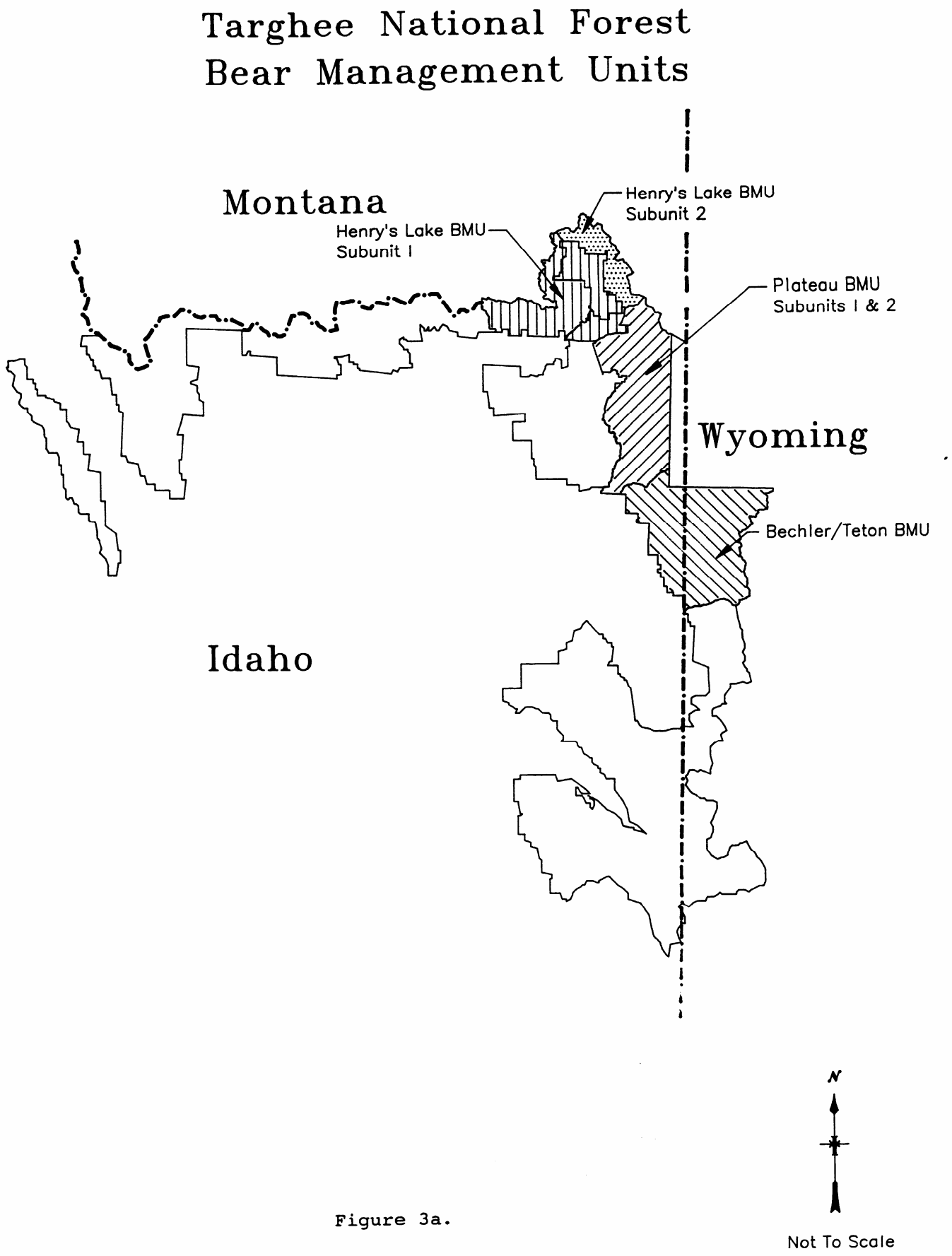

Targhee National Forest
Bear Management Units
Montana
Henry's Lake BMU
Subunit 2
Henry's Lake BMU
Subunit 1
Plateau BMU
Subunits 1 & 2
Wyoming
Bechler/Teton BMU
Idaho
N
Not To Scale

Figure 3a.

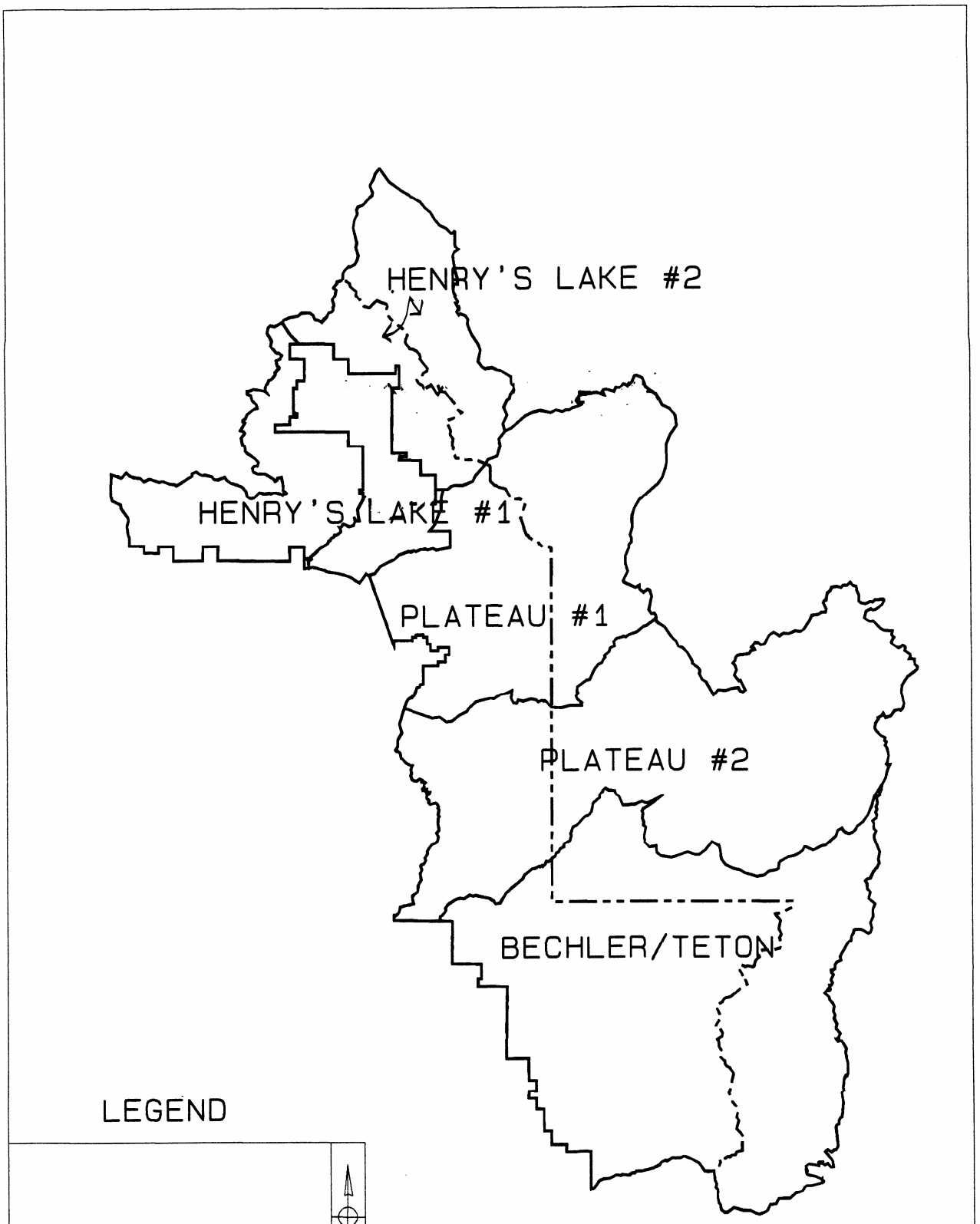


Figure 3b. Bear Management Units and Subunits on the Targhee N. F.

Table 2. Major food items occurring in scats by year and by percent of diet volume (use)

	1982		1981		1980	
1	Grass/sedge	(41)	Grass/sedge	(37)	Grass/sedge	(23)
2	Yampa	(10)	Dandelion	(10)	Elk	(17)
3	Dandelion	(9)	Clover	(8)	Pine nuts	(14)
4	Pine nuts	(7)	Horsetail	(6)	Dandelion	(4)
5	Thistle	(4)	Pine nuts	(6)	Ants	(4)
6	Elk	(4)	Ants	(4)	Yampa	(3)
7	Horsetail	(4)	Thistle	(4)	Claytonia	(2)
8	Huckleberry	(3)	Elk	(2)	Clover	(2)
9	Ants	(3)	Fireweed	(2)	Horsetail	(2)
10	Claytonia	(2)	Montia	(1)	Grouseberry	(2)
Total natural items	54		59		88	

	1979		1978		1977	
1	Pine nuts	(40)	Grass/sedge	(26)	Grass/sedge	(22)
2	Grass/sedge	(19)	Pine nuts	(9)	Ants	(15)
3	Horsetail	(3)	Dandelion	(9)	Horsetail	(7)
4	Yampa	(3)	Claytonia	(4)	Biscuitroot	(6)
5	Dandelion	(3)	Biscuitroot	(4)	Yampa	(6)
6	Elk	(3)	Thistle	(4)	Elk	(5)
7	Clover	(2)	Ants	(4)	Thistle	(5)
8	Claytonia	(2)	Yampa	(3)	Bison	(3)
9	Thistle	(2)	Elk	(3)	Knotweed	(2)
10	Buckthorn	(1)	Huckleberry	(2)	Pine nuts	(2)
Total natural items	106		93		108	

	1976		1975		1974-3	
1	Pine nuts	(45)	Grass/sedge	(31)	Grass/sedge	(36)
2	Grass/sedge	(29)	Trout	(10)	Claytonia	(12)
3	Ants	(10)	Biscuitroot	(7)	Thistle	(8)
4	Domestic stock	(4)	Thistle	(7)	Clover	(6)
5	Thistle	(1)	Ants	(7)	Elk	(4)
6	Trout	(1)	Horsetail	(4)	Onion grass	(4)
7	Horsetail	(1)	Pine nuts	(4)	Pine nuts	(3)
8			Onion grass	(2)	Horsetail	(3)
9			Angelica	(2)	Grouseberry	(3)
10			Claytonia	(1)	Yampa	(2)
Total natural items	11		27		-	

Table 3. Major food items occurring in scats by year and by percent frequency of occurrence (availability)

	1982		1981		1980	
1	Grass/sedge	(56)	Grass/sedge	(78)	Grass/sedge	(48)
2	Ants	(32)	Ants	(31)	Ants	(26)
3	Dandelion	(24)	Dandelion	(30)	Elk	(20)
4	Horsetail	(12)	Clover	(20)	Pine nuts	(19)
5	Yampa	(12)	Horsetail	(13)	Dandelion	(13)
6	Pine nuts	(8)	Pine nuts	(10)	Clover	(8)
7	Thistle	(7)	Thistle	(8)	Yampa	(6)
8	Claytonia	(7)	Fireweed	(6)	Claytonia	(6)
9	Knotweed	(7)	Elk	(4)	Thistle	(5)
10	Elk	(6)	Buffaloberry	(3)	Horsetail	(5)
Total natural items	54		59		88	

	1979		1978		1977	
1	Grass/sedge	(53)	Grass/sedge	(78)	Grass/sedge	(57)
2	Pine nuts	(47)	Ants	(29)	Ants	(38)
3	Ants	(13)	Dandelion	(19)	Biscuitroot	(18)
4	Horsetail	(11)	Pine nuts	(13)	Horsetail	(17)
5	Dandelion	(9)	Thistle	(12)	Thistle	(17)
6	Claytonia	(8)	Biscuitroot	(11)	Yampa	(11)
7	Yampa	(7)	Claytonia	(11)	Knotweed	(8)
8	Thistle	(6)	Horsetail	(8)	Clover	(8)
9	Elk	(6)	Clover	(7)	Fireweed	(7)
10	Clover	(5)	Yampa	(6)	Elk	(6)
Total natural items	106		93		108	

	1976		1975		1974-3	
1	Grass/sedge	(85)	Grass/sedge	(96)	Grass/sedge	(65)
2	Pine nuts	(69)	Trout	(34)	Thistle	(16)
3	Ants	(22)	Ants	(28)	Claytonia	(15)
4	Thistle	(9)	Thistle	(18)	Clover	(11)
5	Claytonia	(4)	Horsetail	(13)	Trout	(9)
6	Horsetail	(4)	Biscuitroot	(12)	Elk	(7)
7	Biscuitroot	(4)	Pine nuts	(9)	Pocket gopher	(6)
8	Bees	(4)	Claytonia	(7)	Onion grass	(6)
9	Trout	(4)	Buttercup	(4)	Horsetail	(6)
10	Domestic stock	(4)	Elk	(3)	Yampa	(5)
Total natural items	11		27		-	

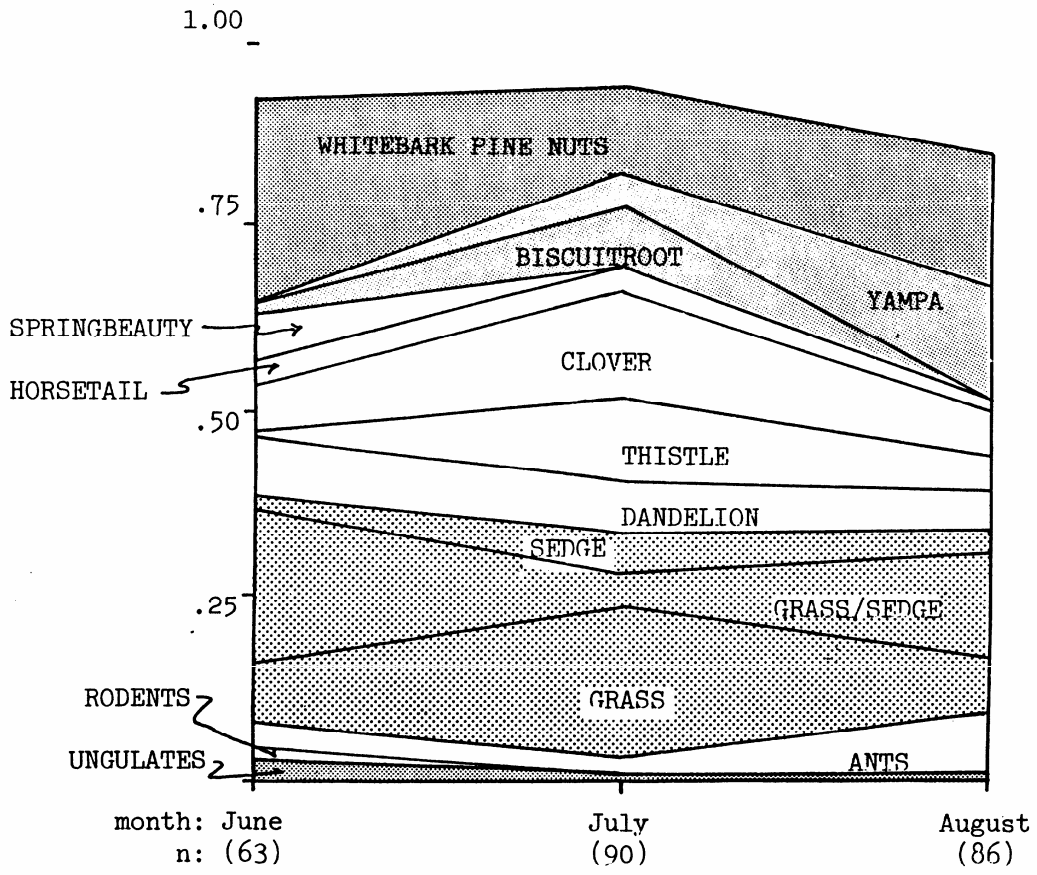


Figure 4. Average volumetric analysis of grizzly bear scats during summer, 1977-1984, for central Yellowstone National Park. Sample sizes are given in parentheses by month.

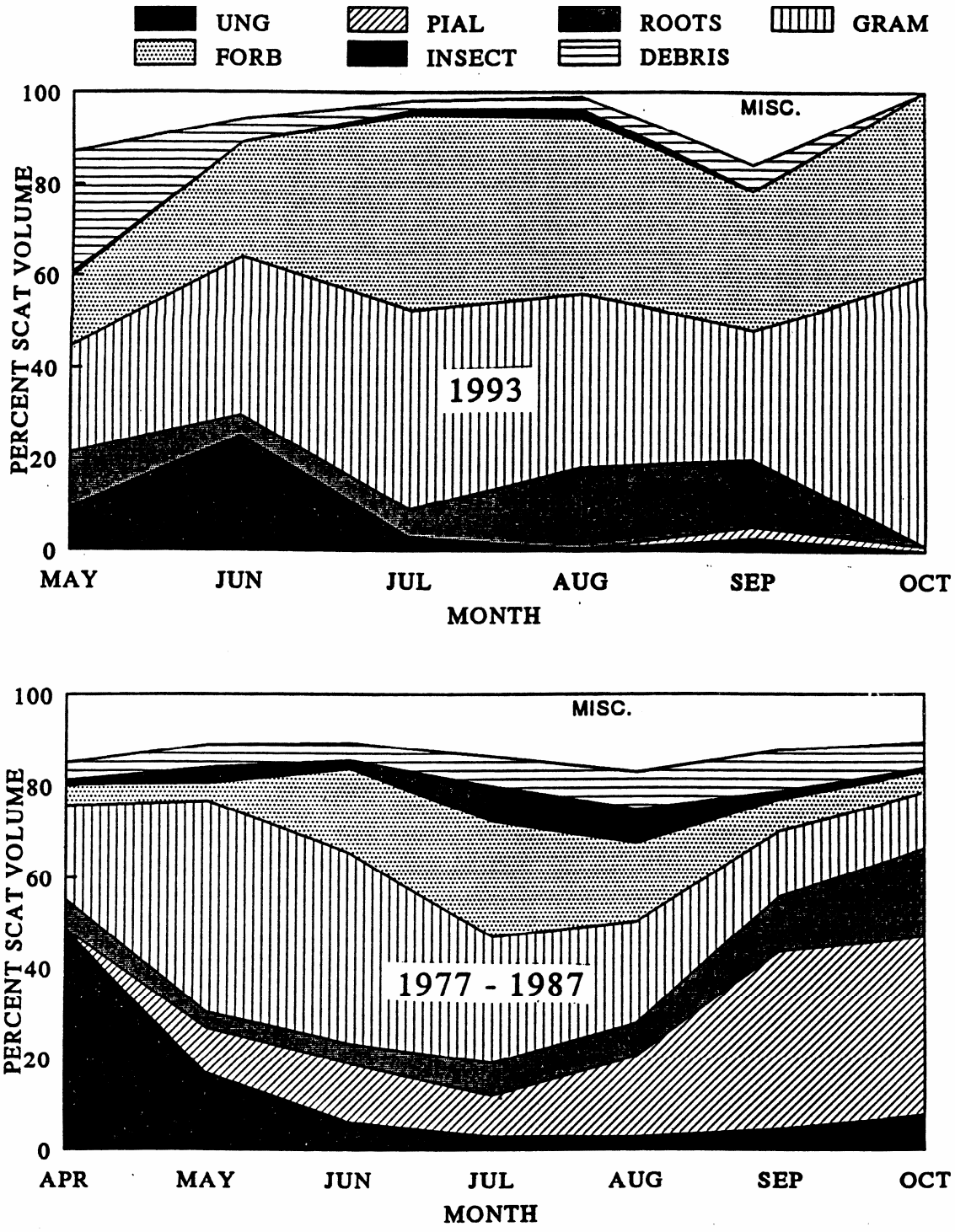


Figure 5. Percent scat volume of food items during 1993 compared to the 1977-87 average.

post-denning periods. Herbaceous plants are eaten as they emerge, when crude protein levels are highest. These levels decline rapidly in many plant species as the plants mature. (U. S. Fish and Wildlife Service 1993)

Grizzly bears are opportunistic feeders and will prey or scavenge on almost any available food including ground squirrels, ungulates, carrion, and garbage. In areas where animal matter is less available, roots, bulbs, tubers, fungi, and tree cambium may be important in meeting protein requirements. High quality foods such as berries, nuts, and fish are important in some areas. (U. S. Fish and Wildlife Service 1993)

The search for food has a prime influence on grizzly bear movements. Upon emergence from the den they seek the lower elevations, drainage bottoms, avalanche chutes, and ungulate winter ranges where their food requirements can be met. Throughout late spring and early summer they follow plant phenology back to higher elevations. In late summer and fall, there is a transition to fruit and nut sources, as well as herbaceous materials. This is a generalized pattern, however, and it should be kept in mind that bears are individuals trying to survive and will go where they best can meet their food requirements. (U. S. Fish and Wildlife Service 1993)

COVER - GENERAL OVERVIEW

The following is quoted directly from U. S. Fish and Wildlife Service, 1993:

> "The relative importance of cover to grizzly bears has been documented by Blanchard (1978) in a 4-year study in the Yellowstone ecosystem. Ninety percent of 2,261 aerial radio relocations of 46 instrumented grizzly bears were in forest cover too dense to observe the bear. Whether grizzly bears use forest cover because of an innate preference or to avoid humans is unknown (Blanchard 1978). The importance of an interspersion of open parks as feeding sites associated with cover is also recorded in Blanchard's study: 'Only 1 percent of the relocations were in dense forest more than a kilometer from an opening.'"
>
> "Forest cover was found to be very important to grizzly bears for use as beds. Most beds were found less than a yard or two from a tree (Servheen and Lee 1979, Blanchard 1978). Blanchard further records only 16 of 233 beds observed (6.7 percent) were without immediate cover. Schallenberger and Jonkel (1980) found grizzly bears preferring forest in over 80 percent of their radio relocations."

There is no research documenting requirements for the distribution, quantity or quality of cover on a "landscape" scale or within grizzly bear home range. Changes in the distribution and quantity and quality of cover are not necessarily detrimental to grizzly bears. At the September 19-21, 1993, symposium on "The Ecological Implications of Fire in Greater Yellowstone - Second Biennial Conference on the Greater Yellowstone Ecosystem," the Interagency Grizzly Bear Study Team presented a paper titled "Effects of Wildfire on Grizzly Bear Movements and Habitat Use." The following is quoted from the abstract of the paper:

> "On the average, grizzly bears used burned habitats in proportion to their availability within individual annual ranges during 1989-1992.

Seasonal indices of movement and annual range sizes of cohorts are not statistically different from the 1975-1987 averages.")

The grizzly bear cumulative effects model was recently used to assess and compare the habitat quality in some female home ranges prior to and following the 1988 wildfires in Yellowstone National Park. This information was presented at a meeting held on the Forest on September 14, 1995, and is presented below:

	Female 125		Female_ 126	
	Pre-fire	Post-fire	Pre-fire	Post-fire
Vegetation Value	.28	.39	.24	.27
Habitat Value	.31	.40	.26	.30
Habitat Effectiveness	.23	.33	.21	.25

Positive aspects of timber management include an increase in bear foods (e.g. forbs, berries, and grasses) in certain regions through vegetative manipulation (e.g. tree removal, riparian management, prescribed burning). Timber management programs may negatively affect grizzly bears by removing cover, displacement from habitat during the logging period, and increases in human/grizzly bear confrontation potential or disturbance factors as a result of road building and management. (U. S. Fish and Wildlife Service 1993)

DENNING - GENERAL OVERVIEW

The following is summarized from U. S. Fish and Wildlife Service 1993:

> Grizzly bears excavate dens. The den digging is probably instinctive. It starts as early as September or may take place just prior to entry in late November. Dens are usually dug on steep slopes where wind and topography cause an accumulation of deep snow and where the snow is unlikely to melt during warm periods. Elevations of dens vary geographically, but generally they are found at higher elevations well away from development or human activity. Several researchers have recorded prehibernation lethargy in bears that may start several weeks prior to denning. Bears exhibit no overt defense of their dens and several have been reported to abandon them because of human disturbance.
>
> Prehibernation lethargy, the consequences of disturbance factors to denning bears, and bear vulnerability during the predenning and denning periods must be considerations in planning land-use activities in identified denning habitat.

Research on denning of grizzly bears in the GYA was conducted by the Interagency Grizzly Bear Study Team (Judd et al 1986). This research provided the following information:

> Pregnant females denned in late October, and most other bears denned by mid-November. The mean date for entrance into dens was 9 November; the earliest documented entrance into dens was 28 September; the latest documented entrance into dens was 21 December.

Duration of denning averaged 113, 132, and 170 days for males, females, and females with new cubs, respectively. Males emerged from mid-February to late March, followed by single females and females with yearlings and 2-year-olds. Females with new cubs emerged from early to mid-April. Mean emergence date from dens was 28 March; earliest documented emergence date was 16 February; latest documented emergence date was 24 April.

There was no significant correlations with snow depths and entrance or emergence dates by either sex.

Den sites were correlated with moderate tree cover (26%-75% canopy cover) on 30-60 degree slopes. Dens occurred on all aspects, although northerly exposures were more common.

Grizzly bears usually dug new dens but occasionally used natural cavities or a den from a previous year.

HOME RANGES

The following is summarized from U. S. Fish and Wildlife Service 1993.

The home ranges of adult bears frequently overlap. The home ranges of adult male grizzlies are generally two to four time larger than that of females. The home ranges of both grizzly and black bear females appear to be smaller while they are with cubs, but ranges expand when the young are yearlings in order to meet increased foraging demands. The average total home range for grizzly bears in the YGBE is approximately 341 square miles for a female and 1,450 for males.

Grizzly bears disperse as subadults; however, their pattern of dispersal is not well documented. Dispersing young males apparently leave their mothers' home range and their dispersal may be mediated by the avoidance of the home ranges of established adults. Young females may establish a home range soon after family breakup, often within the vicinity of their mothers' home range. Grizzly bear mothers may tolerate female offspring and may shift their home range to accommodate them.

Home range sizes of both grizzly and black bears vary in relation to food availability, weather conditions, and interactions with other bears. In addition, individual bears may extend their range seasonally or from one year to the next.

MOTORIZED ACCESS - GENERAL OVERVIEW

The following is summarized from the Interagency Grizzly Bear Committee Task Force Report, 1994.

History has demonstrated that grizzly bear populations survived where frequencies of contact with humans were very low. Populations of grizzly bears and other large carnivores persisted in those areas where large expanses of relatively secure habitat were retained and where human induced mortality

was low. In the lower 48 conterminous states, this is primarily associated with National Parks, Wilderness areas and large blocks of public lands.

By managing motorized access on the landscape, the following grizzly bear management objectives can be met:

Minimize human interaction and potential grizzly bear mortality.

Minimize displacement from important habitats.

Minimize habituation to humans.

Provide relatively secure habitat where energetic requirements can be met.

Historically, management of motorized use has been primarily accomplished through restriction of certain types of motorized use on established access routes. Restrictions on vehicle use through timing and type of vehicle have been commonplace. Evaluation of the effects of motorized access have been based primarily on the density of open roads.

Recent research has indicated that evaluation of open road density alone is not a complete measure of the effects of motorized access on use of habitat by grizzly bears. In addition to open road density, total motorized access route density along with the presence of core areas, are important elements in the management of human access within grizzly bear recovery zones. Core areas are free of motorized traffic and high levels of human use.

The management of human use levels through access route management is one of the most powerful tools available to balance the needs of grizzly bears and many species of wildlife with the needs and activities of humans. It has been documented in several research projects, both completed and ongoing, that unregulated human access and development within grizzly bear habitat can contribute to increased bear mortality and affect bear use of existing habitat. It is also documented that human use of grizzly bear habitat within many recovery zones continues to increase.

The following definitions are recommended and are felt to cover all the various access route scenarios found within the recovery zones:

Road: all created or evolved routes that are >500 feet long, which are reasonably and prudently driveable with a conventional passenger car or pickup.

Open Road: a road without restriction on motorized use.

Restricted Road: a road on which motorized vehicle use is restricted seasonally or yearlong. The road requires physical obstruction (generally gated) and motorized vehicle use is legally restricted.*

Reclaimed/Obliterated Road: a road which has been treated in such a manner so as to no longer function as a road or trail. This can be accomplished through on or a combination of several means including: recontouring to original slope, placement of logging, road, or forest debris, planting of shrubs or trees, etc.

Trail: all created or evolved access routes that do not qualify as a road. They are not reasonably and prudently driveable with a conventional passenger car or pickup.

Open Motorized Trail: a trail without restriction on motorized use and is used by motorized vehicles. Trails used by 4-wheelers, 4-wheel drive vehicles and motorized trail bikes are examples of this type of access route.

Restricted Motorized Trail: a trail on which motorized use is restricted seasonally or yearlong. Motorized use is legally restricted. *

* Motorized administrative use by personnel of resource management agencies is acceptable at low intensity levels as defined in existing cumulative effects analysis models. This includes contractors and permittees in addition to agency employees.

(Note: Questions recently arose about trails which are completely closed to motorized use, such as wilderness trails. Are they to be counted as restricted motorized trails? We discussed this with Dr. Chris Servheen, Kim Barber, Tom Puchlerz, and Tom Wittinger on Nov. 4 & 6, 1996. Their opinion was that trails completely closed to motorized use are not restricted motorized trails and are not included in motorized access calculations.)

Core Areas

Core areas are areas free of motorized access during the non-denning period, are an important component of adult females that have successfully reared and weaned offspring. Core area criteria:

1. No motorized use of roads and trails during the non-denning period. Within the core area, restricted roads require closure devices that are permanent such as tank traps, large boulders, dense vegetation, etc.

2. No roads or trails that receive non-motorized, high intensity use as defined in established cumulative effects activity definitions.

3. Minimum of .3 miles from any open road or motorized trail. This will be accomplished by buffering all open roads and open motorized trails.

4. Consideration should be given, when information is available to do so, to ensure that the core area(s) meet seasonal bear habitat needs by assuring that spring, summer, fall and denning habitat within the core areas are representative of these seasonal habitats in the entire analysis area.

5. Once core areas become established and effective, these areas should remain in place for at least 10 years. This duration is based upon the generation time for a female grizzly bear or the time it takes a female grizzly bear to replace herself.

(Note: We will distinguish two kinds of core areas in our analysis of BMU's and subunits. The two kinds are:

Designated Core Areas: Designated core areas are those areas which meet all of the core area criteria and their boundaries are mapped with a management prescription.

Undesignated Core Areas: Undesignated core areas are those areas which meet all of the core area criteria, but their boundaries are not mapped with a management prescription. There is concern that since undesignated core areas are not mapped, they may not be established and effective for at least 10 years, therefore criteria number 5 may not be fully guaranteed in all cases. However, undesignated core areas have existed in some areas for many decades, and they may exist into the future for a decade or more. For however long they exist, they do provide some habitat benefit to the bear.

Defining Acceptable Level(s) of Motorized Access

(Note: The following discussion on defining acceptable levels of motorized access outlines work that is currently in progress in the YGBE)

The IGBC requested that the individual grizzly bear management subcommittees define and recommend the habitat conditions that should be maintained to provide habitat security for the grizzly bear.

Habitat security conditions cannot be defined entirely by motorized access route density. Other factors such as vegetation (food, cover), concentrated human use locations (e.g. town sites, campgrounds), heavily used non-motorized trails and areas of high levels of dispersed human use will also influence the effectiveness of area in regards to habitat security. However, motorized access routes and the human use associated with these routes are one of the most easily defined and measurable factors that we can evaluate. Motorized access is also one of the more influential parameters affecting habitat security.

The following parameters are recommended to be included as part of analyses regarding motorized access and its effect on habitat security for grizzly bears:

TOTAL MOTORIZED ACCESS ROUTE DENSITY - Includes all open and restricted roads and motorized trails. Density is displayed as a percentage of the analysis area in a defined density category. Example: 20% >2.0 miles per sq. mile.

OPEN ROAD AND OPEN MOTORIZED TRAIL ROUTE DENSITY - Includes all open roads and open motorized trails. Density is displayed as a percentage of the analysis area in a defined density category. Density is a single cumulative total of open roads and open motorized trails.

PERCENTAGE OF ANALYSIS AREA IN CORE AREA(S) - Percentage of the analysis area that meets core area criteria. Minimum size and connectivity of patches will be established at the recovery zone level. It is

recommended that the minimum size for the core area(s) be that area necessary to support a female grizzly bear for 24 hours of foraging.

Based on the best available information, each of the individual IGBC recovery zone subcommittees will display for known adult female grizzly bears the above listed parameters. This data will be obtained utilizing the largest individual annual home ranges of adult females. With this biological information, along with other research results and with social and other land management considerations, the individual subcommittees would recommend the level(s) at which parameters should be managed. it is recommended that this occur by the spring of 1995. HOWEVER, AS OF THIS WRITING, THIS HAS NOT BEEN COMPLETED.

In January 1996 a study was completed on the relationships among grizzly bears, roads, and habitat in the Swan Mountains, Montana (Mace et al 1996, in press). The following is quoted from the summary of that study:

> Differences existed between habitat and road features within and those outside the multi-year composite female grizzly bear home range. Using logistic regression, large resource selection probability functions were obtained for the subalpine zone within multiple-use lands have no roads. Selection probability was zero for private lands and declined as total road density increased.
>
> Within seasonal ranges, most grizzly bears favored low temperate and temperate elevation zones over the subalpine zone during all seasons. Relative to forested habitats, avalanche chutes were positively selected for during all seasons, but especially in spring. Shrub lands and cutting units were important to most bears during summer and autumn. Grizzly bears were more closely associated with higher total road densities during spring than during other seasons. When in low temperate habitats, most bears used habitats with lower total road density than random.
>
> Seasonal use by grizzly bears of areas within a 0.5 km buffer surrounding roads was evaluated. Most grizzly bears exhibited either neutral or positive selection for buffers surrounding closed roads and roads receiving <10 vehicles/day but avoided buffers surrounding roads having >10 vehicles/day.
>
> Between 1988-1994, eight grizzly bears were killed by humans. These deaths were directly influenced by road access and unnatural food sources. These deaths, in addition to natural mortality, were too excessive to promote local population growth.

OVERVIEW OF EXISTING CONSERVATION STRATEGY, EXISTING MANAGEMENT DIRECTION AND EXISTING HABITAT CONDITIONS

Broad Overview - Existing (1985) Forest Plan Conservation Strategy

Under the existing Forest Plan, the BMU Subunits were classified and managed according to "Management Situation" (MS) direction outlined in the Interagency

Grizzly Bear Guidelines (Interagency Grizzly Bear Committee 1986) as follows (also see Table 4a):

Henry's Lake BMU - Subunit 1 (HL1): 80% MS2 and 20% MS3 habitat.
Henry's Lake BMU - Subunit 2 (HL2): 100% MSI habitat.
Plateau BMU - Subunit 1 (PL1): 95% MS2 and 5% MS3 habitat.
Plateau BMU - Subunit 2 (PL2): 100% MS2
Bechler-Teton BMU - Targhee (BTT): 72% MSI and 28% MS2 habitat.

In MSI habitat:

All domestic sheep grazing was removed because of conflicts with grizzly bears.

The amount of scheduled timber harvesting was reduced (Orme and Williams 1986). Timber harvest activities were restricted in time and space to provide for adjacent undisturbed habitat.

Open road densities were to be < 1 mi./sq. mi.

Emphasis was placed on public education, using hunter patrols and wilderness patrols, to promote safe camping techniques to avoid grizzly bear/human conflicts. Bear proof storage boxes were provided in many backcountry areas.

In MS2 habitat;

The amount of scheduled timber harvesting was reduced in the Douglas-fir timber types, but lodgepole pine timber harvesting was increased in the Plateau BMU to regenerate lodgepole pine stands which had high quantities of dead trees as a result of the mountain pine beetle epidemic.

Road restrictions were used in most of the BMU subunits to limit access on some of the logging roads. However, there was not a specific motorized access density requirement.

Domestic sheep grazing allotments were maintained because conflicts with grizzly bears had not been occurring in these areas.

Not as much emphasis was placed on public education because grizzly bear/human conflicts had historically been low in these areas.

In MS3 Habitat:

This area encompasses developments (campgrounds, resorts, summer homes, intermingled private lands, etc.) and other high use associated facilities. Human presence results in conditions which make grizzly bear presence untenable for humans and/or grizzlies. Grizzly bear presence and factors contributing to their presence are actively discouraged. Any grizzly involved in a grizzly/human conflict will be controlled. Any grizzly frequenting an area will be controlled.

Table 4a. Existing Habitat Components for the Targhee Portion of Bear Management Units and Subunits.

Habitat Component	H. L. BMU Subunit 1 #	H. L. BMU Subunit 2	Plateau BMU Subunit 1	Plateau BMU Subunit 2	Bechler/ Teton BMU
Targhee National Forest Acres	91,819	35,742	83,900	74,770	190,360
Other Ownership Acres w/in Administrative Boundary	1,526	1,608	3,277	1,320	986
Acres Outside the Administrative Boundary	35,170	60,594	96,026	199,618	150,548
Total Acres in BMU/Subunit	128,515	97,944	183,203	275,708	341,894
Percent of Targhee National Forest Acres in MS 1	0	100	0	0	72
Percent of Targhee National Forest Acres in MS 2	80	0	95	100	28
Percent of Targhee National Forest Acres in MS 3	20	0	5	0	0
Motorized Road and Trail Miles					
Open Road Miles	92.60	36.80	115.20	71.10	187.50
Restricted Road Miles	48.10	4.80	117.40	135.50	152.00
Open Motorized Trail Miles	3.90	7.90	8.60	15.60	38.60
Restricted Motorized Trail Miles	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Miles	144.60	49.50	241.20	222.20	378.10
Open Road and Open Motorized Trail Route Miles	96.50	44.70	123.80	86.70	226.10
Motorized Road and Trail Access Density: (mi./sq.mi.)					
Open Road Density	0.79	0.63	0.85	0.60	0.63
Restricted Road Density	0.41	0.08	0.86	1.14	0.51
Open Motorized Trail Density	0.03	0.14	0.06	0.13	0.13
Restricted Motorized Trail Density	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Density	1.23	0.85	1.77	1.87	1.27
Open Road and Open Motorized Trail Route Density	0.82	0.77	0.91	0.73	0.76
Other Access Information:					
Percent of NF Acres within Designated Wilderness	0.0	0.0	0.0	0.0	34.4
Percent of NF Acres Open & Suitable for OHV Use	6.2	7.1	75.4	68.5	8.7
Percent of NF Acres within Designated Core Areas	23.0	38.0	0.0	0.0	34.0
Percent of NF Acres within Undesignated Core Areas	27.0	0.0	52.0	38.0	20.0
Number of Sheep Allotments in Use	9	0	0	0	2
Number of Cattle Allotments in Use	3	1	0	0	3
Total Number of Point Activities	1,060	23	63	53	324
Administrative Points (work centers, campgrounds, etc)	5	1	5	5	12
Sheep Grazing Points (camps)	14	0	0	0	15
Outfitter & Guide Camps	0	0	0	0	8
Special Use Points (summer homes, etc)	3	3	8	0	5
Timber Management Activities (sales, firewood)	3	0	26	27	10
Other Point Activities (dispersed camps, etc)	39	15	23	20	144
Private Points sites on nonForest lands w/in 1 mile)	996	4	1	1	130
Total Forested Acres	60,768	28,130	86,124	75,331	168,885
Percent Mature	90.0	87.6	40.5	62.4	81.4
Percent Pole	0.7	2.7	14.0	2.1	1.6
Percent Sapling	2.1	7.0	12.3	10.1	4.3
Percent Seedling	5.0	2.6	24.6	16.1	8.8
Percent Non-stocked	2.3	0.2	8.7	9.4	4.0
Total Non-forested Acres	14,066	9,228	1,059	757	22,490
Number of Verified Bear Mortalities & Cause (1981-1996):##					
Hunting	0	0	1	0	0
Transporting	0	1	0	0	0
Self-defense	0	0	0	0	1
Unknown	1	0	0	0	0

Information for H. L. BMU/Subunit 1, starting with motorized road and trail miles, is for the MS 2 portion of the Subunit. Information for the MS 3 portion and Henry's Lake Flat is discussed in the text.

The last verified grizzly bear mortality on the Targhee occurred in 1984. There have been no verified grizzly bear mortalities on the Targhee from 1985 to the present.

Overview - Existing Management Direction for Each BMU Subunit

Henry's Lake BMU - Subunit 1

This BMU/Subunit is about 128,500 acres (201 sq. mi.) in size; 73 percent of the subunit is National Forest land, and 27 percent is in other ownership (which includes Henry's Lake Flat) (Table 4a).

In the existing Forest Plan, 80 percent of the National Forest acres are classified as Management Situation (MS) 2 habitat, and 20 percent of the acres are classified as MS3 habitat, according to the Interagency Grizzly Bear Guidelines (1986) (Table 4a).

Within the MS2 portion of this BMU, the following habitat conditions currently exist (also refer to Table 4a):

There are 92.60 miles of open roads and 3.90 miles of open motorized trails. The existing open road and open motorized trail route density (OROMTRD) is 0.82 mi./sq. mi.

There are 144.60 total motorized access route miles. The existing total motorized access route density (TMARD) is 1.27 mi./sq. mi.

Most of the area (93.8 percent) is closed to cross-country off-highway vehicle (OHV) travel.

Designated core areas comprise 23 percent of the area; undesignated core areas comprise 27 percent of the area.

Most of the area is open to snowmachine use from December 1 to June 1.

There are 9 sheep allotments in use, and 3 cattle allotments in use. We have no records of grizzly/livestock conflicts on National Forest lands (dating back to 1959).

There are 64 point activities on National Forest land. This represents 6 percent of the total point activities mapped for the entire subunit.

About 81 percent of the acres are forested, and 19 percent nonforested. Timber harvesting has occurred on about 9 percent of the forested acres; currently 90 percent of the forested acres are classified as mature and older successional stages. A small amount of whitebark pine exists in the vicinity of Sawtell Peak. Compared to historical vegetation patterns, there are more acres of mature and older forests today than existed in the later 1800's and early 1900's.

Compared to the other BMU's and Subunits on the Forest, this area had the fewest grizzly bear sightings from 1959 to 1986 (Orme and Williams 1986).

From 1986 through 1995, we have records of 1 grizzly bear sighting in MS2 habitat. Compared to the other BMU's and Subunits on the

Forest, this area had the fewest grizzly bear sightings from 1986 through 1995.

No female sows with cubs have been documented in the MS2 portion of this subunit (from available documentation dating back to 1959).

Within the MS3 portion of this BMU, and Henry's Lake Flat, the following habitat conditions currently exist:

OROMTRD is about 2.84 mi./sq. mile. The average daily traffic for U. S. Highway 20 is about 2,400 vehicles per day

Cross-country OHV travel is not restricted on National Forest land.

Livestock grazing occurs on most of the private lands.

In 1995, there were 172,646 fishing hours of activity on Henry's Lake from May to October (IDFG Creel Survey Summary Sheet, Henry's Lake, 1995).

Snowmachine use occurs whenever there is enough snow.

There are 996 point activities.

From 1986 through 1995, we have records of 2 grizzly bear sightings in MS3 habitat, and 2 grizzly bear sightings on private lands. In addition to these sightings, radio collared bear #139 was trapped on MS3 and private lands in 1987 and 1988.

Within the entire subunit (MS2 and MS3 and Henry's Lake Flat), there have been 7 grizzly bear mortalities from 1959 to 1984, and no mortalities from 1985 to the present (Craighead et al 1988; Targhee National Forest 1992, annual reports of the Interagency Grizzly Bear Study Team). Five of these occurred on non-National Forest land on the east edge of the subunit, near Henry's Lake Subunit 2, suggesting that the bears were probably from Subunit 2 rather than Subunit 1 (this is further supported with the number of mortalities which occurred in Subunit 2). These mortalities can be summarized as follows:

Mortalities occurred in these years: 1965 (1), 1970 (1), 1971 (1), 1972 (2), 1981 (1), and 1984 (1).

4 were known mortalities; 1 was probable; and 2 were possible.

2 occurred in MS2 habitat; 1 in MS3 habitat; and 4 on private land.

4 were males; 3 were unknown sex.

1 was a sub-adult; 4 were adults; 2 were unknown age.

3 were related to livestock (on the east side of Henry's Lake Flat); 3 were unknown; and 1 was coded as a deliberate, let lay, vandal killing.

3 were legal actions; 3 were illegal; and 1 was unknown.

In 1993 and 1994, a study was conducted to evaluate habitat and grizzly bear presence in this BMU. The conclusion and recommendation of that study is quoted below (Puchlerz 1994):

> "The Henry's Lake BMU has existing habitat and effectiveness values that would be considered of moderate value. However, the yearlong occupancy of this BMU by an adult female grizzly bear with young should not be expected. The primary reason for this conclusion is the inadequate size of the BMU. In addition, the presence of domestic sheep grazing allotments (9) within the BMU pose a significant mortality risk for grizzly bears."
>
> "It is the committees recommendation that an increase in the size of the BMU be considered. Our recommendation is to delete Madison subunit #2 from the current Madison BMU and add it to the existing Henry's Lake BMU. This additional 87,590 acres would make the Henry's Lake BMU viable in terms of providing the necessary space for an adult female with young. The addition would also provide a more ecologically based unit with the majority of the Henry's Lake Mountains being included. The reduction of the 87,590 acres from the current Madison BMU should not effect occupancy of Madison Subunits 1 or 3. Both of these subunits have historically been occupied by females with young."

The recommendation from the 1993/1994 study that a portion of the Madison BMU be added to the Henry's Lake BMU has been done. This addition is now called the Henry's Lake BMU - Subunit 2.

The analysis which was done for the 1993/1994 study did not incorporate the high human activities within this BMU associated with Henry's Lake Flat. CEM analysis done in this Biological Assessment does incorporate these human activities. How bears would use Henry's Lake Subunit 1 with the high human activities associated with Henry's Lake Flat is an unanswered question.

Henry's Lake BMU - Subunit 2

This BMU/Subunit is about 97,900 acres in size, with 62 percent occurring in Montana (primarily the Gallatin N. F., and some private lands) and 38 percent occurring in Idaho. For the Idaho portion, 96 percent is Targhee National Forest, and 4 percent is in other ownership.

In the existing Forest Plan, 100 percent of the Targhee National Forest acres are classified as MSI habitat, according to the Interagency Grizzly Bear Guidelines (Interagency Grizzly Bear Committee 1986).

Existing habitat conditions for the Idaho portion of this Subunit are (also refer to Table 4a):

> There are 36.80 miles of open road and 7.9 miles of open motorized trails. The existing OROMTRD is 0.77 mi./sq. mi.
>
> There are 49.50 total motorized access route miles. The existing TMARD is 0.85 mi./sq. mi.

Most of the area (92.9 percent) is closed to cross-country OHV travel.

Designated core areas comprise 38 percent of the area; there are no undesignated core areas.

In the Lionhead portion of this subunit, snowmachine use is allowed from December 1 to June 1. In the remainder of this subunit, snowmachine use can occur whenever there is enough snow.

There are no sheep allotments in use. There is 1 cattle allotment in use. There have been no grizzly/livestock conflicts since sheep grazing was eliminated in this area in 1984. Records from 1959 to 1984 document 20 grizzly/livestock incidents that resulted in a grizzly bear death.

There are 19 point activities on National Forest land, and 4 on adjacent private land.

About 75 percent of the acres are forested, and 25 percent nonforested. Timber harvesting has occurred on about 10 percent of the forested acres; currently 87.6 percent of the forested acres are classified as mature and older successional stages. Compared to historical vegetation patterns, there are more acres of mature and older forests today than existed in the later 1800's and early 1900's.

Compared to the other BMU's and Subunits on the Forest, this area had the second highest number of grizzly bear sightings from 1959 to 1986 (Orme and Williams 1986).

From 1986 through 1995, we have records of 8 grizzly bear sightings, all on National Forest land (3 of these sightings are on the border between this subunit and the Plateau BMU). In addition to these sightings, there are numerous recorded observations of radio collared bear #258 (an adult female), which was relocated into this BMU subunit in the fall of 1995. Bear #258 left this BMU subunit in the spring of 1996 and returned to her previous home range.

Sows with cubs have previously been documented in this subunit. A female sow with cubs was documented in this BMU subunit (but not on the Targhee National Forest) during 1996 (Interagency Grizzly Bear Committee News Release, Oct. 28, 1996).

From 1959 to 1984, there have been 21 grizzly bear mortalities in the Idaho portion of this subunit; no mortalities have occurred from 1985 to the present (Craighead et al 1988; Targhee National Forest 1992; annual reports of the Interagency Grizzly Bear Study Team). These mortalities can be summarized as follows:

Mortalities occurred in these years: 1960 (2), 1966 (1), 1967 (2), 1968 (1), 1969 (2), 1970 (4), 1971 (1), 1972 (3), 1973 (1), 1974 (2), 1977 (1), 1984 (1).

14 were listed as known mortalities, 4 were probable, 3 were possible.

5 were females, 2 were males, 14 were unknown sex.

3 were cubs-of-the-year, 2 were sub-adults, 10 were adults, 6 were unknown age.

20 were related to livestock, 1 was hunter related.

19 were legal or management control or trapping actions, 2 were illegal.

Plateau BMU - Subunit 1

This BMU/Subunit is about 183,200 acres in size, with 52 percent occurring in Montana (primarily the Gallatin N. F. and Yellowstone N. P) and 48 percent occurring in Idaho (primarily the Targhee N. F.). For the Idaho portion, 96 percent is Targhee N. F., and 4 percent is in other ownership.

In the existing Forest Plan, 95 percent of the Targhee National Forest acres are classified as MS2 habitat, and 5 percent MS3 habitat, according to the Interagency Grizzly Bear Guidelines (Interagency Grizzly Bear Committee 1986).

Existing habitat conditions for the Idaho portion of this Subunit are (also refer to Table 4a):

There are 115.2 miles of open road and 8.60 miles of open motorized trails. The existing OROMTRD is 0.91 mi./sq. mi.

There are 241.2 total motorized access route miles. The existing TMARD is 1.77 mi./sq. mi.

Most of the area (75.4 percent) is open and suitable for cross-country OHV travel.

There are no designated core areas; undesignated core areas comprise 52 percent of the area.

Snowmachine use is allowed from December 1 to June 1 in the North Fork Fire area. In the remainder of the subunits, snowmachine use is allowed whenever there is enough snow.

There are no sheep allotments in use, and no cattle allotments in use.

There are 63 point activities mapped in Subunit 1. The majority of these points have been timber management activities and dispersed camp sites. The amount of timber management activity has declined since the mapping was done in 1994 and 1995.

About 99 percent of the acres are forested, and 1 percent nonforested. Timber harvesting or fire (the 1988 North Fork Fire) have occurred on about 59.5 percent of the forested acres; currently

40.5 percent of the forested acres are classified as mature and older successional stages.

Most of the forested acres are classified as lodgepole pine cover type. An analysis of forest inventory plots shows that only 20 percent of the plots contain whitebark or limber pine, and for these plots, 99.1 percent of the whitebark or limber pine trees are less than 2 inches in diameter, therefore not cone producing trees.

Compared to the other BMU's and Subunits on the Forest, this area had one of the lowest number of grizzly bear sightings from 1959 to 1986 (Orme and Williams 1986).

From 1986 through 1995, we have records of 5 grizzly bear sightings within subunit 1. In addition to these sightings, there are many recorded observations of radio collared bear #227 (a male) for portions of each summer from 1994 through 1996.

Searching through reports in our files, we can document that 2 sows with cubs were observed for the period 1965 to 1984 (one of the sows was shot and killed by hunters in the fall of 1984). From 1985 to the present, no sows with cubs have been reported in this subunit.

From 1959 to the present, there have been 2 grizzly bear mortalities in these subunits (Craighead et al 1988; Targhee National Forest 1992). These mortalities can be summarized as follows:

Mortalities occurred in these years: 1981 (1), 1984 (1).

1 was listed as a known mortality, 1 was possible.

1 was a female, 1 was unknown sex.

1 was an adult, 1 was unknown age.

1 was related to hunting, 1 was coded as a vandal killing.

2 were illegal.

In 1993 and 1994, a study was conducted to evaluate habitat and grizzly bear presence in the Plateau BMU. The subunits referred to in that study no longer exist, but the results of the report are still applicable. The conclusion and recommendation of that study is quoted below (Puchlerz 1994):

"Caldera Subunit"

"The Caldera Subunit has existing habitat values that would be considered moderate . However, the yearlong occupancy of this BMU by an adult female grizzly bear with young should not be expected. The primary reason for this conclusion is that existing habitat effectiveness is low with a 51% reduction of the habitat value that currently exists. Mortality risk to grizzly bears would be considered high due to high road densities and the human use related to the existing road network."

"It is the committees recommendation that the Targhee National Forest improve habitat effectiveness levels by implementing access management measures approved by the IGBC in July of 1994. With improved habitat effectiveness occupancy should be expected. Continued monitoring for evidence of reproducing females is recommended."

"Moose Creek/Pitchstone Subunit"

"The Moose Creek/Pitchstone Subunit has existing habitat values that are considered low. They are currently the lowest we have recorded in the Yellowstone Recovery Zone. There are areas of moderate value habitat on the periphery of the subunit where bear use would be expected. Little reduction in habitat value has occurred as the majority of the subunit is without significant levels of human activity. The exception to this is the Targhee NF portion of the unit where high road density reduces habitat value significantly. The yearlong occupancy of this subunit by an adult female grizzly bear with young should not be expected."

"It is the committees recommendation that the Targhee National Forest improve habitat effectiveness levels by implementing access management measures approved by the IGBC in July of 1994. Continued monitoring for evidence of reproducing females is recommended."

"In both the Caldera and the Moose Creek/Pitchstone subunits there exists an access management strategy, jointly developed by the Targhee National Forest and the U.S. Fish and Wildlife Service for the Targhee portion of the Plateau BMU. If this strategy were implemented it would greatly improve habitat effectiveness and security within the subunits. This strategy has undergone formal consultation." (Note: This strategy has not undergone NEPA analysis, nor has the existing Forest Plan been amended.)

Plateau BMU - Subunit 2

This BMU/Subunit is about 275,700 acres in size, with 72 percent occurring in Yellowstone N. P. and 28 percent occurring on the Targhee N. F. For the Targhee portion, 98 percent is Targhee N. F., and 2 percent is in other ownership.

In the existing Forest Plan, 100 percent of the Targhee National Forest acres are classified as MS2 habitat, according to the Interagency Grizzly Bear Guidelines (Interagency Grizzly Bear Committee 1986).

Existing habitat conditions for the Idaho portion of this Subunit are (also refer to Table 4a):

There are 71.1 miles of open road and 15.6 miles of open motorized trails. The existing OROMTRD is 0.73 mi./sq. mi.

There are 222.2 total motorized access route miles. The existing TMARD is 1.87 mi./sq. mi.

Most of the area (68.5 percent) is open and suitable for cross-country OHV travel.

There are no designated core areas; undesignated core areas comprise 38 percent of the area.

Snowmachine use is allowed whenever there is enough snow.

There are no sheep allotments in use, and no cattle allotments in use.

There are 53 point activities mapped in Subunit 2. The majority of these points have been timber management activities and dispersed camp sites. The amount of timber management activity has declined since the mapping was done in 1994 and 1995.

About 99 percent of the acres are forested, and 1 percent nonforested. Timber harvesting or fire have occurred on about 37.6 percent of the forested acres; currently 62.4 percent of the forested acres are classified as mature and older successional stages.

Most of the forested acres are classified as lodgepole pine cover type. An analysis of forest inventory plots shows that only 20 percent of the plots contain whitebark or limber pine, and for these plots, 99.1 percent of the whitebark or limber pine trees are less than 2 inches in diameter, therefore not cone producing trees.

Compared to the other BMU's and Subunits on the Forest, this area had one of the lowest number of grizzly bear sightings from 1959 to 1986 (Orme and Williams 1986).

From 1986 through 1995, we have records of 6 grizzly bear sightings within subunit 2.

From 1965 to 1984, there were 4 sightings of bear groups (2 or more bears together) but our records do not confirm that these were sows with cubs. From 1985 to 1993, no sows with cubs were observed. In 1994, one sow with cubs was observed one time near the southern boundary of the subunit. No sows with cubs have been reported during 1995 and 1996.

From 1959 to 1973, there have been 4 grizzly bear mortalities in this subunit; from 1974 to the present, no grizzly bear mortalities have occurred (Craighead et al 1988; Targhee National Forest 1992; annual reports of the Interagency Grizzly Bear Study Team). These mortalities can be summarized as follows:

Mortalities occurred in these years: 1971 (1), 1972 (2), 1973 (1).

2 were listed as known mortalities, 1 was probable, 1 was possible.

2 were females, 2 were unknown sex.

4 were adults.

1 was related to livestock, 1 was hunter related, 1 was coded as a management control, and 1 was unknown cause.

3 were legal or management control actions, 1 was illegal.

In 1993 and 1994, a study was conducted to evaluate habitat and grizzly bear presence in the Plateau BMU. The subunits referred to in that study no longer exist, but the results of the report are still applicable. The conclusion and recommendation of that study are presented in the previous Plateau Subunit 1 section.

Bechler/Teton BMU

This BMU is about 341,900 acres in size. About 56 percent of this BMU occurs on the Targhee National Forest (44 percent occurs in Yellowstone and Grand Teton National Parks). There are no subunits in this BMU. The Targhee National Forest portion is about 191,350 acres (299 sq. mi.) in size; 99 percent is National Forest land, and 1 percent is in other ownership.

In the existing Forest Plan, 72 percent of the Targhee National Forest acres are classified as MSI habitat, and 28 percent are classified as MS2 habitat, according to the Interagency Grizzly Bear Guidelines (Interagency Grizzly Bear Committee 1986).

Existing habitat conditions for the Targhee National Forest acres are (also refer to Table 4a):

There are 187.5 miles of open road and 38.60 miles of open motorized trails. The existing OROMTRD is 0.76 mi./sq. mi.

There are 378.10 total motorized access route miles. The existing TMARD is 1.27 mi./sq. mi.

Most of the area (91.3 percent) is closed or not suitable to cross-country OHV travel.

About 34 percent of the acres are within the Winegar Hole and Jedediah Smith Wilderness Areas.

Designated core areas comprise 34 percent of the area; undesignated core areas comprise 20 percent of the area.

Outside of the designated Wilderness areas, snowmachine use is allowed whenever there is enough snow.

All sheep allotments in MSI habitat have been closed. There are 2 sheep allotments in use in MS2 habitat; two bear/sheep conflicts (identified as grizzly bear) have been documented. There are 3 cattle allotments in use; no grizzly/cattle conflicts have been documented.

There are 194 point activities mapped on National Forest lands. Most of these point activities (74%) are dispersed recreation

activities. There are 130 point activities mapped on adjacent private lands within the 1-mile buffer.

About 88 percent of the acres are forested, and 12 percent nonforested. Timber harvesting has occurred on about 17 percent of the forested acres; currently 81 percent of the forested acres are classified as mature and older successional stages.

Cone producing whitebark pine exists at elevations above 6,500 ft. The Interagency Grizzly Bear Study Team has a couple of whitebark pine cone transects established in this area.

Compared to the other BMU's and Subunits on the Forest, this area had the highest number of grizzly bear sightings from 1959 to 1986 (Orme and Williams 1986).

From 1986 through 1995, we have records of 26 grizzly bear sightings, which is the highest number of sightings compared to the other BMU's and Subunits for this time period.

Four of the 26 grizzly bear sightings from 1986 through 1995 were sows with cubs. These four sightings are considered reliable, but none were verified. Therefore, these sightings have not been included in the official records for sows with cubs in each BMU. This BMU is currently occupied by a sow with cubs, based on verified sightings from the Grand Teton National Park portion of the BMU.

From 1959 to 1982, there have been 25 grizzly bear mortalities on the Targhee portion of this BMU; from 1983 to the present, no grizzly bear mortalities have occurred (Craighead et al 1988; Targhee National Forest 1992; annual reports of the Interagency Grizzly Bear Study Team). These mortalities can be summarized as follows:

Mortalities occurred in these years: 1963 (2), 1969 (1), 1970 (2), 1971 (2), 1972 (2), 1973 (3), 1975 (2), 1976 (2), 1977 (1), 1978 (3), 1979 (4), 1982 (1).

16 were listed as known mortalities, 4 were probable, 5 were possible.

6 were females, 9 were males, and 10 were unknown sex.

4 were subadults, 9 were adults, 12 were unknown age.

20 were related to livestock (all domestic sheep), 2 were hunter related, 1 was a probable hunter related, 1 was defense of life by a hunter, and 1 was trapping related.

13 were legal or management control actions, 11 were illegal, and 1 was unknown.

HABITAT EVALUATION FOR EACH BMU FOR EACH ALTERNATIVE

The MS3 habitat in Henry's Lake Subunit 1 is still managed as an area where grizzly bear presence is discouraged because of high human use and developments in all Alternatives.

Tables 5 through 8 display changes in habitat components for each BMU/subunit for each alternative.

At this time, no definitive statement can be made for a "threshold" number for TMARD, OROMTRD, amount of core area, or level of overall human activity, in order to achieve a certain number of grizzly bears using a specific area. Analysis on female home ranges is currently being done by the Interagency Grizzly Bear Study Team, which may help define threshold levels for some parameters in the future. Generally, the lower the TMARD and OROMTRD, the higher amount of core area, and the lower the overall human activity, the better the habitat conditions are for grizzly bears.

The only available tool that evaluates the cumulative effects of changing levels of human activities and changing habitat conditions is the grizzly bear cumulative effects model (CEM). The CEM was used to provide insight on the relative changes in habitat quality between the alternatives. Tables 5 through 8 show CEM outputs for the alternatives. The CEM is still being validated and at this time, no conclusions can be made concerning grizzly bear populations or distributions based on CEM outputs.

Predicting future grizzly bear distribution and abundance by alternative is difficult. Based on data we have compiled from 1959 to the present, we offer the following general assessment for each BMU subunit:

Henry's Lake BMU, Subunit 1 - This area has had the lowest documented grizzly bear sighting of any subunit on the Forest but is has the highest habitat value of any subunit. There has not been a verified sighting of a sow with cubs from 1959 to present. Even with 9 active domestic sheep allotments, there has not been grizzly bear/livestock incidents. This subunit is positioned farther west than any other subunit in the GYA and contains the high recreation use associated with Henry's Lake Flat. Even though there is a general trend of improving habitat conditions on the Forest from Alternative 1 to Alternative 6, we expect grizzly bear use to remain at low levels, similar to what has occurred in the past, in all alternatives.

Henry's Lake BMU, Subunit 2 - Compared to other subunits on the Forest, this subunit has had the second highest number of grizzly bear sightings and it has the second highest habitat value of any subunit. This subunit has been and currently is, occupied by a sow with cubs. This subunit is immediately adjacent to other occupied BMU's in the GYA. Even though there is a general trend of improving habitat conditions on the Forest from Alternative 1 through Alternative 6, we expect grizzly bear use to be similar to what has occurred in the past in all alternatives. We do not expect a measurable difference in grizzly bear use among the alternatives.

Plateau BMU, Subunit 1 - Compared to other subunits on the Forest, this subunit has had the second lowest number of grizzly bear sightings and it

has the lowest habitat value of any subunit. Two sows with cubs have been documented from 1959 to the present. In the last two decades, the Forest portion has had what is considered high open road densities and high human activity, especially timber management activity. But the Yellowstone National Park portion has had very little human activity and still grizzly bear use has been low in that portion of the subunit. Generally, there is a trend of improving habitat condition on the Forest from Alternative 1 to Alternative 6. Because this subunit is adjacent to other occupied BMU's in the GYA, we expect that as habitat conditions improve, there is potential for increased grizzly bear use. We use the term potential because of historic low use of this subunit, even in the Yellowstone National Park portion where little human activity has occurred.

Plateau BMU, Subunit 2 - Compared to other subunits on the Forest, this subunit has had the third lowest number of grizzly bear sightings and it has the second lowest habitat value of any subunit. Until 1994, we had no records that confirm sightings of sows with cubs in this subunit. In 1994, one sow with cubs was observed one time near the southern boundary of the subunit; since 1994, no sows with cubs have been documented. In the last two decades, the Forest portion has had what is considered high open road densities and high human activity, especially timber management activity. But the Yellowstone National Park portion has had very little human activity and still grizzly bear use has been low in that portion of the subunit. Generally, there is a trend of improving habitat condition on the Forest from Alternative 1 to Alternative 6. Because this subunit is adjacent to other occupied BMU's in the GYA, we expect that as habitat conditions improve, there is potential for increased grizzly bear use. We use the term potential because of historic low use of this subunit, even in the Yellowstone National Park portion where little human activity has occurred.

Bechler/Teton BMU - Compared to other subunits on the Forest, this subunit has had the highest number of grizzly bear sightings and it has the third highest habitat value of any subunit. This subunit has been and currently is occupied by a sow with cubs. This subunit is immediately adjacent to other occupied BMU's in the GYA. There is a general trend of improving habitat condition on the Forest from Alternative 1 to Alternative 6. Because this subunit is adjacent to other occupied BMU's in the GYA, we expect that as habitat conditions improve, there is potential for increased grizzly bear use. We use the term potential because of historic high use of this subunit and we may not be able to measure more use when compared to the historic high use.

Since 1984, there have been no grizzly bear mortalities on the Forest. We do not expect any inherent differences among the alternatives in relation to grizzly bear mortalities. The Targhee Forest Plan Revision does not eliminate human presence and activities. As long as humans are present in the BMU's, there will be probable occurrences of grizzly/human conflicts, resulting in bear displacement and possible bear mortalities. If grizzly bear use increases in the future due to improved habitat conditions, there may be potential for increased human/grizzly bear conflicts.

Table 5. Habitat Components for the Targhee Portion of the Henry's Lake BMU, Subunit 1, for the Existing Condition and All Alternatives.

Habitat Component	Existing Condition	Alt. 1	Alt. 2	Alt. 3	Alt. 3-M	Alt. 4	Alt. 5	Alt. 6
Motorized Road and Trail Miles:								
Open Road Miles	92.60	74.40	72.60	73.70	64.00	50.90	60.50	64.30
Restricted Road Miles	48.10	42.50	28.30	41.60	22.30	19.40	14.90	10.50
Open Motorized Trail Miles	3.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restricted Motorized Trail Miles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Miles	144.60	116.90	100.90	115.30	86.30	70.30	75.40	74.80
Open Road and Open Motorized Trail Route Miles	96.50	74.40	72.60	73.70	64.00	50.90	60.50	64.30
Motorized Road and Trail Access Density: (mi./sq.mi.)								
Open Road Density	0.79	0.64	0.62	0.63	0.55	0.44	0.52	0.55
Restricted Road Density	0.41	0.36	0.24	0.36	0.19	0.17	0.13	0.09
Open Motorized Trail Density	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restricted Motorized Trail Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Density	1.24	1.00	0.86	0.99	0.74	0.60	0.64	0.64
Open Road and Open Motorized Trail Route Density	0.83	0.64	0.62	0.63	0.55	0.44	0.52	0.55
Other Access Information:								
Percent of NF Acres within Designated Wilderness	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of NF Acres Open & Suitable for Cross-country OHV Us	6.2	6.2	4.3	0.0	0.0	0.0	0.0	0.0
Percent of NF Acres within Designated Core Areas	23.0	30.0	35.0	38.0	38.0	38.0	38.0	38.0
Percent of NF Acres within Undesignated Core Areas	27.0	36.0	30.0	24.0	28.0	31.0	30.0	31.0
Number of Sheep Allotments in Use	9	9	9	9	Phase out	Phase out	0	0
Number of Cattle Allotments in Use	3	3	3	3	3	3	3	3
Total Number of Point Activities	1,060	1,038	1,038	1,038	1,038	1,038	1,038	1,038
Administrative Points (work centers, campgrounds, etc)	5	5	5	5	5	5	5	5
Sheep Grazing Points (camps)	14	14	14	14	14	14	14	14
Outfitter & Guide Camps	0	0	0	0	0	0	0	0
Special Use Points (summer homes, electronic sites, etc)	3	3	3	3	3	3	3	3
Timber Management Activities (sales, firewood)	3	similar	similar	similar	similar	similar	similar	similar
Other Point Activities (dispersed recreation camps, etc)	39	34	34	34	34	34	34	34
Private Points (all sites on nonForest lands w/in 1 mile)	996	996	996	996	996	996	996	996
Total Forested Acres	60,768	60,768	60,768	60,768	60,768	60,768	60,768	60,768
Percent Mature	90.0	84.9	84.2	85.1	86.4	87.2	88.2	89.6
Percent Pole	0.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Percent Sapling	2.1	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Percent Seedling	5.0	6.1	6.4	6.1	5.4	5.0	4.5	3.8
Percent Non-stocked	2.3	3.7	4.0	3.7	3.0	2.6	2.1	1.4
CEM Ratings (daily per acre average) Targhee Portion Only								
Spring HV	1.9699	1.9699	1.9699	1.9699	1.9699	1.9699	1.9699	1.9699
Spring HE	1.0468	1.0476	1.0782	1.1493	1.1581	1.1857	1.1749	1.1996
Percent (HE/HV)	53.1	53.2	54.7	58.3	58.8	60.2	59.6	60.9
Summer HV	1.9437	1.9437	1.9437	1.9437	1.9437	1.9437	1.9437	1.9437
Summer HE	1.3066	1.3147	1.3633	1.4187	1.4248	1.4516	1.4442	1.4716
Percent (HE/HV)	67.2	67.6	70.1	73.0	73.3	74.7	74.3	75.7
Fall HV	1.6482	1.6482	1.6482	1.6482	1.6482	1.6482	1.6482	1.6482
Fall HE	1.0853	1.0854	1.1271	1.1550	1.1769	1.2078	1.2020	1.2325
Percent (HE/HV)	65.8	65.9	68.4	70.1	71.4	73.3	72.9	74.8

Annual HV	1.8547	1.8547	1.8547	1.8547	1.8547	1.8547	1.8547	1.8547
Annual HE	1.1465	1.1495	1.1897	1.2413	1.2536	1.2819	1.2740	1.3015
Percent (HE/HV)	61.8	62.0	64.1	66.9	67.6	69.1	68.7	70.2
CEM Ratings (daily per acre average) Entire BMU/Subunit								
Spring HV	1.9699	1.9699	1.9699	1.9699	1.9699	1.9699	1.9699	1.9699
Spring HE	1.0468	1.0476	1.0782	1.1493	1.1581	1.1857	1.1749	1.1996
Percent (HE/HV)	53.1	53.2	54.7	58.3	58.8	60.2	59.6	60.9
Summer HV	1.9437	1.9437	1.9437	1.9437	1.9437	1.9437	1.9437	1.9437
Summer HE	1.3066	1.3147	1.3633	1.4187	1.4248	1.4516	1.4442	1.4716
Percent (HE/HV)	67.2	67.6	70.1	73.0	73.3	74.7	74.3	75.7
Fall HV	1.6482	1.6482	1.6482	1.6482	1.6482	1.6482	1.6482	1.6482
Fall HE	1.0853	1.0854	1.1271	1.1550	1.1769	1.2078	1.2020	1.2325
Percent (HE/HV)	65.8	65.9	68.4	70.1	71.4	73.3	72.9	74.8
Annual HV	1.8547	1.8547	1.8547	1.8547	1.8547	1.8547	1.8547	1.8547
Annual HE	1.1465	1.1495	1.1897	1.2413	1.2536	1.2819	1.2740	1.3015
Percent (HE/HV)	61.8	62.0	64.1	66.9	67.6	69.1	68.7	70.2

Information in this table does not include the MS3 portion and non-National Forest portion, except point activities does include the MS3 and non-National Forest portions.

Table 6. Habitat Components for the Targhee Portion of the Henry's Lake BMU, Subunit 2, for the Existing Condition and All Alternatives.

Habitat Component	Existing Condition	Alt. 1	Alt. 2	Alt. 3	Alt. 3-M	Alt. 4	Alt. 5	Alt. 6
Motorized Road and Trail Miles:								
Open Road Miles	36.80	23.50	21.30	20.20	20.70	17.70	21.10	17.30
Restricted Road Miles	4.80	7.60	10.30	11.20	4.60	10.00	7.90	9.20
Open Motorized Trail Miles	7.90	3.40	3.40	3.40	6.50	3.40	3.40	3.40
Restricted Motorized Trail Miles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Miles	49.50	34.50	35.00	34.80	31.80	31.10	32.40	29.90
Open Road and Open Motorized Trail Route Miles	44.70	26.90	24.70	23.60	27.20	21.10	24.50	20.70
Motorized Road and Trail Access Density: (mi./sq.mi.)								
Open Road Density	0.63	0.40	0.36	0.35	0.35	0.30	0.36	0.30
Restricted Road Density	0.08	0.13	0.18	0.19	0.08	0.17	0.14	0.16
Open Motorized Trail Density	0.14	0.06	0.06	0.06	0.11	0.06	0.06	0.06
Restricted Motorized Trail Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Density	0.85	0.59	0.60	0.60	0.54	0.53	0.55	0.51
Open Road and Open Motorized Trail Route Density	0.77	0.46	0.42	0.40	0.47	0.36	0.42	0.35
Other Access Information:								
Percent of NF Acres within Designated Wilderness	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of NF Acres Open & Suitable for Cross-country OHV Us	7.1	7.1	5.7	0.0	0.0	0.0	0.0	0.0
Percent of NF Acres within Designated Core Areas	38.0	38.0	9.0	38.0	41.0	41.0	41.0	41.0
Percent of NF Acres within Undesignated Core Areas	0.0	0.0	8.0	26.0	27.0	37.0	23.0	38.0
Number of Sheep Allotments in Use	0	0	0	0	0	0	0	0
Number of Cattle Allotments in Use	1	1	1	1	1	1	1	1
Total Number of Point Activities	23	23	23	23	23	23	23	23
Administrative Points (work centers, campgrounds, etc)	1	1	1	1	1	1	1	1
Sheep Grazing Points (camps)	0	0	0	0	0	0	0	0
Outfitter & Guide Camps	0	0	0	0	0	0	0	0
Special Use Points (summer homes, electronic sites, etc)	3	3	3	3	3	3	3	3
Timber Management Activities (sales, firewood)	0	0	0	0	0	0	0	0
Other Point Activities (dispersed recreation camps, etc)	15	15	15	15	15	15	15	15
Private Points (all sites on nonForest lands w/in 1 mile)	4	4	4	4	4	4	4	4
Total Forested Acres	28,130	28,130	28,130	28,130	28,130	28,130	28,130	28,130
Percent Mature	87.6	87.6	87.6	87.6	87.6	87.6	87.6	87.6
Percent Pole	2.7	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Percent Sapling	7.0	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Percent Seedling	2.6	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Percent Non-stocked	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CEM Ratings (daily per acre average) Targhee Portion Only								
Spring HV	2.4850	2.4850	2.4850	2.4850	2.4850	2.4850	2.4850	2.4850
Spring HE	1.2306	1.2306	1.2969	1.3159	1.3355	1.3566	1.3373	1.3699
Percent (HE/HV)	49.5	49.5	52.2	53.0	53.7	54.6	53.8	55.1
Summer HV	2.5549	2.5549	2.5549	2.5549	2.5549	2.5549	2.5549	2.5549
Summer HE	1.8521	1.8521	1.9411	1.9662	1.9147	2.0055	1.9593	2.0064
Percent (HE/HV)	72.5	72.5	76.0	77.0	74.9	78.5	76.7	78.5
Fall HV	2.1026	2.1026	2.1026	2.1026	2.1026	2.1026	2.1026	2.1026
Fall HE	1.4751	1.4751	1.5564	1.5754	1.5375	1.6021	1.5610	1.6016
Percent (HE/HV)	70.2	70.2	74.0	74.9	73.1	76.2	74.2	76.2

Annual HV	2.3818	2.3818	2.3818	2.3818	2.3818	2.3818	2.3818	2.3818
Annual HE	1.5194	1.5194	1.5983	1.6193	1.5961	1.6549	1.6194	1.6595
Percent (HE/HV)	63.8	63.8	67.1	68.0	67.0	69.5	68.0	69.7
CEM Ratings (daily per acre average) Entire BMU/Subunit								
Spring HV	1.3238	1.3238	1.3238	1.3238	1.3238	1.3238	1.3238	1.3238
Spring HE	0.6811	0.6812	0.7088	0.7204	0.7212	0.7313	0.7269	0.7443
Percent (HE/HV)	51.5	51.5	53.5	54.4	54.5	55.2	54.9	56.2
Summer HV	1.5076	1.5076	1.5076	1.5076	1.5076	1.5076	1.5076	1.5076
Summer HE	0.9964	0.9967	1.0339	1.0464	1.0202	1.0586	1.0424	1.0638
Percent (HE/HV)	66.1	66.1	68.6	69.4	67.7	70.2	69.1	70.6
Fall HV	1.4242	1.4242	1.4242	1.4242	1.4242	1.4242	1.4242	1.4242
Fall HE	0.9056	0.9058	0.9386	0.9459	0.9293	0.9551	0.9406	0.9588
Percent (HE/HV)	63.6	63.6	65.9	66.4	65.3	67.1	66.0	67.3
Annual HV	1.4185	1.4185	1.4185	1.4185	1.4185	1.4185	1.4185	1.4185
Annual HE	0.8609	0.8611	0.8936	0.9041	0.8901	0.9149	0.9031	0.9222
Percent (HE/HV)	60.7	60.7	63.0	63.7	62.7	64.5	63.7	65.0

Table 7a. Habitat Components for the Targhee Portion of the Plateau BMU, Subunit 1, for the Existing Condition and All Alternatives.

Habitat Component	Existing Condition	Alt. 1	Alt. 2	Alt. 3	Alt. 3-M	Alt. 4	Alt. 5	Alt. 6
Motorized Road and Trail Miles								
Open Road Miles	115.20	137.50	175.60	106.90	75.00	76.90	72.30	91.50
Restricted Road Miles	117.40	95.00	13.90	87.60	55.30	42.20	39.50	48.60
Open Motorized Trail Miles	8.60	9.10	10.80	9.20	4.60	9.20	9.20	9.20
Restricted Motorized Trail Miles	0.00	1.70	0.00	1.60	0.00	1.60	1.60	1.60
Total Motorized Access Route Miles	241.20	243.30	200.30	205.30	134.90	129.90	122.60	150.90
Open Road and Open Motorized Trail Route Miles	123.80	146.60	186.40	116.10	79.60	86.10	81.50	100.70
Motorized Road and Trail Access Density: (mi./sq.mi.)								
Open Road Density	0.85	1.01	1.29	0.78	0.55	0.56	0.53	0.67
Restricted Road Density	0.86	0.70	0.10	0.64	0.41	0.31	0.29	0.36
Open Motorized Trail Density	0.06	0.07	0.08	0.07	0.03	0.07	0.07	0.07
Restricted Motorized Trail Density	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.01
Total Motorized Access Route Density	1.77	1.79	1.47	1.51	0.99	0.95	0.90	1.11
Open Road and Open Motorized Trail Route Density	0.91	1.08	1.37	0.85	0.58	0.63	0.60	0.74
Other Access Information:								
Percent of NF Acres within Designated Wilderness	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of NF Acres Open & Suitable for Cross-country OHV Us	75.4	75.4	2.0	2.0	0.0	2.0	2.7	2.0
Percent of NF Acres within Designated Core Areas	0.0	0.0	0.0	0.0	20.0	19.0	22.0	20.0
Percent of NF Acres within Undesignated Core Areas	52.0	53.0	56.0	54.0	40.0	43.0	45.0	38.0
Number of Sheep Allotments in Use	0	0	0	0	0	0	0	0
Number of Cattle Allotments in Use	0	0	0	0	0	0	0	0
Total Number of Point Activities	63	35	35	35	35	35	35	35
Administrative Points (work centers, campgrounds, etc)	5	5	5	5	5	5	5	5
Sheep Grazing Points (camps)	0	0	0	0	0	0	0	0
Outfitter & Guide Camps	0	0	0	0	0	0	0	0
Special Use Points (summer homes, electronic sites, etc)	8	8	8	8	8	8	8	8
Timber Management Activities (sales, firewood)	26	reduced	reduced	reduced	reduced	reduced	reduced	reduced
Other Point Activities (dispersed recreation camps, etc)	23	21	21	21	21	21	21	21
Private Points (all sites on nonForest lands w/in 1 mile)	1	1	1	1	1	1	1	1
Total Forested Acres	86,124	86,124	86,124	86,124	86,124	86,124	86,124	86,124
Percent Mature	40.5	40.2	40.2	40.2	40.2	40.2	40.2	40.2
Percent Pole	14.0	20.2	20.2	20.2	20.2	20.2	20.2	20.2
Percent Sapling	12.3	18.4	18.4	18.4	18.4	18.4	18.4	18.4
Percent Seedling	24.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Percent Non-stocked	8.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
CEM Ratings (daily per acre average) Targhee Portion Only								
Spring HV	0.1621	0.1621	0.1621	0.1621	0.1621	0.1621	0.1621	0.1621
Spring HE	0.0571	0.0571	0.0656	0.0753	0.0745	0.0814	0.0841	0.0800
Percent (HE/HV)	35.2	35.2	40.5	46.5	46.0	50.2	51.9	49.4
Summer HV	0.4657	0.4657	0.4657	0.4657	0.4657	0.4657	0.4657	0.4657
Summer HE	0.2237	0.2237	0.2529	0.2749	0.2818	0.3011	0.3182	0.2917
Percent (HE/HV)	48.0	48.0	54.3	59.0	60.5	64.7	68.3	62.6
Fall HV	0.2522	0.2522	0.2522	0.2522	0.2522	0.2522	0.2522	0.2522
Fall HE	0.1319	0.1319	0.1442	0.1549	0.1580	0.1692	0.1713	0.1621

Percent (HE/HV)	52.3	52.3	57.2	61.4	62.6	67.1	67.9	64.3
Annual HV	0.2935	0.2935	0.2935	0.2935	0.2935	0.2935	0.2935	0.2935
Annual HE	0.1376	0.1376	0.1543	0.1684	0.1715	0.1840	0.1913	0.1780
Percent (HE/HV)	46.9	46.9	52.6	57.4	58.4	62.7	65.2	60.6
CEM Ratings (daily per acre average) Entire BMU/Subunit								
Spring HV	0.1083	0.1083	0.1083	0.1083	0.1083	0.1083	0.1083	0.1083
Spring HE	0.0575	0.0575	0.0616	0.0662	0.0658	0.0692	0.0704	0.0685
Percent (HE/HV)	53.1	53.1	56.9	61.1	60.8	63.9	65.0	63.3
Summer HV	0.4024	0.4024	0.4024	0.4024	0.4024	0.4024	0.4024	0.4024
Summer HE	0.2766	0.2766	0.2907	0.3010	0.3045	0.3139	0.3217	0.3091
Percent (HE/HV)	68.7	68.7	72.2	74.8	75.7	78.0	79.9	76.8
Fall HV	0.3541	0.3541	0.3541	0.3541	0.3541	0.3541	0.3541	0.3541
Fall HE	0.2816	0.2816	0.2877	0.2926	0.2944	0.3000	0.3005	0.2961
Percent (HE/HV)	79.5	79.5	81.2	82.6	83.1	84.7	84.9	83.6
Annual HV	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880	0.2880
Annual HE	0.2050	0.2050	0.2131	0.2197	0.2213	0.2274	0.2306	0.2243
Percent (HE/HV)	71.2	71.2	74.0	76.3	76.8	79.0	80.1	77.9

Table 7b. Habitat Components for the Targhee Portion of the Plateau BMU, Subunit 2, for the Existing Condition and All Alternatives.

Habitat Component	Existing Condition	Alt. 1	Alt. 2	Alt. 3	Alt. 3-M	Alt. 4	Alt. 5	Alt. 6
Motorized Road and Trail Miles								
Open Road Miles	71.10	84.80	99.20	67.80	64.70	59.80	60.00	59.60
Restricted Road Miles	135.50	125.90	95.70	51.30	23.30	18.70	23.00	18.30
Open Motorized Trail Miles	15.60	9.00	9.00	0.20	0.20	0.20	0.20	0.20
Restricted Motorized Trail Miles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Miles	222.20	219.70	203.90	119.30	88.20	78.70	83.20	78.10
Open Road and Open Motorized Trail Route Miles	86.70	93.80	108.20	68.00	64.90	60.00	60.20	59.80
Motorized Road and Trail Access Density: (mi./sq.mi.)								
Open Road Density	0.60	0.71	0.83	0.57	0.54	0.50	0.50	0.50
Restricted Road Density	1.14	1.06	0.81	0.43	0.20	0.16	0.19	0.15
Open Motorized Trail Density	0.13	0.08	0.08	0.00	0.00	0.00	0.00	0.00
Restricted Motorized Trail Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Density	1.87	1.85	1.72	1.00	0.74	0.66	0.70	0.66
Open Road and Open Motorized Trail Route Density	0.73	0.79	0.91	0.57	0.55	0.50	0.51	0.50
Other Access Information:								
Percent of NF Acres within Designated Wilderness	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent of NF Acres Open & Suitable for Cross-country OHV Us	68.5	68.5	2.0	2.0	0.0	2.0	2.7	2.0
Percent of NF Acres within Designated Core Areas	0.0	0.0	0.0	0.0	17.0	18.0	18.0	18.0
Percent of NF Acres within Undesignated Core Areas	38.0	41.0	42.0	63.0	49.0	51.0	51.0	51.0
Number of Sheep Allotments in Use	0	0	0	0	0	0	0	0
Number of Cattle Allotments in Use	0	0	0	0	0	0	0	0
Total Number of Point Activities	53	20	20	20	20	20	20	20
Administrative Points (work centers, campgrounds, etc)	5	5	5	5	5	5	5	5
Sheep Grazing Points (camps)	0	0	0	0	0	0	0	0
Outfitter & Guide Camps	0	0	0	0	0	0	0	0
Special Use Points (summer homes, electronic sites, etc)	0	0	0	0	0	0	0	0
Timber Management Activities (sales, firewood)	27	reduced	reduced	reduced	reduced	reduced	reduced	reduced
Other Point Activities (dispersed recreation camps, etc)	20	14	14	14	14	14	14	14
Private Points (all sites on nonForest lands w/in 1 mile)	1	1	1	1	1	1	1	1
Total Forested Acres	75,331	75,331	75,331	75,331	75,331	75,331	75,331	75,331
Percent Mature	62.4	62.4	62.4	62.4	62.4	62.4	62.4	62.4
Percent Pole	2.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
Percent Sapling	10.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
Percent Seedling	16.1	12.8	12.8	12.8	12.8	12.8	12.8	12.8
Percent Non-stocked	9.4	4.7	4.7	4.7	4.7	4.7	4.7	4.7
CEM Ratings (daily per acre average) Targhee Portion Only								
Spring HV	0.2884	0.2884	0.2884	0.2884	0.2884	0.2884	0.2884	0.2884
Spring HE	0.1092	0.1095	0.1147	0.1419	0.1271	0.1381	0.1446	0.1422
Percent (HE/HV)	37.9	38.0	39.8	49.2	44.1	47.9	50.1	49.3
Summer HV	0.5261	0.5261	0.5261	0.5261	0.5261	0.5261	0.5261	0.5261
Summer HE	0.2474	0.2484	0.2613	0.3317	0.3144	0.3465	0.3549	0.3520
Percent (HE/HV)	47.0	47.2	49.7	63.0	59.8	65.9	67.5	66.9
Fall HV	0.2099	0.2099	0.2099	0.2099	0.2099	0.2099	0.2099	0.2099
Fall HE	0.1092	0.1097	0.1154	0.1406	0.1375	0.1458	0.1483	0.1478

Percent (HE/HV)	52.0	52.3	55.0	67.0	65.5	69.5	70.7	70.4
Annual HV	0.3420	0.3420	0.3420	0.3420	0.3420	0.3420	0.3420	0.3420
Annual HE	0.1554	0.1560	0.1640	0.2050	0.1932	0.2104	0.2162	0.2143
Percent (HE/HV)	45.4	45.6	48.0	59.9	56.5	61.5	63.2	62.7
CEM Ratings (daily per acre average) Entire BMU/Subunit								
Spring HV	0.2167	0.2167	0.2167	0.2167	0.2167	0.2167	0.2167	0.2167
Spring HE	0.1641	0.1642	0.1653	0.1732	0.1693	0.1724	0.1738	0.1735
Percent (HE/HV)	75.7	75.8	76.3	79.9	78.1	79.6	80.2	80.1
Summer HV	0.8412	0.8412	0.8412	0.8412	0.8412	0.8412	0.8412	0.8412
Summer HE	0.7333	0.7336	0.7351	0.7566	0.7512	0.7608	0.7611	0.7624
Percent (HE/HV)	87.2	87.2	87.4	89.9	89.3	90.4	90.5	90.6
Fall HV	1.0408	1.0408	1.0408	1.0408	1.0408	1.0408	1.0408	1.0408
Fall HE	0.9839	0.9840	0.9840	0.9926	0.9914	0.9943	0.9933	0.9948
Percent (HE/HV)	94.5	94.5	94.5	95.4	95.3	95.5	95.4	95.6
Annual HV	0.6984	0.6984	0.6984	0.6984	0.6984	0.6984	0.6984	0.6984
Annual HE	0.6258	0.6260	0.6269	0.6395	0.6360	0.6412	0.6415	0.6423
Percent (HE/HV)	89.6	89.6	89.8	91.6	91.1	91.8	91.9	92.0

Table 8. Habitat Components for the Targhee Portion of the Bechler/Teton BMU, for the Existing Condition and All Alternatives.

Habitat Component	Existing Condition	Alt. 1	Alt. 2	Alt. 3	Alt. 3-M	Alt. 4	Alt. 5	Alt. 6
Motorized Road and Trail Miles:								
Open Road Miles	187.50	155.10	187.60	153.70	144.10	127.50	125.00	124.70
Restricted Road Miles	152.00	159.40	87.00	48.20	50.90	34.40	39.00	31.60
Open Motorized Trail Miles	38.60	21.60	0.00	0.00	4.10	0.00	0.00	0.00
Restricted Motorized Trail Miles	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Miles	378.10	336.10	274.60	201.90	199.10	161.90	164.00	156.30
Open Road and Open Motorized Trail Route Miles	226.10	176.70	187.60	153.70	148.20	127.50	125.00	124.70
Motorized Road and Trail Access Density: (mi./sq.mi.)								
Open Road Density	0.63	0.52	0.63	0.51	0.48	0.43	0.42	0.42
Restricted Road Density	0.51	0.53	0.29	0.16	0.17	0.12	0.13	0.11
Open Motorized Trail Density	0.13	0.07	0.00	0.00	0.01	0.00	0.00	0.00
Restricted Motorized Trail Density	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Motorized Access Route Density	1.26	1.12	0.92	0.68	0.67	0.54	0.55	0.52
Open Road and Open Motorized Trail Route Density	0.76	0.59	0.63	0.51	0.50	0.43	0.42	0.42
Other Access Information:								
Percent of NF Acres within Designated Wilderness	34.4	34.4	34.4	34.4	34.4	34.4	34.4	34.4
Percent of NF Acres Open & Suitable for Cross-country OHV Us	8.7	8.7	2.9	0.4	0.2	0.2	0.2	0.2
Percent of NF Acres within Designated Core Areas	34.0	34.0	31.0	33.0	42.0	33.0	38.0	38.0
Percent of NF Acres within Undesignated Core Areas	20.0	20.0	23.0	25.0	22.0	29.0	31.0	35.0
Number of Sheep Allotments in Use	2	2	2	2	Phase out	Phase out	0	0
Number of Cattle Allotments in Use	3	3	3	3	3	3	3	3
Total Number of Point Activities	324	290	290	290	290	290	290	290
Administrative Points (work centers, campgrounds, etc)	12	12	12	12	12	12	12	12
Sheep Grazing Points (camps)	15	15	15	15	15	15	15	15
Outfitter & Guide Camps	8	8	8	8	8	8	8	8
Special Use Points (summer homes, electronic sites, etc)	5	5	5	5	5	5	5	5
Timber Management Activities (sales, firewood)	10	reduced	reduced	reduced	reduced	reduced	reduced	reduced
Other Point Activities (dispersed recreation camps, etc)	144	135	135	135	135	135	135	135
Private Points (all sites on nonForest lands w/in 1 mile)	130	130	130	130	130	130	130	130
Total Forested Acres	168,885	168,885	168,885	168,885	168,885	168,885	168,885	168,885
Percent Mature	81.4	77.7	78.1	77.6	78.2	79.9	80.2	80.2
Percent Pole	1.6	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Percent Sapling	4.3	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Percent Seedling	8.8	8.3	8.0	8.3	8.0	7.2	7.0	7.0
Percent Non-stocked	4.0	3.9	3.6	3.9	3.6	2.8	2.6	2.6
CEM Ratings (daily per acre average) Targhee Portion Only								
Spring HV	0.7396	0.7396	0.7396	0.7396	0.7396	0.7396	0.7396	0.7396
Spring HE	0.4367	0.4367	0.4465	0.4722	0.4814	0.4940	0.4985	0.4984
Percent (HE/HV)	59.0	59.0	60.4	63.8	65.1	66.8	67.4	67.4
Summer HV	1.2076	1.2076	1.2076	1.2076	1.2076	1.2076	1.2076	1.2076
Summer HE	0.8186	0.8200	0.8353	0.8888	0.8787	0.9045	0.9162	0.9279
Percent (HE/HV)	67.8	67.9	69.2	73.6	72.8	74.9	75.9	76.8
Fall HV	1.0114	1.0114	1.0114	1.0114	1.0114	1.0114	1.0114	1.0114
Fall HE	0.7190	0.7190	0.7223	0.7714	0.7599	0.7874	0.7991	0.7996
Percent (HE/HV)	71.1	71.1	71.4	76.3	75.1	77.9	79.0	79.1

Annual HV	0.9861	0.9861	0.9861	0.9861	0.9861	0.9861	0.9861	0.9861
Annual HE	0.6579	0.6584	0.6678	0.7106	0.7065	0.7284	0.7377	0.7418
Percent (HE/HV)	66.7	66.8	67.7	72.1	71.6	73.9	74.8	75.2
CEM Ratings (daily per acre average) Entire BMU/Subunit								
Spring HV	0.6366	0.6366	0.6366	0.6366	0.6366	0.6366	0.6366	0.6366
Spring HE	0.4558	0.4558	0.4608	0.4758	0.4806	0.4880	0.4901	0.4904
Percent (HE/HV)	71.6	71.6	72.4	74.7	75.5	76.7	77.0	77.0
Summer HV	1.0749	1.0749	1.0749	1.0749	1.0749	1.0749	1.0749	1.0749
Summer HE	0.8035	0.8043	0.8089	0.8438	0.8346	0.8522	0.8547	0.8651
Percent (HE/HV)	74.8	74.8	75.3	78.5	77.6	79.3	79.5	80.5
Fall HV	1.0181	1.0181	1.0181	1.0181	1.0181	1.0181	1.0181	1.0181
Fall HE	0.8100	0.8100	0.8081	0.8402	0.8310	0.8491	0.8521	0.8557
Percent (HE/HV)	79.6	79.6	79.4	82.5	81.6	83.4	83.7	84.0
Annual HV	0.9095	0.9095	0.9095	0.9095	0.9095	0.9095	0.9095	0.9095
Annual HE	0.6893	0.6896	0.6922	0.7195	0.7150	0.7293	0.7319	0.7367
Percent (HE/HV)	75.8	75.8	76.1	79.1	78.6	80.2	80.5	81.0

Linkage Zone Assessments

The Grizzly Bear Recovery Plan identified the need to assess the potential for linkage zones between the various grizzly bear ecosystems. The Yellowstone Grizzly Bear Ecosystem is about 240 air miles from the Selway-Bitterroot Grizzly Bear Ecosystem (USDI Fish and Wildlife Service 1993). Currently, very little is known about the potential for linkage zones. In order to adequately assess the capacity for linkage, the USFWS initiated a 5 year process to assess the linkage potential between the various ecosystems. This process will be led by the USFWS in cooperation with the State, provinces and various land management agencies. At the completion of the 5 year evaluation effort, a report will be available to the IGBC on the potential for linkage between existing ecosystems. This report will be the basis for future actions regarding the linkage zone question. Linkage zones are desirable for recovery, but are not essential for delisting at this time. The studies are in progress and no results are available.

The Grizzly Bear Recovery Plan states that future land management activities within potential linkage zones may be critical to maintaining their utility as linkage zones. It is essential that existing options for carnivore movement between existing ecosystems be maintained while the evaluation of linkage zones is underway. Management strategies that limit human-induced mortality and address the access management will facilitate the maintenance of the potential of these zones during the evaluation period. On public lands, management prescriptions similar to big game summer range prescriptions that address access management would likely conserve any existing potential of these areas for linkage until completion of the evaluation process (USDI Fish and Wildlife Service 1993). Access management was a key issue addressed in all alternatives considered in the Forest Plan Revision.

For the Yellowstone Grizzly Bear Ecosystem, the Recovery Plan states the following:

> The Yellowstone grizzly bear population is the only one of five grizzly bear populations that is completely isolated from populations in other U.S. ecosystems and Canada. The population has approximately 300 bears. The population's small size and isolation make it vulnerable to the detrimental effects of the loss of genetic diversity and to environmental and demographic stochasticity. Connectivity between the Yellowstone Grizzly Bear Ecosystem and other grizzly ecosystems is not likely to realized in the near future because of the distance to other ecosystems and the intervening human development and alteration of landscape. Therefore, the recovery plan recommends that one grizzly be placed into the ecosystem from an outside population every ten years as an effort to maintain the genetic health of the population (USDI Fish and Wildlife Service 1993).

REFERENCES

Craighead, J. J., K. R. Greer, R. R. Knight, H. I. Pac. 1988. Grizzly Bear Mortalities in the Yellowstone Ecosystem 1959-1987. Montana Department of Fish, Wildlife & Parks, Craighead Wildlife-Wildlands Institute, Interagency Grizzly Bear Study Team, National Fish & Wildlife Foundation. 12pp + unnumbered appendix.

Interagency Grizzly Bear Committee. 1986. Interagency Grizzly Bear Guidelines. 100pp.

Interagency Grizzly Bear Committee. 1994. Interagency Grizzly Bear Committee Taskforce Report: Grizzly Bear/Motorized Access Management. Final. Approved by IGBC, July 21, 1994. 7pp.

Judd, S. L., R. R. Knight, B. M. Blanchard. 1986. Denning of Grizzly Bears in the Yellowstone National Park Area. Int. Conf. Bear. Res. and Manage. 6:111-117.

Knight, R. R. and B. Blanchard. 1983. Yellowstone Grizzly Bear Investigations - Report of the Interagency Study Team - 1982. USDI National Park Service.

Knight, R. R., B. M. Blanchard, D. J. Mattson. 1985. Yellowstone Grizzly Bear Investigations - Report of the Interagency Study Team - 1983 and 1984. USDI National Park Service.

Knight, R. R. and B. M. Blanchard. 1994. Yellowstone Grizzly Bear Investigations - Report of the Interagency Study Team - 1993. USDI National Park Service.

Knight, R. R., B. M. Blanchard, L. L. Eberhardt. 1995. Appraising Status of the Yellowstone Grizzly Bear Population by Counting Females with Cubs-of-the-year. Wildlife Society Bulletin 23(2):245-248.

Mace, R. D., J. S. Waller, T. L. Manley, L. J. Lyon, H. Zuuring. 1996. Relationships Among Grizzly Bears, Roads, and Habitat in the Swan Mountains, Montana. Journal of Applied Ecology (in press).

Mattson, D. J. and D. G. Despain. 1985. Grizzly Bear Habitat Component Mapping Handbook for the Yellowstone Ecosystem. National Park Service and U. S. Forest Service. 37pp.

Orme, M. L. and R. G. Williams. 1986. Coordinating Livestock and Timber management with the Grizzly Bear in Situation 1 Habitat, Targhee National Forest. pp. 195-203 in: Contreras, G. P. and K. E. Evans, compilers. Proceedings - Grizzly Bear Habitat Symposium, 1985 April 30-May 2; Missoula, MT. Forest Service, Intermountain Research Station, Gen. Tech. Rpt. INT-207, Ogden, UT. 252p.

Puchlerz, T. 1994. Final Recommendation Henry's Lake and Plateau Bear Management Units. 5 page letter dated September 30, 1994.

U. S. Fish and Wildlife Service. 1993. Grizzly Bear Recovery Plan. Missoula, MT. 181pp.

PRIMARY CAVITY NESTING SPECIES

Primary Cavity Nester Populations

Eight primary cavity nesting species potentially occur on the Targhee National Forest (Table 7.0). We do not know and are not able to provide population estimates for these species. Hejl et al., (1995) provided relative abundance ratings for these species for general mature to older forest habitats in the Rocky Mountains. These abundance ratings are:

Table 7.0. Relative abundance of primary cavity nesting species in the breeding season (from Hejl et al. 1995).

	Relative Abundance by General Forest Habitat 1/			
	Mixed Conifer 2/	Lodgepole Pine	Spruce-Fir	Aspen
Lewis' Woodpecker	-	-	-	R
Red-naped Sapsucker	U	R	C	C
Williamson's Sapsucker	U	U	U	U
Downy Woodpecker	R	-	C	C
Hairy Woodpecker	C	U	C	C
Three-toed Woodpecker	R	U	U	U
Black-backed Woodpecker	R	R	R	R
Northern Flicker	C	C	C	C

1/ A = abundant; C = common; U = uncommon; R = rare; - = no information.
2/ Mixed conifer is primarily dominated by Douglas-fir.

Three bird studies (1 completed and 2 in progress) on the Forest have documented the presence of 7 of the 8 primary cavity nesting species (the Lewis' woodpecker has not been documented in the studies) (Douglas 1984; Patla 1995 and Kliene 1996 progress reports; Hoffman 1996 progress report). These studies indicate that red-naped sapsuckers and northern flickers are the most common primary cavity nesting species.

Habitat Overview

Table 7.1 summarizes the broad forest types used by the primary cavity nesting species on the Forest, and Table 7.2 summarizes the snag requirements.

Table 7.3 presents the snag requirements to achieve 100 percent biological potential for each primary cavity nesting species.

Table 7.4 presents a combined summary of hard snags needed for all primary cavity nesting species to achieve various percentages of biological potential.

Table 7.5 presents a summary of the number of live replacement trees which need to be retained to maintain various percentages of biological potential over time.

Table 7.1. Major Tree Communities Used by Woodpeckers (from review of western North America literature; see References at end of this Chapter)

Species	Western Juniper	Aspen	Cottonwood	Mixed Con.& D.-fir & Spruce/Fir	Lodge-pole
Lewis's Woodpecker		X	X	X	
Red-napped Sapsucker		X	X	X	X
Williamson's Sapsucker		X		X	X
Downy Woodpecker		X	X	X	X
Hairy Woodpecker	X	X	X	X	X
Three-toed Woodpecker		X		X	X
Black-backed Woodpecker				X	X
Nothern Flicker	X	X	X	X	X

Table 7.2. Cavity Nesting Species Habitat Requirements (from review of western North America literature; see References at end of this Chapter)

Species	Snag DBH (inches)	Snag Height (feet)	No. of Cavities per Year	Territory Size (acres) 1/	No. of Snags per acre for 100 % Biological Potential 1/
Lewis's Woodpecker	12-27	5-170	1	0-15 (15)	.48-1.01 (1.01)
Red-napped Sapsucker	9-47	15+	1	5.1-12 (10)	1.5 (1.5)
Williamson's Sapsucker	12-37	15+	1	10-12 (10)	.33-1.5 (1.5)
Downy Woodpecker	6-14	6-50	2	5-50 (10)	.16-5 (3)
Hairy Woodpecker	9-29	15+	3	6-25 (25)	.6-1.92 (1.8)
Three-toed Woodpecker	7-19	15+	3	35-200 (75)	.06-.6 (.59)
Black-backed Woodpecker	8-17	6+	3	75-100 (75)	.12-.6 (.59)
Northern Flicker	10-51	6+	1	8-500 (40)	.38-.48 (.38)

1/ Numbers in ( ) indicate territory sizes and number of snags used for analysis purposes on the Targhee National Forest.

Table 7.3 Snag requirements to achieve 100 percent biological potential for each woodpecker species.

Species	No. of Snags per 100 Forested Acres for 100 Percent Biological Potential			
	Aspen	Cottonwood	Doug-fir Spruce/Fir	Lodgepole
Lewis's Woodpecker	101	101	101	NA
Red-napped Sapsucker	150	150	150	150
Williamson's Sapsucker	NA	NA	150	150
Downy Woodpecker	300	300	300	300
Hairy Woodpecker	180	180	180	180
Three-toed Woodpecker	59	NA	59	59
Black-backed Woodpecker	NA	NA	59	59
Northern Flicker	38	38	38	38
Total Hard Snags per 100 acres	828	769	1037	936

NA indicates the species does not use this forest type.

Table 7.4 Snag requirements for maintaining various percentages of biological potential for woodpecker populations.

Percent of Biological Potential	Number of Hard Snags per 100 Forested Acres			
	Aspen	Cottonwood	Doug-fir Spruce/Fir	Lodgepole
100	828	769	1037	936
80	662	615	830	749
60	497	461	622	562
40	331	308	415	374
20	166	154	207	187

Table 7.5. Number of Live Trees per Forested Acre to Maintain Various Percentages of Biological Potential for Cavity Nesting Species.

Percent of Biological Potential	Number of Live Trees per Forested Acre				
	≥ 10 in. dbh	≥ 7.0-9.9 in. dbh	≥ 5.0-6.9 in. dbh	< 5.0 in. dbh	Total Trees/Acre
100	8	5	5	7	25
80	6	4	4	6	20
60	5	3	3	4	15
40	3	2	2	3	10
20	2	1	1	1	5

Habitat Evaluation - Existing Condition

To evaluate the existing biological potential for primary cavity nesting species on the Forest, we used data from the 400+ permanent forest inventory plots (Figure 7.1). Each plot was classified according to the vegetation criteria used to develop the Forest GIS vegetation data base. Attachment G displays the number of snags per acre in 2 inch diameter classes for each of the permanent forest inventory plots.

The snag data from these permanent forest inventory plots were used to do the following:

Evaluate the existing biological potential for each of the primary cavity nesting species.

Evaluate the existing biological potential for the primary cavity nesting species as a group.

Evaluate the existing biological potential for four of the primary cavity nesting species (hairy woodpecker, northern flicker, red-napped sapsucker, Williamson's sapsucker) which require larger size snags. These four species are important for providing habitat for several of the secondary cavity nesting species on the forest (such as the boreal owl).

Evaluate an average biological potential for forested vegetation types and successional stages.

Attachment G displays the results of these evaluations. The following discussion provides information on how this analysis was done:

For each species, we only counted snags which were > 2 inches dbh larger than the minimum dbh size listed in Table 7.2. For example, even though the downy woodpecker may use snags as small as 6 inches dbh, we only counted snags which were > 8 inches dbh. This was done because the general opinion of biologists is that snag dbh should be measured without the bark. To our knowledge, the dbh measurements from the permanent forest inventory plots included the bark if the bark was still on the snag. Therefore, to avoid overestimating the existing biological potential, we only counted snags which were > 2 inches dbh larger than the minimum dbh size listed in Table 7.2.

For each species, the existing biological potential was based on the number of snags listed in Table 7.3.

An overall biological potential for the primary cavity nesting species as a group was evaluated based on the number of snags listed in Table 7.4.

Some of the permanent forest inventory plots contained more snags than required for 100 percent biological potential. However, biological potential was never allowed to exceed 100 percent when calculating averages for a species and/or a vegetation strata.

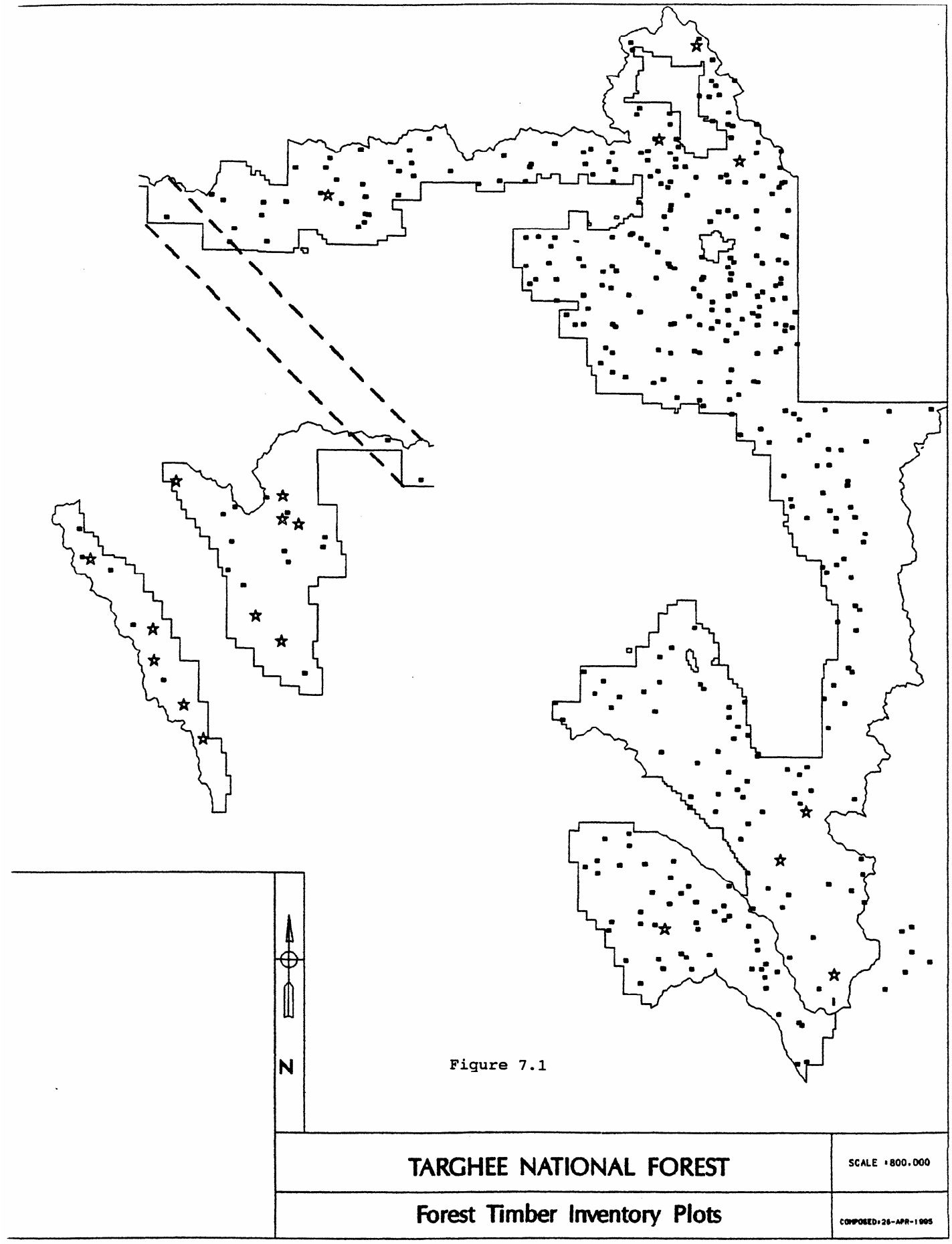

N
TARGHEE NATIONAL FOREST
SCALE 1:800,000
Forest Timber Inventory Plots
COMPOSED:28-APR-1995

Figure 7.1

Using the information from Attachment G, we calculated the existing biological potential for the primary cavity nesting species for each of the principal watersheds on the Forest (see Figure 4.3). Details of this analysis are presented in Attachment H.

Table 7.6 displays the existing biological potential for the primary cavity nesting species as a group, for each of the principle watersheds. The existing biological potential ranges from 41 to 89 percent in the watersheds, with a Forest-wide average of 61 percent.

Table 7.7 displays the existing biological potential for the four larger species for each of the principle watersheds. The existing biological potential for these four larger species ranges from 26 to 72 percent in the watersheds, with a Forest-wide average of 47 percent. The biological potential is lower for the four larger species because there are fewer numbers of large snags which provide suitable habitat for these larger species.

Habitat Evaluation - Alternatives

In management prescriptions where scheduled timber harvesting is allowed, or where management activities such as firewood harvesting could occur because of road access, guidelines for maintaining cavity nesting habitat at various levels of biological potential were stated in the management prescription.

In management prescriptions such as wilderness, research natural areas, and nonmotorized backcountry, no guideline for biological potential was established because there is no scheduled timber harvesting in these management prescriptions and lack of road access precludes management activities such as firewood cutting. In these management prescription areas, cavity nesting habitat capability will respond to natural events such as insects and disease and fire. It is assumed that the existing condition for cavity nesting habitat capability in these areas represents what can be expected during the next decade.

In management prescriptions such as developed recreation sites and concentrated development areas, no guideline for biological potential was established. In these management prescription areas, snags are usually removed because of concern for public safety. In these areas, biological potential for cavity nesting species is zero.

Table 7.8 displays all of the management prescriptions and the guidelines for maintaining cavity nesting habitat capability.

Dead and downed woody debris provides foraging habitat for some cavity nesting species. We do not have an inventory of dead and down woody debris on the Forest. However, Forestwide S&G's have been developed for maintaining large woody debris following management activities such as timber harvest and firewood gathering.

Table 7.6. Existing Biological Potential for Woodpecker Populations in Subsections and Principle Watersheds.

Subsection	Watershed	Percent Biological Potential
Lemhi	Upper Birch Cr. West	52
Lemhi	Lower Birch Cr. West	53
Medicine Lodge	Upper Birch Cr. East	41
Medicine Lodge	Lower Birch Cr. East	52
Medicine Lodge	Warm Springs	45
Medicine Lodge & Centennial Mtns	Medicine Lodge/Indian	50
Centennial Mtns.	Beaver Cr. West	49
Centennial Mtns.	Beaver Cr. East	46
Centennial Mtns.	Camas Cr.	47
Centennial Mtns.	Island Park Centennials	59
Centennial Mtns. & Island Park & Madison Plateau	Henry's Fork Hdwtrs	66
Island Park & Madison Plateau	Buffalo River	43
Island Park	Island Park Bishop Mtn.	64
Island Park	Big Bend Ridge/Snow Cr.	58
Island Park	Middle Henry's Fork	51
Island Park & Madison Plateau	Warm River	56
Island Park & Madison Plateau	Robinson Cr.	59
Island Park & Madison Plateau	Falls River Idaho	64
Madison Plateau	Falls River Wyoming	89
Island Park & Madison Plateau	Conant Cr. Idaho	65
Madison Plateau	Conant Cr. Wyoming	70
Island Park & Madison Plateau & Teton Range	Badger Cr. Idaho	52
Madison Plateau & Teton Range	Badger Cr. Wyoming	74
Teton Range	Leigh Cr.	68
Teton Range	Teton Cr.	68
Teton Range	Darby & Fox Cr.	66
Teton Range & Big Hole/Palisades	Trail Cr. Wyoming	66
Big Hole/Palisades	Trail Cr. Idaho	77
Big Hole/Palisades	Mahogany Cr.	76
Big Hole/Palisades	Canyon & Moody Cr.	70
Big Hole/Palisades	Heise/Kelley Canyon	67
Big Hole/Palisades	Pine Cr.	77
Big Hole/Palisades	Rainy Cr.	68
Big Hole/Palisades	Palisades Cr.	68
Big Hole/Palisades	Elk Cr. Idaho	68
Big Hole/Palisades	Elk Cr. Wyoming	61
Big Hole/Palisades	Indian Cr. Idaho	66
Big Hole/Palisades	Indian Cr. Wyoming	64
Caribou	Burns & Pat Canyon	73
Caribou	McCoy & Jensen Cr.	74
Caribou	Elk & Bear Cr.	70
Caribou	Fall Cr.	61
Caribou	Pritchard Cr.	59
Caribou	Brockman Cr.	65

Table 7.7. Existing Biological Potential for Hairy Woodpeckers, Northern Flickers, Red-napped Sapsuckers, and Williamson's Sapsuckers in Subsections and Principle Watersheds.

Subsection	Watershed	Percent Biological Potential
Lemhi	Upper Birch Cr. West	33
Lemhi	Lower Birch Cr. West	34
Medicine Lodge	Upper Birch Cr. East	26
Medicine Lodge	Lower Birch Cr. East	34
Medicine Lodge	Warm Springs	29
Medicine Lodge & Centennial Mtns	Medicine Lodge/Indian	32
Centennial Mtns.	Beaver Cr. West	35
Centennial Mtns.	Beaver Cr. East	33
Centennial Mtns.	Camas Cr.	34
Centennial Mtns.	Island Park Centennials	45
Centennial Mtns. & Island Park & Madison Plateau	Henry's Fork Hdwtrs	52
Island Park & Madison Plateau	Buffalo River	32
Island Park	Island Park Bishop Mtn.	49
Island Park	Big Bend Ridge/Snow Cr.	42
Island Park	Middle Henry's Fork	40
Island Park & Madison Plateau	Warm River	44
Island Park & Madison Plateau	Robinson Cr.	46
Island Park & Madison Plateau	Falls River Idaho	50
Madison Plateau	Falls River Wyoming	72
Island Park & Madison Plateau	Conant Cr. Idaho	51
Madison Plateau	Conant Cr. Wyoming	56
Island Park & Madison Plateau & Teton Range	Badger Cr. Idaho	41
Madison Plateau & Teton Range	Badger Cr. Wyoming	60
Teton Range	Leigh Cr.	54
Teton Range	Teton Cr.	55
Teton Range	Darby & Fox Cr.	49
Teton Range & Big Hole/Palisades	Trail Cr. Wyoming	48
Big Hole/Palisades	Trail Cr. Idaho	59
Big Hole/Palisades	Mahogany Cr.	62
Big Hole/Palisades	Canyon & Moody Cr.	57
Big Hole/Palisades	Heise/Kelley Canyon	51
Big Hole/Palisades	Pine Cr.	61
Big Hole/Palisades	Rainy Cr.	50
Big Hole/Palisades	Palisades Cr.	50
Big Hole/Palisades	Elk Cr. Idaho	51
Big Hole/Palisades	Elk Cr. Wyoming	43
Big Hole/Palisades	Indian Cr. Idaho	49
Big Hole/Palisades	Indian Cr. Wyoming	47
Caribou	Burns & Pat Canyon	59
Caribou	McCoy & Jensen Cr.	61
Caribou	Elk & Bear Cr.	54
Caribou	Fall Cr.	45
Caribou	Pritchard Cr.	45
Caribou	Brockman Cr.	52

Table 7.8. Management Prescriptions and Guidelines for Maintaining Cavity Nesting Species Habitat Capability.

Management Prescription	Guideline for Maintaining Habitat
1.1.1 DESIGNATED WILDERNESS - TRAILESS	Natural conditions
1.1.2 DESIGNATED WILDERNESS - PRIMITIVE	Natural conditions
1.1.3 DESIGNATED WILDERNESS - LOW USE	Natural conditions
1.1.4 DESIGNATED WILDERNESS - MODERATE USE	Natural conditions
1.1.5 DESIGNATED WILDERNESS - HIGH USE	Natural conditions
1.1.6 DESIGNATED WILDERNESS - OPPORTUNITY CLASS I	Natural conditions
1.1.7 DESIGNATED WILDERNESS - OPPORTUNITY CLASS II	Natural conditions
1.1.8 DESIGNATED WILDERNESS - OPPORTUNITY CLASS III	Natural conditions
1.2 WILDERNESS STUDY AREA	Natural conditions
1.3 RECOMMENDED/PROPOSED WILDERNESS	Natural conditions
2.1.1 SPECIAL MANAGEMENT AREAS	Natural conditions
2.1.2 VISUAL QUALITY MAINTENANCE	Zero biological potential
2.2 RESEARCH NATURAL AREA	Natural conditions
2.3 ELIGIBLE WILD RIVER	Natural conditions
2.4 ELIGIBLE SCENIC RIVER (NO ASQ)	Natural conditions
2.5 ELIGIBLE RECREATIION RIVER (NO ASQ)	Natural conditions
2.6.1 (a-b) GRIZZLY BEAR HABITAT (NO ASQ, NO CROSS-COUNTRY, NO SHEEP)	60% of biological potential
2.6.2 GRIZZLY BEAR - PLATEAU BMU DIRECTION - CORE AREA	Natural conditions
2.6.3 GRIZZLY BEAR - PLATEAU BMU DIRECTION - SECURITY AREA	60% of biological potential
2.6.4 GRIZZLY BEAR - PLATEAU BMU DIRECTION - OUTSIDE SECURITY AREA	60% of biological potential
2.6.5 GRIZZLY BEAR - SECURE AREA	Natural conditions
2.7 (a-c) ELK AND DEER WINTER RANGE	Natural conditions
2.8.1 AQUATIC INFLUENCE ZONE (NO ASQ)	100% of biological potential
2.8.2 AQUATIC INFLUENCE ZONE (NO ASQ	80% of biological potential
2.8.3 AQUATIC INFLUENCE ZONE (NO ASQ)	100% of biological potential
2.9.1 SOUTH FORK ELIGIBLE SCENIC RIVER	Natural conditions
2.9.2 SOUTH FORK ELIGIBLE RECREATION RIVER	Natural conditions
3.1.1 (a-d) NONMOTORIZED	Natural conditions
3.1.2 NONMOTORIZED	Natural conditions
3.2 (a-h) SEMI-PRIMITIVE MOTORIZED	60% of biological potential
4.1 DEVELOPED RECREATION SITES	Zero biological potential
4.2 SPECIAL USE PERMIT RECREATION SITES	Zero biological potential
4.3 DISPERSED CAMPING MANAGEMENT	Zero biological potential
5.1 (a-c) TIMBER MANAGEMENT	40% of biological potential
5.1.3 (a-b) TIMBER MANAGEMENT (NO CLEARCUTTING, URBAN INTERFACE..)	40% of biological potential
5.1.4 (a-c) TIMBER MANAGEMENT (BIG GAME SECURITY EMPHASIS)	40% of biological potential
5.1.5 TIMBER MANAGEMENT (HERITAGE RESOURCE EMPHASIS)	40% of biological potential
5.2.1 VISUAL QUALITY IMPROVEMENT	40% of biological potential
5.2.2 VISUAL QUALITY MAINTENANCE	Zero biological potential
5.3.2 (a-b) GRIZZLY BEAR HABITAT (SITUATION 1)	80% of biological potential
5.3.3 (a-d) GRIZZLY BEAR HABITAT (SITUATION 2)	60% of biological potential
5.3.4 GRIZZLY BEAR HABITAT (SITUATION 2)	60% of biological potential
5.3.5 GRIZZLY BEAR HABITAT (NIC of ASQ, NO X-COUNTRY, PHASE OUT SHEEP)	60% of biological potential
5.4 (a-e) ELK AND DEER SUMMER RANGE	60% of biological potential
5.7 ELIGIBLE SCENIC RIVER	80% of biological potential
5.8 ELIGIBLE RECREATION RIVER	60% of biological potential
5.9.1 CFP RIPARIAN (WITH ASQ)	40% of biological potential
5.9.2 AQUATIC INFLUENCE ZONE (WITH ASQ)	80% of biological potential
6.1 (a-b) RANGE MANAGEMENT	Not applicable
7.1 (a-b) INTERMINGLED PUBLIC/PRIVATE LANDS	40% of biological potential
8.1 CONCENTRATED DEVELOPMENT AREAS	Zero biological potential
8.2 PROPOSED CONCENTRATED DEVELOPMENT AREAS	Zero biological potential

Using projected timber harvest levels for the first decade (see Table 4.6 in the Elk Habitat Effectiveness Chapter), and the management prescription direction for maintaining varying levels of biological potential for cavity nesting habitat, we calculated projected changes in biological potential for each alternative as a result of scheduled timber harvest activities. Table 7.9 displays the projected biological potential for the primary cavity nesting species as a group, for each of the principle watersheds for each alternative. Table 7.10 displays the projected biological potential for the four larger species for each of the principal watersheds for each alternative. In some of the watersheds, there is a 1 to 4 percent change in the percent biological potential for the alternatives compared to the existing condition. However, on a Forest-wide basis, there is no change in the percent biological potential between any of the alternatives compared to the existing condition.

Discussion

There is no specific information on snag attrition rates on the Targhee N. F. A study was done on the attrition of lodgepole pine snags following a wildfire in Montana (Lyon 1977). In this study, lodgepole pine snags greater than 8 inches dbh fell at an annual rate of 2 percent for the first two years, and then averaged an annual attrition rate of 8.6 percent for the next 13 years. Another study from Colorado documented attrition rates of beetle-killed lodgepole pine of less than 2 percent for 17 years (Hinds et al. 1965, as cited in Lyon 1977). These studies were associated with stand replacing natural disturbances in lodgepole pine forests.

We modeled these lodgepole pine snag attrition rates for a 100 year time period, with 3 stand densities of 120 trees per acre, 260 trees per acre, and 400 trees per acre. This modeling was compared to 100% and 40% biological potential for woodpeckers in lodgepole pine forests. Results of this modeling are shown in Figures 7.2 and 7.3. This modeling illustrates that following stand replacing wildfires, biological potential is high for about 20 years; following stand replacing beetle epidemics, biological potential is high for about 40 years. Growth data for the Targhee indicates that it would take about 65 years for a new stand of lodgepole pine to reach 7 to 8 inches dbh. Therefore, there would be significant periods of time when the biological potential for woodpeckers would be very low. What this illustrates is that landscapes of lodgepole pine forests subject to stand replacing disturbances fluctuate over time in their biological potential for woodpeckers.

We modeled Douglas-fir snag attrition over time with the assumption that Douglas-fir snag attrition rates are about half as high as lodgepole pine snag attrition rates (that is, Douglas-fir snags would stand about twice as long as lodgepole snags). We modeled Douglas-fir snag attrition rates for a 200 year time period, with 3 stand densities of 120 trees per acre, 260 trees per acre, and 400 trees per acre. This modeling was compared to 100% and 40% biological potential for woodpeckers in Douglas-fir forests. Results of this modeling are shown in Figures 7.4 and 7.5. This modeling illustrates that following stand replacing wildfires, biological potential is high for about 40 years; following stand replacing insect epidemics, biological potential is high for about 80 years. Growth data for the Targhee indicates that it would take about 95 years for a new stand of Douglas-fir to reach 7 to 8 inches dbh. Therefore, there would be significant periods of time when the biological

potential for woodpeckers would be very low following stand replacement disturbances.

Not all natural disturbances are stand replacing. Often, only a percentage of the trees are killed. Natural disturbances that do not result in stand replacement, would tend to create fewer snags, but live replacement trees would exist and depending on mortality rates these live trees would become snags over time. This would tend to reduce the fluctuation in snag numbers over time. We modeled snag attrition where 50% of the trees were killed with a natural disturbance. This modeling included the annual attrition rates for snags killed by the natural disturbance, plus the addition of new snags based on annual mortality of the remaining live trees. We used 3 stand densities of 120 trees per acre, 260 trees per acre, and 400 trees per acre. This modeling was compared to 100% and 40% biological potential for woodpeckers in lodgepole pine and Douglas-fir forests. Results of this modeling are shown in Figures 7.6 (lodgepole pine) and 7.7 (Douglas-fir). Due to live tree mortality, the biological potential in lodgepole pine declines to about year 20, then levels off to about year 40, and then increases past year 40. In Douglas-fir, the biological potential declines to about year 40, then levels off to about year 60, and then increases past year 60.

The analysis we did using the permanent forest inventory plots covers a wide range of conditions on the Forest, including beetle-killed lodgepole pine, the 1988 wildfires, and late successional stands that have various levels of insect and disease agents working in them, and the effects of past timber harvesting activities.

In analyzing the biological potential for cavity nesting habitat for the existing condition and the alternatives, only snag data was used. Live trees can also be used by cavity nesting species, when there is injury or disease in the trees making them suitable for use. Therefore, this assessment underestimates the total biological potential for cavity nesting habitat.

Scheduled timber harvesting is highest in Alternative 2, and is projected to occur on about 41,190 acres in this alternative. There are about 1,259,000 total forested acres on the Forest, and 79% of these acres are mature and older age classes. Therefore, the maximum scheduled timber harvesting in the alternatives is only projected to alter 3.3 percent of the total forested acres, and 4.1 percent of the existing mature and older age classes for the first decade. Even if there were no snag guidelines for timber harvest acres, the change in biological potential for cavity nesting species due to scheduled timber harvest activities would only be in the 3 to 4 percent range on a Forest-wide basis, compared to the existing condition.

Determination of Effects

The proposed management actions may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Table 7.9. Cavity Nesting Species Habitat Capability for Each Alternative.

Wtrshed No.	Total Forested Acres	Existing Total Weighted Hab. Cap. for Cavity Nesting Species	Alt. 1 Total Weighted Hab. Cap. for Cavity Nesting Species	Alt. 2 Total Weighted Hab. Cap. for Cavity Nesting Species	Alt. 3 Total Weighted Hab. Cap. for Cavity Nesting Species	Alt. 3-M Total Weighted Hab. Cap. for Cavity Nesting Species	Alt. 4 Total Weighted Hab. Cap. for Cavity Nesting Species	Alt. 5 Total Weighted Hab. Cap. for Cavity Nesting Species	Alt. 6 Total Weighted Hab. Cap. for Cavity Nesting Species
002I	6,727	0.66	0.65	0.66	0.66	0.66	0.66	0.66	0.66
002W	15,810	0.64	0.63	0.64	0.64	0.64	0.64	0.64	0.64
003I	12,820	0.68	0.67	0.68	0.68	0.68	0.68	0.68	0.68
003W	15,427	0.61	0.60	0.61	0.61	0.61	0.61	0.61	0.61
004	28,305	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
005	18,856	0.68	0.66	0.66	0.66	0.66	0.67	0.67	0.68
006	26,493	0.77	0.76	0.76	0.76	0.76	0.76	0.77	0.77
007/033	24,209	0.67	0.66	0.66	0.66	0.66	0.66	0.67	0.67
008	102,475	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
009A	50,925	0.59	0.59	0.58	0.59	0.59	0.59	0.59	0.59
009B	33,727	0.64	0.64	0.63	0.63	0.63	0.64	0.64	0.64
010	43,329	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
011	108,590	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
012	82,970	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
013	45,913	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
014/034	30,120	0.58	0.58	0.56	0.56	0.57	0.58	0.58	0.58
015I	15,342	0.65	0.66	0.65	0.66	0.65	0.65	0.65	0.64
015W	18,457	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.69
016I	16,046	0.64	0.66	0.66	0.66	0.64	0.64	0.64	0.63
016W	37,464	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.88
017I	5,916	0.77	0.75	0.74	0.75	0.75	0.75	0.75	0.76
017W	20,284	0.66	0.66	0.65	0.65	0.65	0.66	0.65	0.66
018	10,747	0.66	0.65	0.64	0.65	0.65	0.65	0.65	0.65
019	14,160	0.68	0.67	0.66	0.66	0.66	0.67	0.68	0.67
020	15,663	0.68	0.67	0.68	0.68	0.68	0.68	0.68	0.67
021I	16,031	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.51
021W	46,652	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.73
022	30,924	0.76	0.75	0.75	0.74	0.75	0.75	0.75	0.75
023/024	35,815	0.70	0.69	0.69	0.69	0.69	0.69	0.70	0.69
025	56,670	0.47	0.46	0.46	0.46	0.47	0.48	0.48	0.46
026A	20,170	0.49	0.48	0.48	0.48	0.49	0.50	0.49	0.48
026B	22,640	0.46	0.45	0.45	0.45	0.45	0.47	0.47	0.44
027/028	25,554	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
029	18,005	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
030A	17,647	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.51
030B	23,035	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
031A	18,214	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.52
031B	5,810	0.52	0.51	0.51	0.51	0.52	0.51	0.51	0.50
035	4,749	0.73	0.72	0.73	0.73	0.73	0.73	0.73	0.71
036	12,833	0.74	0.73	0.74	0.74	0.74	0.74	0.74	0.72
037	43,055	0.70	0.69	0.69	0.69	0.69	0.69	0.69	0.70
038	41,313	0.61	0.60	0.60	0.60	0.60	0.61	0.60	0.61
039	9,815	0.59	0.58	0.58	0.58	0.58	0.58	0.58	0.57
040	9,346	0.65	0.64	0.64	0.64	0.64	0.65	0.65	0.63
	1,259,053								
Forest-wide avg.		0.61	0.61	0.60	0.61	0.61	0.61	0.61	0.61

Table 7.10. Cavity Nesting Habitat Capability for Larger Size Species.

Wtrshed No.	Total Acres	Existing Weighted Hab. Cap. Hairy, N. Flicker, Red-n. Sapsucker, & W. Sapsucker	Alt. 1 Weighted Hab. Cap. Hairy, N. Flicker, Red-n. Sapsucker, & W. Sapsucker	Alt. 2 Weighted Hab. Cap. Hairy, N. Flicker, Red-n. Sapsucker, & W. Sapsucker	Alt. 3 Weighted Hab. Cap. Hairy, N. Flicker, Red-n. Sapsucker, & W. Sapsucker	Alt. 3-M Weighted Hab. Cap. Hairy, N. Flicker, Red-n. Sapsucker, & W. Sapsucker	Alt. 4 Weighted Hab. Cap. Hairy, N. Flicker, Red-n. Sapsucker, & W. Sapsucker	Alt. 5 Weighted Hab. Cap. Hairy, N. Flicker, Red-n. Sapsucker, & W. Sapsucker	Alt. 6 Weighted Hab. Cap. Hairy, N. Flicker, Red-n. Sapsucker, & W. Sapsucker
002I	6,727	0.49	0.48	0.49	0.49	0.49	0.49	0.49	0.49
002W	15,810	0.47	0.46	0.47	0.47	0.47	0.47	0.47	0.47
003I	12,820	0.51	0.50	0.51	0.51	0.51	0.51	0.51	0.51
003W	15,427	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
004	28,305	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
005	18,856	0.50	0.48	0.48	0.48	0.48	0.49	0.49	0.50
006	26,493	0.61	0.61	0.60	0.60	0.60	0.60	0.61	0.61
007/033	24,209	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
008	102,475	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
009A	50,925	0.45	0.46	0.45	0.46	0.46	0.45	0.45	0.45
009B	33,727	0.49	0.50	0.48	0.49	0.49	0.49	0.49	0.49
010	43,329	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
011	108,590	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
012	82,970	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
013	45,913	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
014/034	30,120	0.42	0.44	0.42	0.42	0.42	0.43	0.42	0.42
015I	15,342	0.51	0.53	0.51	0.53	0.52	0.52	0.52	0.50
015W	18,457	0.56	0.57	0.56	0.57	0.56	0.56	0.56	0.55
016I	16,046	0.50	0.53	0.54	0.53	0.51	0.51	0.51	0.49
016W	37,464	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
017I	5,916	0.59	0.58	0.57	0.57	0.57	0.58	0.57	0.58
017W	20,284	0.48	0.48	0.47	0.48	0.48	0.48	0.48	0.48
018	10,747	0.49	0.48	0.48	0.48	0.48	0.48	0.48	0.48
019	14,160	0.55	0.55	0.53	0.53	0.54	0.54	0.55	0.54
020	15,663	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.53
021I	16,031	0.41	0.42	0.42	0.42	0.42	0.42	0.41	0.40
021W	46,652	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.59
022	30,924	0.62	0.61	0.61	0.61	0.61	0.61	0.61	0.61
023/024	35,815	0.57	0.57	0.56	0.56	0.56	0.57	0.57	0.56
025	56,670	0.34	0.35	0.35	0.35	0.34	0.36	0.36	0.33
026A	20,170	0.35	0.35	0.35	0.35	0.35	0.36	0.36	0.34
026B	22,640	0.33	0.34	0.34	0.34	0.34	0.36	0.35	0.32
027/028	25,554	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
029	18,005	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
030A	17,647	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
030B	23,035	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
031A	18,214	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
031B	5,810	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.33
035	4,749	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.57
036	12,833	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.59
037	43,055	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
038	41,313	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
039	9,815	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.44
040	9,346	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.51
	1,259,053								
Forest-wide avg.		0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.46

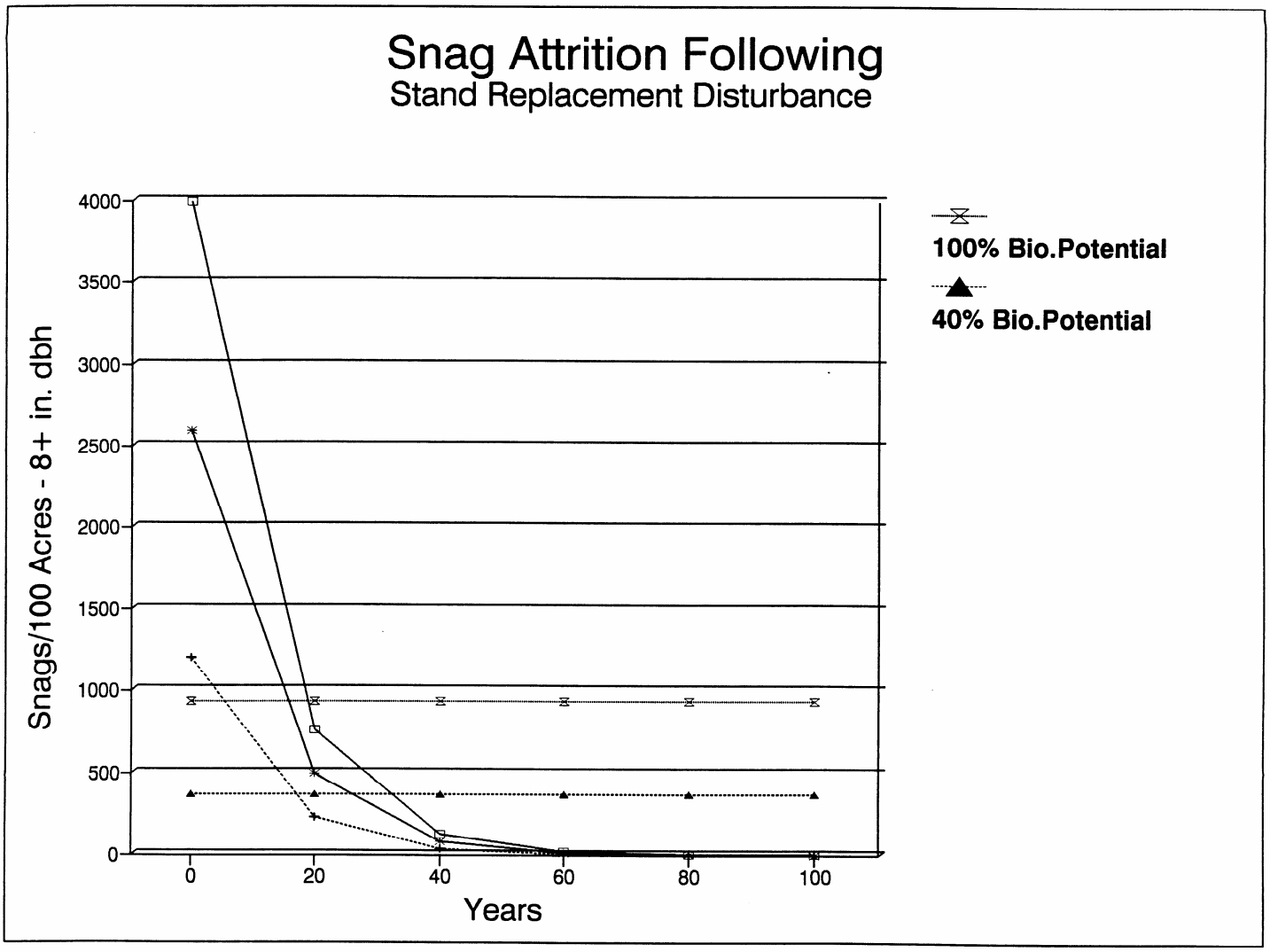


Figure 7.2 Snag attrition in lodgepole pine following stand replacement wildfire. (Based on Lyon 1977. First 2 years - 2% annual attrition rate; next 13 years - 8.6% annual attrition rate; there was no data on attrition rates past 15 years, therefore we continued with an 8.6% annual attrition rate. Lyon stated that all snags would probably fall within 40 years).

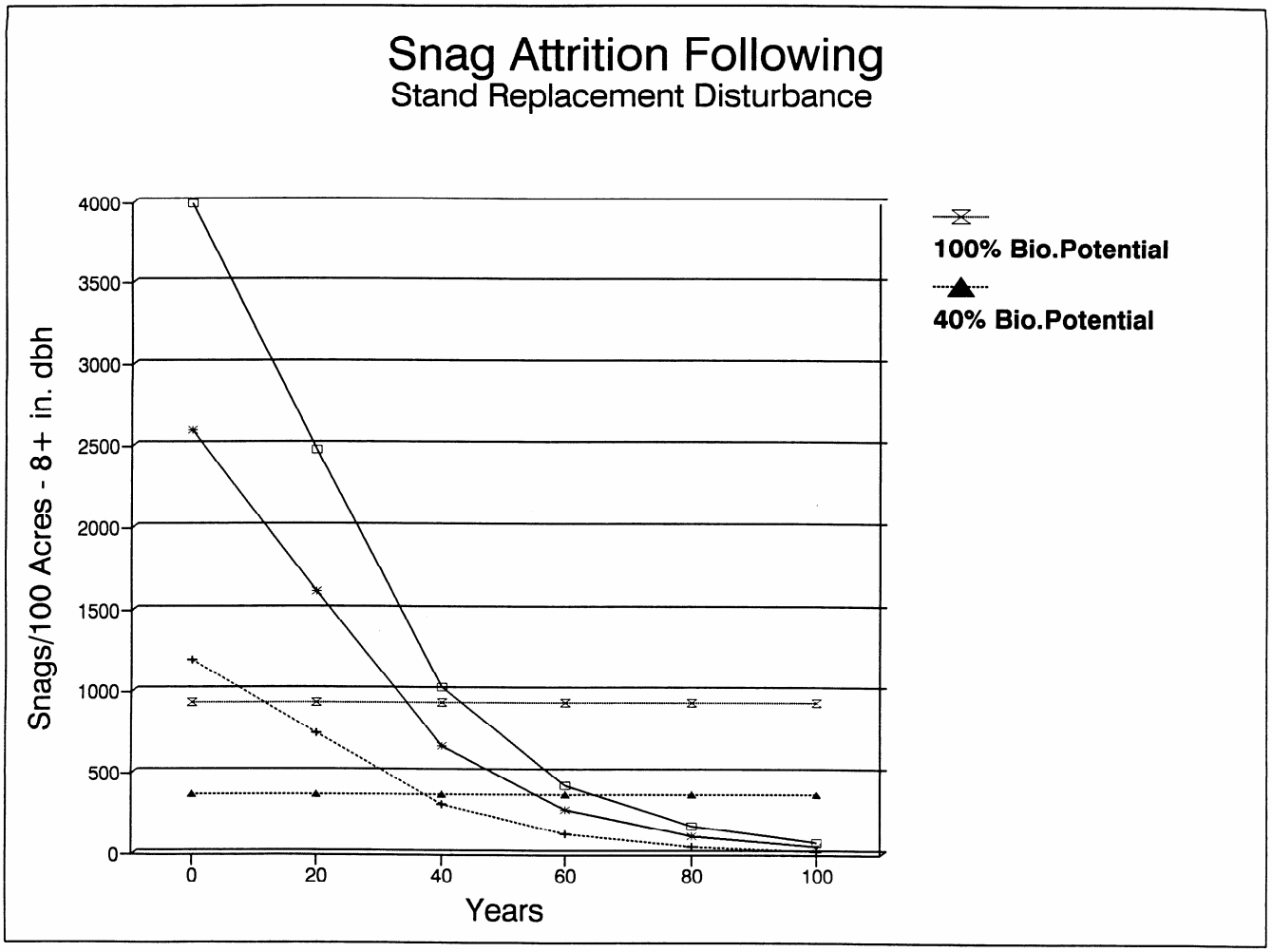


Figure 7.3. Snag attrition in Lodgepole Pine with beetle-killed trees. (Based on Hinds et al. 1965, as cited in Lyons 1977. First 17 years - 2% annual attrition rate; there was no data on attrition rates past 17 years, therefore we used an annual attrition rate of 4.3% which is 50% of the wildfire attrition rate. Rates may be higher than this based on personal observations of snag fall on the Targhee following the beetle epidemics of 1970's and 1980's).

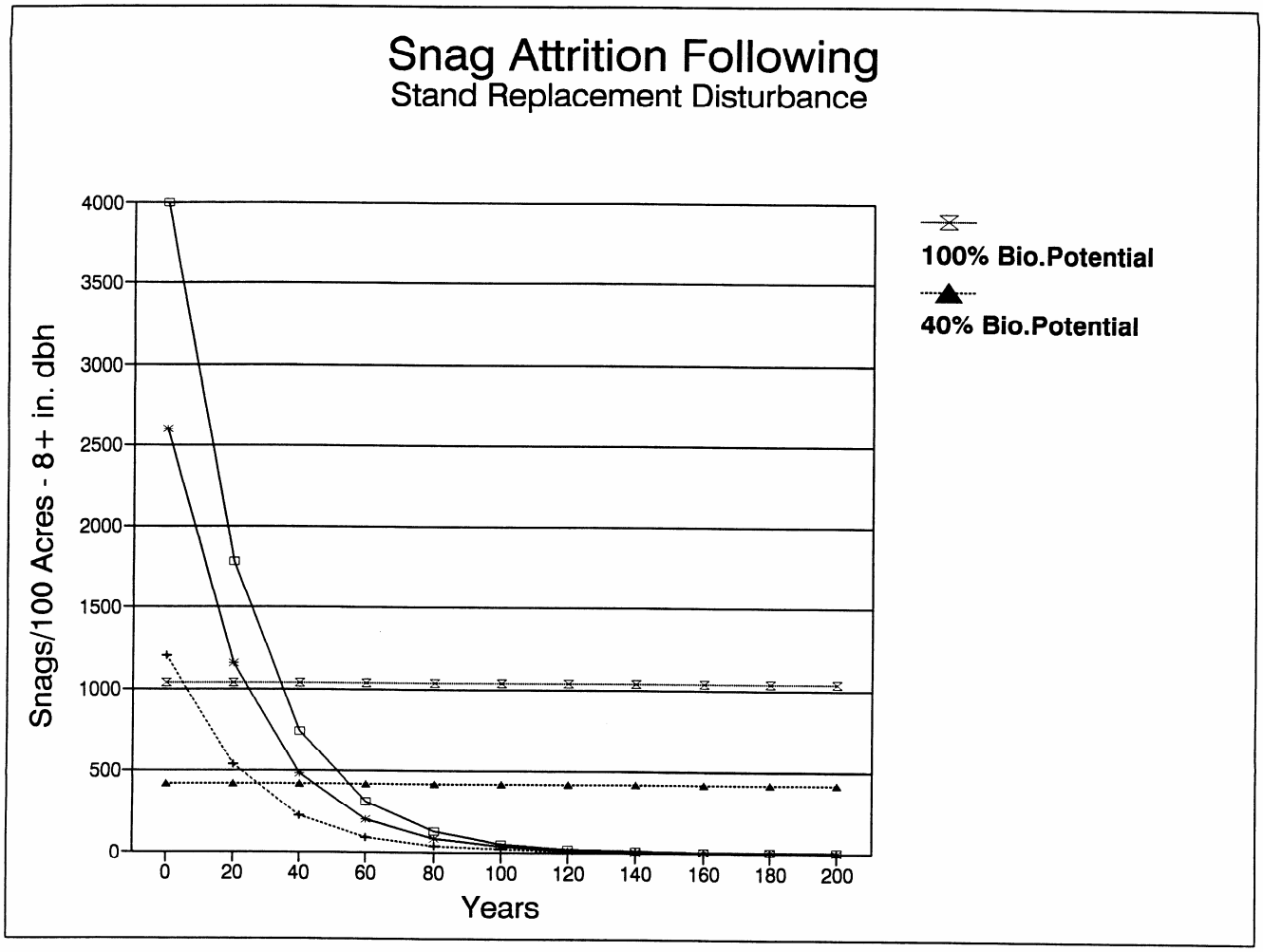


Figure 7.4. Hypothetical snag attrition in Douglas-fir following wildfire. (Based on assumption that Douglas-fir snags stand longer than lodgepole snags. First 2 year - 1% annual attrition rate; following years - 4.3% annual attrition rate).

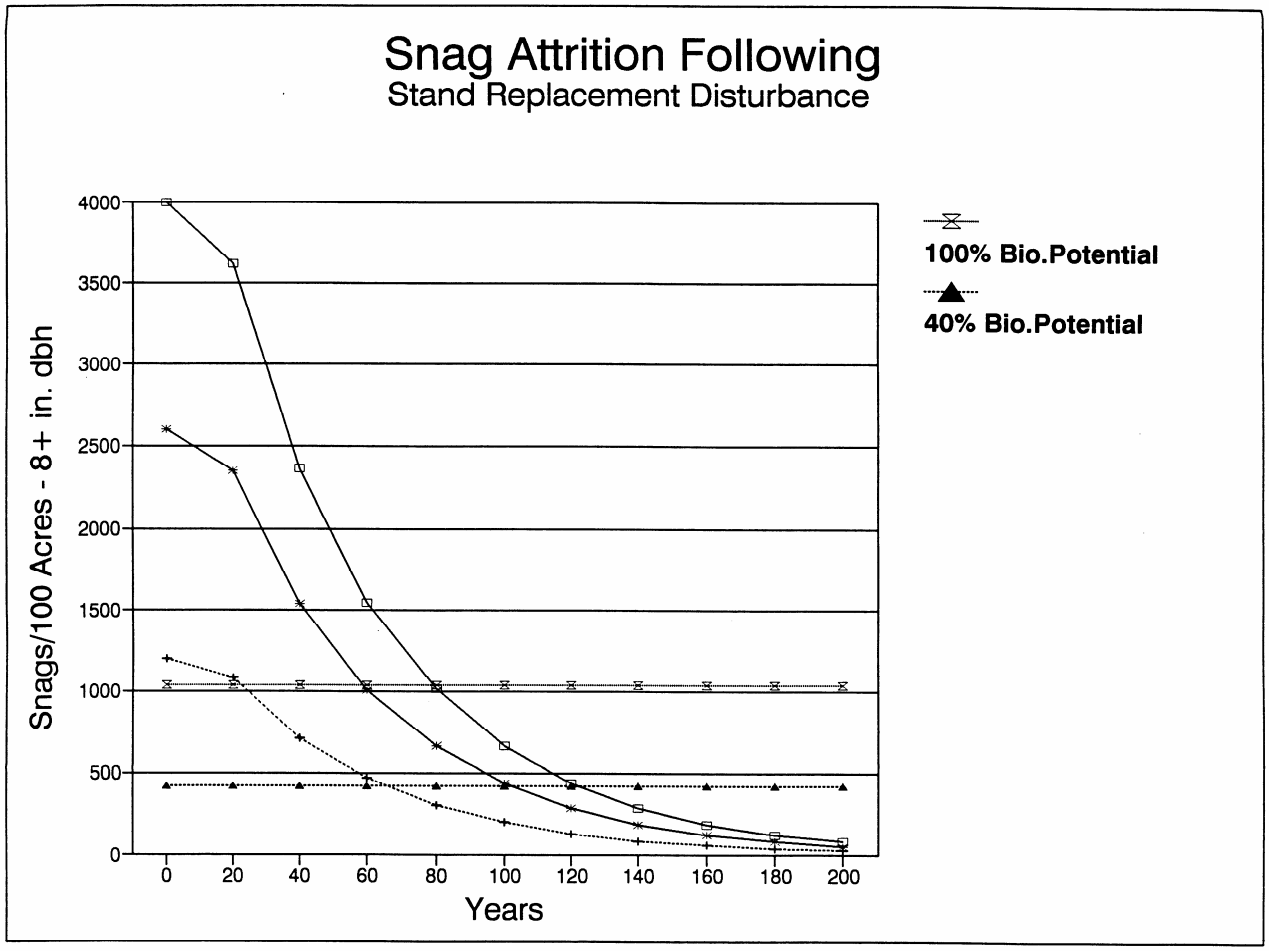


Figure 7.5. Snag attrition in Douglas-fir with insect killed trees. (Based on assumption that Douglas-fir snags stand longer than lodgepole snags. First 20 years - .5% annual attrition rate; following years - 2.1% annual attrition rate).

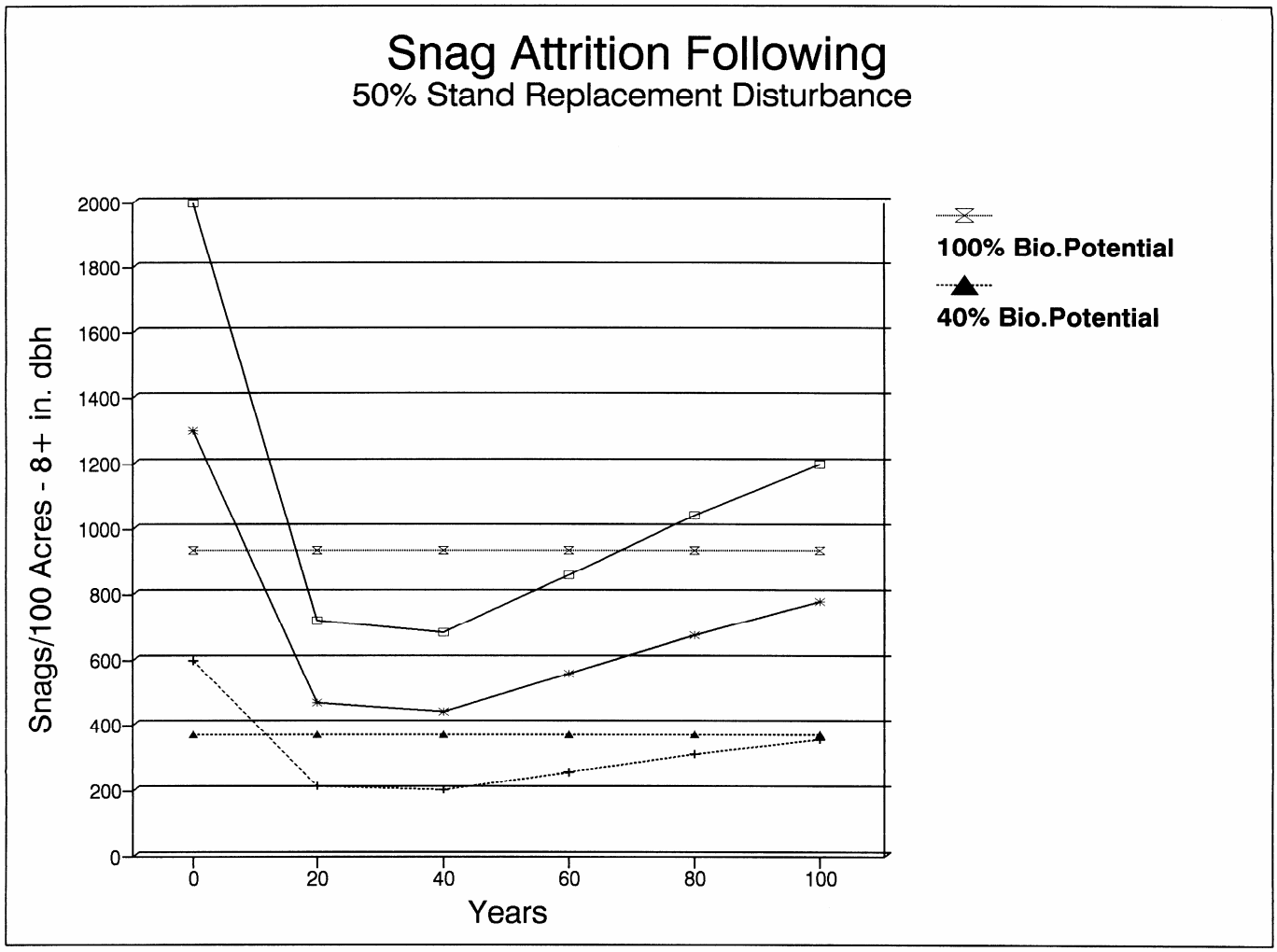


Figure 7.6 Snag attrition in lodgepole pine following partial (50%) stand replacement wildfire. (Annual snag attrition rate from fire was 2% for first 2 years and 8.6% thereafter. Annual live tree mortality was 0.98%. Annual attrition rate for snags from live tree mortality was 2% for first 17 years and 4.3% thereafter.)

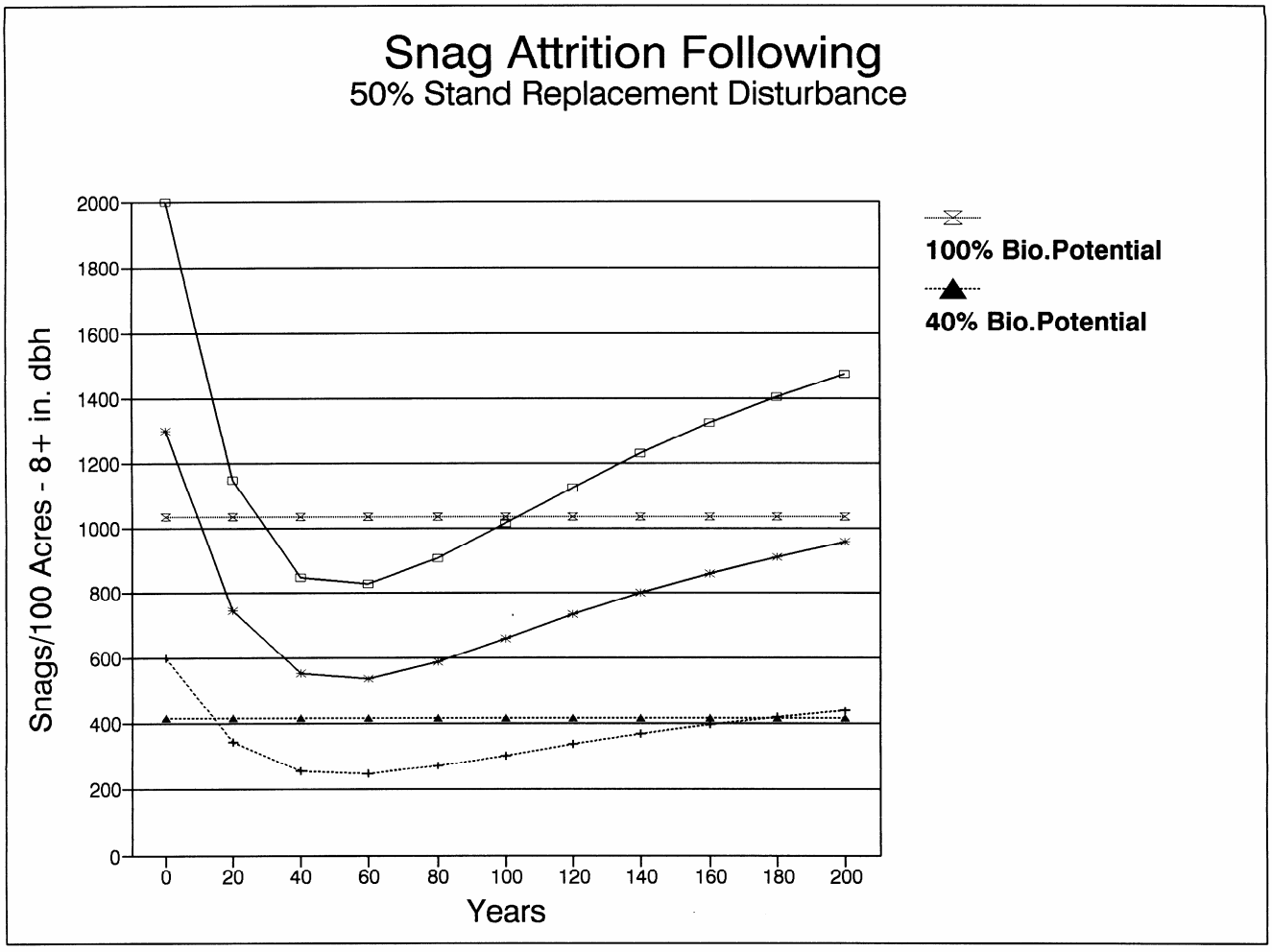


Figure 7.7. Snag attrition in Douglas-fir following partial (50%) stand replacement wildfire. (Annual snag attrition rate from fire was 1% for first 2 years and 4.3% thereafter. Annual live tree mortality was 0.70%. Annual attrition rate for snags from live tree mortality was 0.5% for first 20 years and 2.1% thereafter.)

REFERENCES

Balda, R. P. and N. Masters. 1980. Avian communities in the pinyon-juniper woodland. In: USDA Forest Service. 1980. Workshop proceedings - management of western forests and grasslands for nongame birds. Intermountain Forest and Range Exp. Sta. , Gen. Tech. Rep. INT-86, Ogden, UT. 535pp.

Bull, E. L. 1977. Specialized habitat requirements of birds: snag management, old growth, and riparian habitat. In: USDA Forest Service. 1978. Proceedings of the workshop on non-game bird habitat management in the coniferous forests of the western United States, Gen. Tech. Rep. PNW-64. 100pp.

Bull, E. L., A. D. Twombly, T. M. Quigley. 1980. Perpetuating snags in managed mixed conifer forests of the Blue Mountains, Oregon. In: USDA Forest Service. 1980. Workshop proceedings - management of western forests and grasslands for nongame birds. Intermountain Forest and Range Exp. Sta., Gen. Tech. Rep. INT-86, Ogden, UT. 535pp.

Douglas, D. C. 1984. Avian Habitat Associations in Riparian Zones of the Centennial Mountains and Surrounding Areas, Idaho. Wildlife Biology - Department of Zoology, Washington State Univ., Pullman, WA. 124pp.

Godtel, D., J. Greer, B. Ruediger. No Date. Managing snag dependent wildlife in a managed forest. USDA Forest Service, Kootenai National Forest. 13pp.

Hejl, S. J., R. L. Hutto, C. R. Preston and D. M. Finch. 1995. Effects of Silvicultural Treatments in the Rocky Mountains. pages 220-244 in Ecology and Management of Neotropical Migratory Birds, A Synthesis and Review of Critical Issues. Edited by T. E. Martin and D. M. Finch. Oxford University Press, Inc. New York, NY. 489pp.

Hinds, T. E., F. G. Hawksworth, R. W. Davidson. 1965. Beetle-killed Engelmann Spruce. Its Deterioration in Colorado. J. For. 63(7):536-542. as cited in: Lyon, L. J. 1977. Attrition of Lodgepole Pine Snags on the Sleeping Child Burn, Montana. USDA Forest Service Research Note INT-219, Intermountain Forest and Range Experiment Station, Ogden, UT. 4pp.

Hoffman, N. and J. Rotella. 1996. 1996 Progress Report - Three-toed Woodpecker Abundance and Occurrence in Greater Yellowstone. Biology Department, Montana State University, Bozeman, Montana. 3pp.

Jackman, S. M., J. M. Scott. 1975. Literature review of twenty-three selected forest birds of the Pacific Northwest. USDA Forest Service, Region 6, Portland, OR. 382pp.

Kliene, D. G. 1996. 1995 Report for the Big Hole Mountains Neotropical Migratory Landbird Monitoring Project. Washington State Univ., Pullman, WA. 17pp + appendices.

Lyon, L. J. 1977. Attrition of Lodgepole Pine Snags on the Sleeping Child Burn, Montana. USDA Forest Service Research Note INT-219, Intermountain Forest and Range Experiment Station, Ogden, UT. 4pp.

Patla, S. 1995. Big Hole Mountains Riparian Neotropical Migratory Landbird Monitoring Project (1994 Progress Report). Photocopy report at Targhee National Forest Supervisor's Office, St. Anthony, ID. unnumbered pages.

Schroeder, R. L. 1983. Habitat suitability index models: Downy Woodpecker. USDI Fish and Wildlife Service, FWS/OBS-82/10.38. 10pp.

Scott, V. E., J. A. Whelan, P. L. Svoboda. 1980. Cavity nesting birds and forest management. In: USDA Forest Service. 1980. Workshop proceedings - management of western forests and grasslands for nongame birds. Intermountain Forest and Range Exp. Sta., Gen. Tech. Rep. INT-86, Ogden, UT. 535pp.

Smith, V. Arnold. 1992. Notes on nesting three-toed woodpeckers in northern Utah. Utah Birds 8(4):61-65.

Sousa, P. J. 1983. Habitat suitability index models: Lewis's Woodpecker. USDI Fish and Wildlife Service. FWS/OBS-82/10.32. 14pp.

Taylor, D. L., W. J. Barmore, Jr. 1980. Post-fire succession of avifauna in coniferous forests of Yellowstone and Grand Teton National Parks, Wyoming. In: UUSDA Forest Service. 1980. Workshop proceedings - management of western forests and grasslands for nongame birds. Intermountain Forest and Range Exp. Sta., Gen. Tech. Rep. INT-86, Ogden, UT. 535pp.

USDA Forest Service. 1978. Management plan for dead and defective trees on the Olympic National Forest. Olympia, WA. 37pp.

Thomas, J. W. 1979. Wildlife habitats in managed forests - the Blue Mountains of Oregon and Washington. USDA Forest Service, Agriculture Handbook No. 553. 512pp.

USDA Forest Service. 1980. Workshop proceedings - management of western forests and grasslands for nongame birds. Intermountain Forest and Range Exp. Sta., Gen. Tech. Rep. INT-86, Ogden, UT. 535pp.

USDA Forest Service. 1985. Management of wildlife and fish habitats in forests of western Oregon and Washington, Part 1 - Chapter Narratives. Pacific Northwest Region, R6-F&WL-192-1985.

FOREST OWLS (FLAMMULATED, BOREAL, GREAT GRAY)

Habitat and Population Overview - Flammulated Owl

We expect the flammulated owl to be present on the Targhee only during the breeding season (USDA Forest Service 1994; Targhee N. F. 1992). Flammulated owl observations have been made at the following locations (IDFG 1992 - Idaho Conservation Data Center, Nongame and Endangered Wildlife Program; and Ranger District records):

Upper Coffee Pot Campground:	1991 - one male heard singing from hillside adjacent to Henrys Fork, near Upper Coffee Pot Campground.
Long Gulch:	1990 - dead owlet found.
North of Alpine Campground:	1991 - nest cavity found in quaking aspen; 2 males heard singing; female observed in nest cavity, with male feeding moths to the female.
Horse Creek/Morris Creek:	1995 - owl heard calling from the ridge between the creeks.
E. Fork of Bear Gulch:	1996 - possible hooting by a flammulated owl (T13N R38E SEC 10)

For lands adjacent to the Targhee National Forest, flammulated owls have been documented in only three areas: the Madison Ranger District of the Beaverhead National Forest; the Sand Creek Wildlife Management Area north of St. Anthony, Idaho; and BLM land near Moose Creek (Keepout Draw) in Teton Valley.

Flammulated owls are almost exclusively insectivorous, preying on small to medium sized moths, beetles, caterpillars, and crickets. They also eat spiders, scorpions, and other arachnids (USDA Forest Service 1991).

They can be found in the mixed pine forests, from pine mixed with oak and pinyon at lower elevations to pine mixed with spruce and fir at higher elevations. They have also been found in aspen and second growth ponderosa pine. However, they prefer mature ponderosa pine/Douglas-fir forests with open canopies (USDA Forest Service 1991; USDA Forest Service 1994). A review of literature suggests that preferred breeding habitat for the flammulated owl on the Targhee National Forest would be mature to old growth Douglas-fir (USDA Forest Service 1994). However, the only documented flammulated owl nest found on the Forest to-date was a nest cavity in a quaking aspen (Targhee N. F. 1992).

This owl is a secondary cavity nester, relying on nest cavities which would be built by hairy woodpeckers, northern flickers and sapsuckers in this part of its range (USDA Forest Service 1994; Targhee N. F. 1992). Dead trees with cavities having nest holes with a 2.75 inch entrance hole diameter are important nest site characteristics. They avoid foraging in young dense stands where hunting is difficult.

The entire home range for a flammulated owl pair is about 30 acres (USDA Forest Service 1994).

Habitat and Population Overview - Boreal Owl

The boreal owl is considered to be a year-around resident on the Targhee (USDA Forest Service 1994; Targhee N. F. 1992). When the Analysis of the Management Situation (AMS) was done in 1992, only three boreal owl observations had been recorded: Sawtell Peak in 1987, Targhee Creek in 1988, and McGarry Canyon in 1990. All of these observations were in the Centennial Mountains Subsection.

Since completion of the AMS, more boreal owl surveys have been done on the Forest, and currently boreal owls have been documented in five subsections on the Forest: Centennial Mountains, Island Park, Madison Plateau, Teton Range, and Big Hole/Palisades.

For lands adjacent to the Targhee National Forest, boreal owls have been documented in these areas: the Leadore Ranger District on the Salmon/Challis National Forest; the Dillon and Madison Ranger Districts on the Beaverhead National Forest; the Hebgen Lake Ranger District on the Gallatin National Forest; Yellowstone and Grand Teton National Parks; the Greys River Ranger District on the Bridger-Teton National Forest.

This owl is a secondary cavity nester, relying on nest cavities which would be built by hairy woodpeckers, northern flickers and sapsuckers in this part of its range (USDA Forest Service 1994; Targhee N. F. 1992). A review of literature suggests that preferred habitat for the boreal owl on the Targhee National Forest would be mature to old growth Douglas-fir, mixed conifer, spruce-fir and aspen forests (USDA Forest Service 1994). Mature forests are necessary for nesting because the owls require large nesting cavities (3 inch diameter opening and 12 to 15 inch diameter tree)(Clark et al. 1989). Nesting habitat structure consists of forests with a relatively high density of large trees (12-15 inches dbh), open understory, and multi-layered canopy.

Boreal owls prey primarily on small mammals. Red-backed voles make up the highest proportion of their diet. They are however, opportunistic and also eat insects, birds, pocket gophers, and shrews (USDA Forest Service 1991). Boreal owls are closely associated with high elevation spruce-fir forests due to their dependence on this forest type for foraging year round.

In the Intermountain Region, the boreal owl may occur as island populations (USDA Forest Service 1991). They exhibit low density and low rates of population growth (USDA Forest Service 1991). Summer home ranges average about 2900 acres, and winter home ranges average about 3600 acres (USDA Forest Service 1991 and 1994). The largest size nest stands recorded in the literature are 30 acres (USDA Forest Service 1994).

Habitat and Population Overview - Great Gray Owl

The great gray owl is a year-around resident on the Targhee (USDA Forest Service 1994; Targhee N. F. 1992). The great gray owl has been documented in every subsection on the Forest.

For lands adjacent to the Targhee National Forest, great gray owls have been documented in these areas: BLM lands and State of Idaho lands; the Madison Ranger District on the Beaverhead National Forest; Red Rock Lakes National Wildlife Refuge; the Hebgen Lake Ranger District on the Gallatin National Forest; Yellowstone and Grand Teton National Parks; the Greys River Ranger District on the Bridger-Teton National Forest.

Great gray owls prey primarily on voles and pocket gophers throughout the year. They use mixed coniferous and hardwood forests usually bordering small openings or meadows. They forage along edges of clearings. Semi-open areas, where small rodents are abundant, near dense coniferous forests, for roosting and nesting, is optimum habitat for great grays. In the Intermountain Region, great grays occur primarily in the lodgepole pine/Douglas-fir/aspen zone and in ponderosa pine. They do not build nests, but use existing platforms such as old stick nests built by northern goshawks or red-tailed hawks. They may also nest on platforms formed by dwarf mistletoe brooms, on the flat top of a broken-off tree, or on artificial (man-made) platforms. Clark et al. (1989) suggested that the large Yellowstone fires of 1988 probably increased foraging habitat for great gray owls in the Greater Yellowstone Area, although effects on nesting habitat are unknown.

The largest home ranges recorded for great gray owls is about 1600 acres (USDA Forest Service 1994). Nest sites average 143 meters (156 yards) from nearest openings (USDA Forest Service 1994).

Habitat Evaluation

Habitat evaluations for these species included the following:

A) The amount of mature and older conifer and aspen forests, analyzed at the subsection scale and at the watershed scale.

B) Cavity nesting habitat for hairy woodpeckers, northern flickers and sapsuckers. These primary cavity nesting species build cavities that are large enough for flammulated and boreal owls.

C) Development of Forest-wide standards and guidelines for managing habitat at known nest sites and territories.

D) Forest-wide standards and guidelines for managing dead and down large woody debris.

A) The Amount of Mature and Older Conifer and Aspen Forests.

Table 8.1 displays the amount of mature and older forest acres by subsection for the existing condition, and predicted changes in these acres for each alternative for the first decade based on the amount of both scheduled and unscheduled timber harvest. The greatest amount of change in mature and older forest acres for each subsection is as follows:

Lemhi & Medicine Lodge - 3.1 percent reduction in Alternative 2.
Centennial Mountains - 6.8 percent reduction in Alternative 2.
Island Park - 2.9 percent reduction in Alternative 2.
Madison Plateau - 1.3 percent reduction in Alternatives 1 and 3.

Teton Range - 2.3 percent reduction in Alternative 2.
B.H./Palisades - 2.9 percent reduction in Alternative 2.
Caribou - 3.7 percent reduction in Alternative 1.

Table 8.1 Old Growth (OG), Late Successional (LS) and Mature (M) Forests at the End of the First Decade. Includes effects of both scheduled and unscheduled timber harvests.

	Total Forested Acres	Existing Percent OG/LS/M	Alt. 1 Percent OG/LS/M	Alt. 2 Percent OG/LS/M	Alt. 3 Percent OG/LS/M	Alt. 3M Percent OG/LS/M	Alt. 4 Percent OG/LS/M	Alt. 5 Percent OG/LS/M	Alt. 6 Percent OG/LS/M
Forestwide	1,237,283	79.6	76.5	76.1	76.5	77.1	77.5	78.1	78.8
Subsections:									
Lemhi/ Medicine Lodge	103,887	90.1	87.3	87.0	87.5	87.9	88.0	88.2	89.2
Centennial Mtns.	225,012	79.2	73.3	72.4	73.4	74.9	75.2	75.9	77.9
Island Park	276,374	60.7	57.9	57.8	57.9	58.6	59.1	60.2	60.3
Madison Plateau	190,115	63.3	62.0	62.2	62.0	62.2	63.0	63.0	63.0
Teton Range	92,182	96.6	94.8	94.3	94.5	94.8	95.0	95.2	95.3
Big Hole/ Palisades	227,216	94.8	92.2	91.9	92.1	92.5	92.7	93.4	94.1
Caribou	122,495	98.5	94.8	95.3	95.3	95.5	96.2	95.9	97.3

Table 8.2a displays estimated scheduled and unscheduled timber harvesting in each principal watershed for the first decade for each alternative. Table 8.2b displays how much mature and older forest will be remaining in each principal watershed at the end of the first decade for each alternative. In all watersheds which currently have less than 60 percent mature and older forest, there is no proposed timber harvesting during the first decade. The greatest percent change in mature and older forest occurs in Watershed 026b, with a 17 percent reduction in acres of mature and older forest (from 79 percent to 62 percent) in Alternative 2.

B) Cavity nesting habitat for hairy woodpeckers, northern flickers and sapsuckers.

These primary cavity nesting species build cavities that are large enough for flammulated and boreal owls. The previous section on primary cavity nesting species provides the information about this cavity nesting habitat.

C) Forest-wide standards and guidelines for managing habitat at known nest sites and territories were developed for each owl species. These S&G's are in the Revised Forest Plan and are not repeated here..

D) Forest-wide Standards and Guidelines for Dead and Down Large Woody Debris.

Dead and downed woody debris is an important habitat component for forest owls. We do not have an inventory of dead and down woody debris on the Forest. A general assumption is that in all unlogged conifer stands, there should be some natural level of dead and downed woody debris. There may be unlogged stands that are near roads where firewood gathering has occurred, and in these areas the amount of dead and down woody debris may be depleted. However, we want to provide for dead and down woody debris during and following management activities such as timber harvest and firewood gathering. Forest-wide standards and guidelines were developed for maintaining large dead and down woody debris. These S&G's are in the Revised Forest Plan and are not repeated here.

DETERMINATION OF EFFECTS

The amount and distribution of mature and older forest acres within watersheds and subsections, plus the Forest-wide S&G's, will provide for well distributed suitable habitat for the flammulated owl, boreal owl, and great gray owl in all alternatives.

The proposed management actions may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Table 8.2a. Estimated Acres of Timber Harvest for the 1st Decade (includes both ASQ and non-ASQ).

WSH NO.	Total Forested Acres	Existing Mature+ Acres	Alt. 1 Total	Alt. 2 Total	Alt. 3 Total	Alt. 3M Total	Alt. 4 Total	Alt. 5 Total	Alt. 6 Total
002I	6,727	6,727	74	66	36	30	20	20	14
002W	15,810	15,810	296	264	144	120	80	80	56
003I	12,820	12,820	155	190	95	95	45	45	60
003W	15,427	15,057	155	190	95	95	45	45	60
004	28,305	28,270	200	240	180	130	370	140	30
005	18,856	18,055	630	690	650	620	280	380	0
006	26,493	26,121	860	990	930	890	790	140	100
007/033	24,209	22,380	930	1,060	960	870	800	330	160
008	102,475	70,175	520	520	520	520	460	520	520
009A	50,925	44,226	2,797	3,257	2,734	1,922	1,449	863	0
009B	33,727	21,090	1,643	1,913	1,606	1,129	851	507	0
010	43,329	14,241	0	0	0	0	0	0	0
011	108,590	57,499	0	0	0	0	0	0	0
012	82,970	47,580	0	0	0	0	0	0	0
013	45,913	29,477	0	0	0	0	0	0	0
014/034	30,120	26,296	3,060	3,560	2,990	2,210	2,210	0	120
015I	15,342	11,163	900	105	910	870	310	295	310
015W	18,457	14,338	900	105	910	870	310	295	310
016I	16,046	12,578	1,782	2,148	1,806	1,392	378	360	372
016W	37,464	36,632	1,188	1,432	1,204	928	252	240	248
017I	5,916	5,916	135	220	180	170	150	160	105
017W	20,284	20,284	135	220	180	170	150	160	105
018	10,747	10,747	230	260	230	220	200	180	200
019	14,160	14,101	340	440	400	330	280	360	280
020	15,663	13,575	320	540	480	400	380	360	280
021I	16,031	9,830	760	885	780	685	660	395	420
021W	46,652	38,849	760	885	780	685	660	395	420
022	30,924	29,439	1,240	1,130	1,340	1,020	1,090	840	360
023/024	35,815	28,952	1,030	1,230	1,290	1,060	1,020	800	560
025	56,670	43,381	5,310	6,190	5,200	3,830	3,830	3,440	1,350
026A	20,170	16,821	1,395	1,626	1,365	1,011	1,011	753	348
026B	22,640	17,852	3,255	3,794	3,185	2,359	2,359	1,757	812
027/028	25,554	23,787	850	710	840	730	660	490	130
029	18,005	15,376	630	770	600	570	400	360	20
030A	17,647	17,128	390	525	360	265	305	290	190
030B	23,035	17,667	390	525	360	265	305	290	190
031A	18,214	18,150	300	325	290	205	250	250	190
031B	5,810	5,742	300	325	290	205	250	250	190
035	4,749	4,749	280	180	180	160	150	160	160
036	12,833	12,635	530	140	200	300	300	350	330
037	43,055	43,055	1,050	1,090	1,130	1,130	940	990	250
038	41,313	40,690	1,980	1,740	1,650	1,470	930	1,180	210
039	9,815	9,311	360	360	350	310	280	270	280
040	9,346	8,908	320	350	350	280	260	260	260
	1,259,053	997,480	38,380	41,190	37,780	30,521	25,470	19,000	10,000

Table 8.2b. Percent Mature/Late Successionsl/Old Growth Forest for the Existing Condition and Remaining at the End of the First Decade for each Alternative.

WSH NO.	Total Forested Acres	Exsiting Percent	Alt. 1 Percent	Alt. 2 Percent	Alt. 3 Percent	Alt. 3M Percent	Alt. 4 Percent	Alt. 5 Percent	Alt. 6 Percent
002I	6,727	100	99	99	99	100	100	100	100
002W	15,810	100	98	98	99	99	99	99	100
003I	12,820	100	99	99	99	99	100	100	100
003W	15,427	98	97	96	97	97	97	97	97
004	28,305	100	99	99	99	99	99	99	100
005	18,856	96	92	92	92	92	94	94	96
006	26,493	99	95	95	95	95	96	98	98
007/033	24,209	92	89	88	88	89	89	91	92
008	102,475	68	68	68	68	68	68	68	68
009A	50,925	87	81	80	81	83	84	85	87
009B	33,727	63	58	57	58	59	60	61	63
010	43,329	33	33	33	33	33	33	33	33
011	108,590	53	53	53	53	53	53	53	53
012	82,970	57	57	57	57	57	57	57	57
013	45,913	64	64	64	64	64	64	64	64
014/034	30,120	87	77	75	77	80	80	87	87
015I	15,342	73	67	72	67	67	71	71	71
015W	18,457	78	73	77	73	73	76	76	76
016I	16,046	78	67	65	67	70	76	76	76
016W	37,464	98	95	94	95	95	97	97	97
017I	5,916	100	98	96	97	97	97	97	98
017W	20,284	100	99	99	99	99	99	99	99
018	10,747	100	98	98	98	98	98	98	98
019	14,160	100	97	96	97	97	98	97	98
020	15,663	87	85	83	84	84	84	84	85
021I	16,031	61	57	56	56	57	57	59	59
021W	46,652	83	82	81	82	82	82	82	82
022	30,924	95	91	92	91	92	92	92	94
023/024	35,815	81	78	77	77	78	78	79	79
025	56,670	77	67	66	67	70	70	70	74
026A	20,170	83	76	75	77	78	78	80	82
026B	22,640	79	64	62	65	68	68	71	75
027/028	25,554	93	90	90	90	90	91	91	93
029	18,005	85	82	81	82	82	83	83	85
030A	17,647	97	95	94	95	96	95	95	96
030B	23,035	77	75	74	75	76	75	75	76
031A	18,214	100	98	98	98	99	98	98	99
031B	5,810	99	94	93	94	95	95	95	96
035	4,749	100	94	96	96	97	97	97	97
036	12,833	98	94	97	97	96	96	96	96
037	43,055	100	98	97	97	97	98	98	99
038	41,313	98	94	94	94	95	96	96	98
039	9,815	95	91	91	91	92	92	92	92
040	9,346	95	92	92	92	92	93	93	93
Forestwide	1,259,053	79	76	76	76	77	77	78	78

References

Clark, T. W., A. H. Harvey, R. D. Dorn, D. L. Genter, C. Groves, eds. 1989. Rare, Sensitive, and Threatened Species of the Greater Yellowstone Ecosystem. Northern Rockies Conservation Cooperative, Montana Natural Heritage Program, The Nature Conservancy, and Mountain West Environmental Services. 153p.

Targhee National Forest. 1992. Analysis of the Management Situation. St. Anthony, ID. unnumbered pages.

USDA Forest Service. 1991. Threatened, Endangered, and Sensitive Species of the Intermountain Region. Forest Service, Intermountain Region, Ogden, UT, unnumbered pages.

USDA Forest Service. 1994. Flammulated, Boreal, and Great Gray Owls in the United States: A Technical Conservation Assessment. G. D. Hayward and J. Verner, tech. editors. General Technical Report RM-253. Rocky Mountain Forest and Range Experiment Station and Rocky Mountain Region. Fort Collins, CO. 214p. + 3 maps.

FURBEARERS (MARTEN, FISHER, LYNX, WOLVERINE)

Habitat and Population Overview - American Marten

Marten are considered abundant on the Forest, and the State Fish and Game Departments provide a trapping season for marten.

USDA Forest Service (1994) provides the following habitat summary:

> "1) Although American martens at times use other habitats, populations depend on (sensu Ruggiero et al. 1988) coniferous forests. Martens associate closely with mesic, late-successional coniferous forests, but occur in other vegetation types. They use treeless areas less than predicted from their spatial availability, especially in winter. Clearcutting, reduces marten densities for several decades. In some areas, under conditions that are not well understood, martens may use regenerating clearcuts after a decade or two if sufficient structures useful to martens persist from the clearcutting. The effect of other cutting regimes, including small patch cutting, seed tree cutting, or salvage harvest of dead or damaged timber have not been widely studied."
>
> "2) Coarse woody debris, especially in the form of large diameter boles, is an important feature of marten habitat. Logs are most useful to martens for gaining access to subnivean areas and for resting. Removal of coarse woody debris from forests or interfering with processes that make it available in suitable sizes and stages of decay may reduce habitat quality for martens."

Reported marten home ranges vary from 15.7 sq. km (6.06 sq. mi.) for males in Minnesota (the largest) to 0.8 sq. km (0.31 sq. mi.) for males in Montana (the smallest) (USDA Forest Service 1994). Male home ranges are larger than female home ranges. Marten home range sizes have been shown to vary as a function of prey abundance (USDA Forest Service 1994).

Knowledge of landscape-scale habitat use is almost completely lacking regarding behavioral or population responses of martens to such landscape attributes as stand size, stand shape, area of stand interiors, amount of edge, stand insularity, use of corridors, and connectivity (USDA Forest Service 1994). Marten use of residual forest stands surrounded by clearcuts on Newfoundland Island was a function of stand size; stands < 15 ha (37 acres) in area had lower capture success rates than larger stands (USDA Forest Service 1994). However, the dearth of knowledge in this area makes managing forested landscapes for marten highly conjectural (USDA Forest Service 1994).

Habitat and Population Overview - Fisher

We know of only three documented fisher sightings and two possible sightings (Targhee N. F. 1992; Dr. Steve Minta personal communication 1995, Ranger Districts personal communication 1996):

> 1978 - Warm River Butte - 1 fisher was trapped.

1995 - Near North and South Leigh Creeks - fisher tracks were observed by Dr. Steve Minta (working on a furbearer study).

1996 - Porcupine Lake (T9N R45E SEC 32) - tracks observed.

1996 - North Fork Deep Creek (T12N R32E SEC. 34/35) - possible tracks.

1996 - Pete Cr. Road (T14N R37E SEC. 23) - possible tracks.

(note: the Targhee N. F. AMS (1992) cited a fisher observation on the S. Fork of the Snake River in 1992. The person who made this observation has since indicated that it probably was not a fisher (B.Alford, personal communication)

We are aware of one documented fisher sighting on lands adjacent to the Targhee National Forest; this sighting was in 1990 near Drake Canyon (T3N R45E Sec. 7) in Teton Basin.

During 1995, Yellowstone Ecosystem Studies (a private group from Bozeman, MT.) used a remote camera to photograph a fisher in Republic Creek on the Shoshone National Forest (K.Barber, Shoshone N. F., personal communication).

Figures 8.1 and 8.2 show fisher observations for the western United States (from USDA Forest Service 1994).

USDA Forest Service (1994) provides the following habitat summary:

"1) In the western mountains, fishers prefer late-successional forests (especially for resting and denning) and occur most frequently where these forests include the fewest large nonforested openings. Avoidance of open areas may restrict the movements of fishers between patches of habitat and reduce colonization of unoccupied but suitable habitat. Further reduction of late-successional forests, especially fragmentation of contiguous areas through clearcutting, could be detrimental to fisher conservation."

"2) Large physical structures (live trees, snags, and logs) are the most frequent fisher rest sites, and these structures occur most commonly in late-successional forests. Until it is understood how these structures are used and can be managed outside their natural ecological context, the maintenance of late-successional forests will be important for the conservation of fishers."

The mean home range size for adult male fishers is 40 sq. km (range 19-79) (15.4 sq. mi.; range 7.3-30.5), nearly three times that for females (15 sq. km; range 4-32) (5.8 sq. mi.; range 1.5-12.3) (USDA Forest Service 1994).

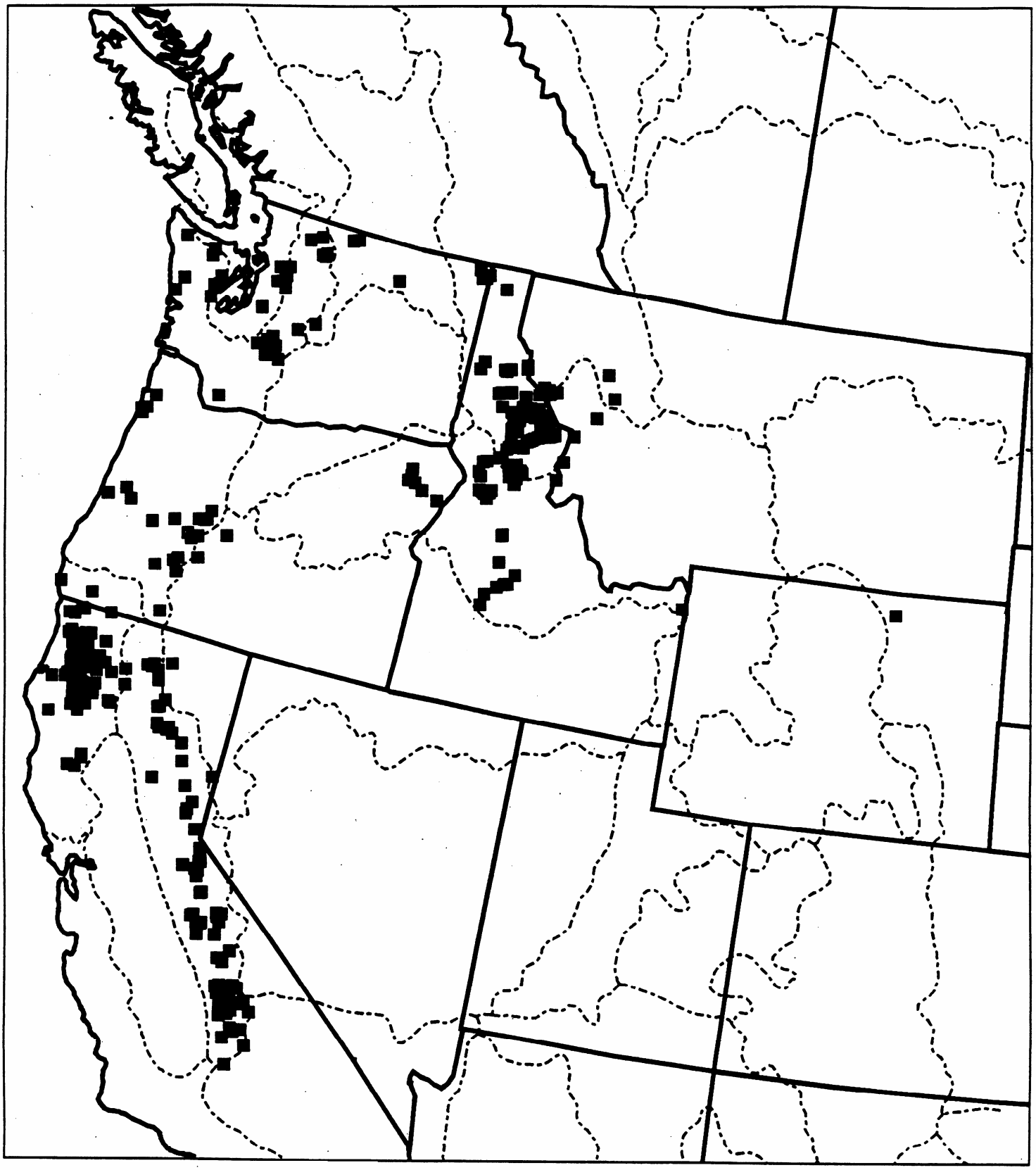


Figure 8.1

Fisher observations
1961 - 1982

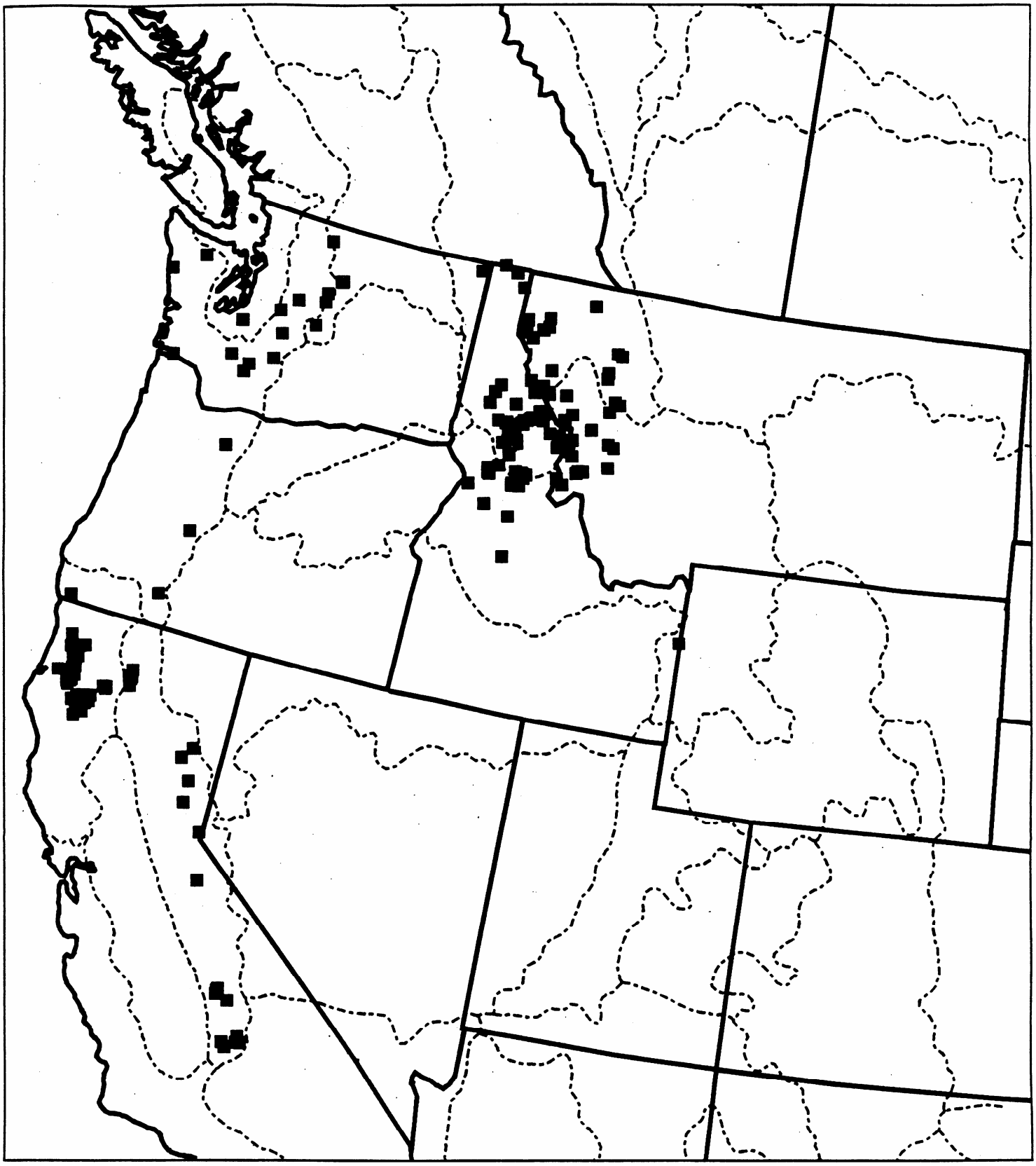


Figure 8.2

Fisher observations
1983- 1993

Habitat and Population Overview - Lynx

The only documented reports of lynx on the Forest have occurred on the Wyoming portion in the Palisades Mountains (USDA Forest Service 1994).

For lands adjacent to the Targhee National Forest, lynx have been documented in Yellowstone National Park, and the Grey's River Ranger District.

Figures 8.3 and 8.4 show lynx observations for the western United States (from USDA Forest Service 1994).

USDA Forest Service (1994) provides the following habitat summary:

> "1. High quality lynx habitat in the western mountains consists of a mosaic of early successional habitats with high hare densities, and late-successional stands with downed woody debris for thermal and security cover and for denning."
>
> "2. Clearcuts > 100 m wide may create barriers to lynx movements."
>
> "3. Hares may not begin to recolonize clearcuts until 6-7 years after cutting, thus it may take 20-25 years at southern latitudes for snowshoe hare densities to reach highest levels."
>
> "4. Thinning stands early to maximize tree-growth potential can be compatible with snowshoe hare and lynx habitat needs provided that stands are thinned before snowshoe hares recolonize the area. Otherwise, thinning may be most effective when stands are older than 30-40 years and are used little by hares. Both early and late thinning strategies may be required when integrating timber management objectives with lynx habitat needs."
>
> "5. Small-sized parcels (1-2 ha) of late-successional forest appear to be adequate for den sites, but these parcels must be connected by corridors of cover to permit females to move kittens to alternate den sites providing suitable access to prey."
>
> "6. Approximating the natural disturbance frequency and spatial patterns present on the landscape is expected to provide the best habitat for lynx. Frequent, small-scale disturbances are expected to provide the best lynx habitat at southern latitudes."
>
> "7. Although disease and insect attacks may increase fuel loads and the risk of large, high-intensity fires, they also provide dead and downed trees used for denning cover. Thus, the role that disease and insects play in the dynamics of forests being manipulated must be carefully considered when managing stands for timber and lynx."
>
> "8. Road management is an important component of lynx habitat management. Although construction and maintenance of roads both destroys and creates habitat for prey, lynx use roads for hunting and travel which may make them more vulnerable to human-caused mortality."

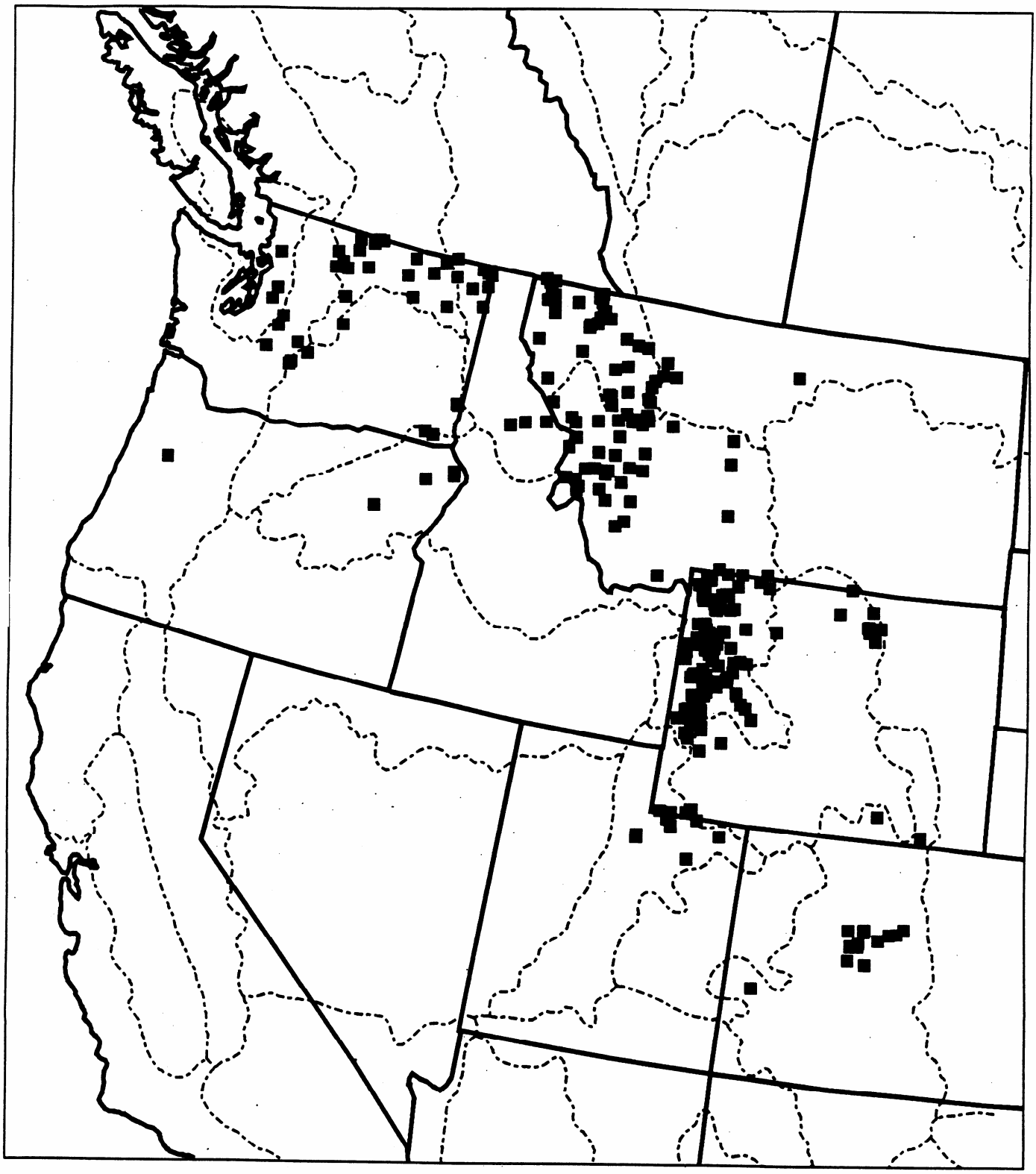


Figure 8.3

Lynx observations
1961-1982

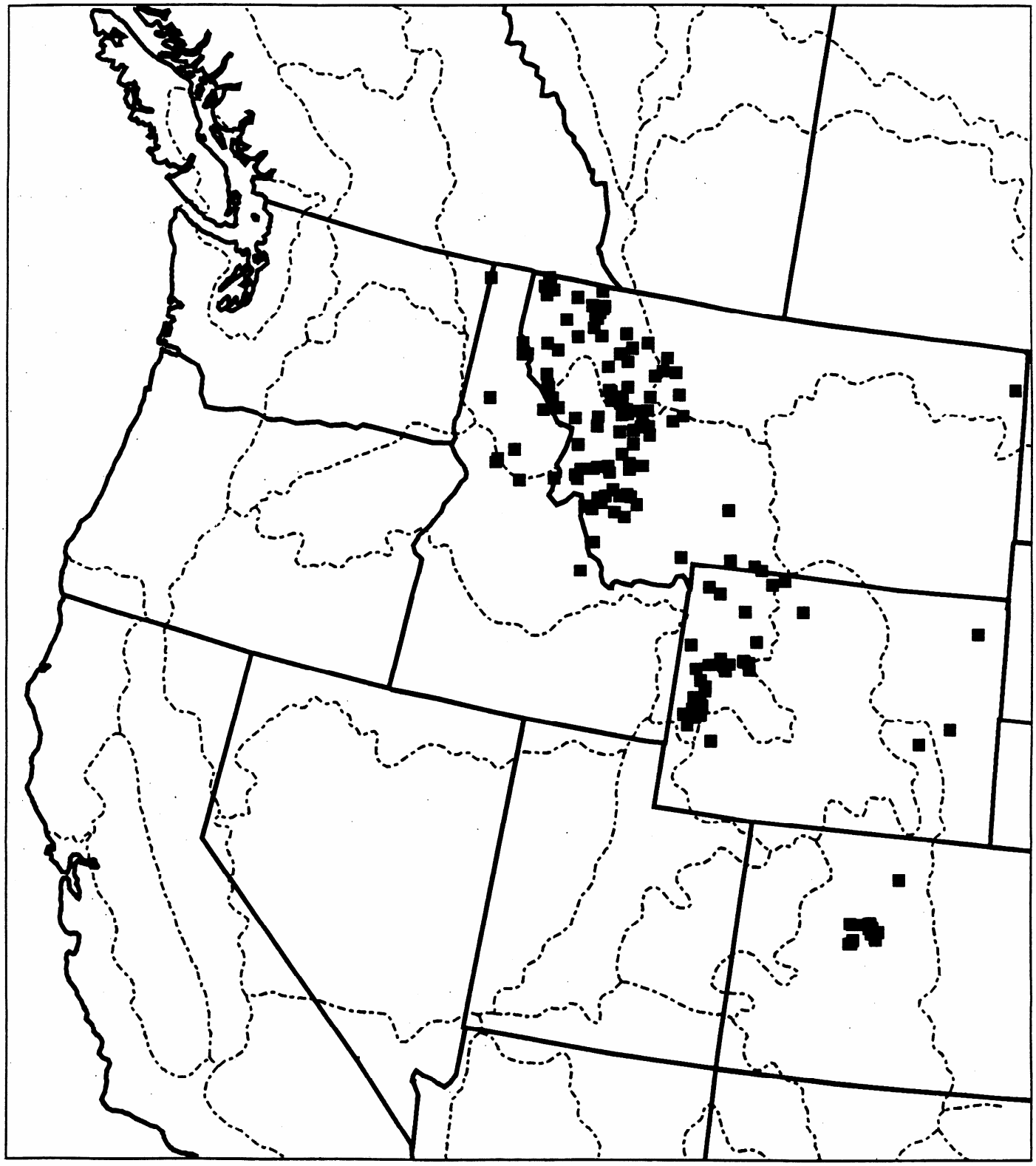


Figure 8.4

Lynx observations
1983-1993

The primary food item of lynx is the snowshoe hare, and population numbers of the lynx closely follow that of snowshoe hares (USDI Fish and Wildlife Service 1994c). High quality lynx habitat in the western mountains consists of a mosaic of early successional habitats with high hare densities, and late-successional stands with downed woody debris for thermal and security cover and for denning (USDA Forest Service 1994).

Historically, lynx populations were minimal in the contiguous United States due to a lack of suitable habitat (USDI Fish and Wildlife Service 1994c). Favorable habitat conditions for the lynx dissipate with decreasing latitude. Thus, the lynx is restricted to higher elevations the more southern the latitude (USDI Fish and Wildlife Service 1994c). During years of lynx abundance in Canada, increased densities of resident populations resulted along the southern boundary of its range (USDI Fish and Wildlife Service 1994c).

Habitat and Population Overview - Wolverine

In 1985, a wolverine survey was done in Idaho to determine the location and status of populations (Groves 1987). Results of the survey indicated that 3 areas of the State had wolverine populations, but the Targhee was not within one of these 3 areas. However, the following probable wolverine observations have been recorded on the Forest (IDFG 1992 - Idaho Conservation Data Center, Nongame and Endangered Wildlife Program; Groves 1987; personal communication with District Biologists):

Centennial Mountains Subsection:

Targhee Basin (T16N R43E Sec. 24):	1968 - 1 wolverine observed
Threemile Creek (T12N R37E Sec. 19):	1976 - 1 wolverine observed coming into bear bait
Targhee Pass (T16N R44E Sec. 32):	1982 - 1 wolverine observed
Corral Creek (T14N R36E Sec. 24):	1983 - 1 wolverine observed coming into a bear trap
Little Coffee Pot Campground (T14N R43E Sec. 32):	1983 - 1 wolverine observed
W. Camas Creek (T14N R36E):	1984 - 1 wolverine sighted
Schoolhouse Canyon (T15N R42E Sec. 14)	1989 - tracks in snow
Antelope Valley (T14N R39E Sec. 35):	1990 - 1 wolverine observed (being chased by a coyote)
Moose Creek (D-l) (T13N R39E Sec. 2):	1990 - 1 wolverine sighted
Steel Creek Cabin (D-l)	1993 - 1 wolverine sign
Coalmine/Spruce Cr. (T14N R38E):	1993 - 1 sighting reported
Pasture Cr. (T14N R38E Sec. 25):	1993 - tracks
Sawtell Cr. (T14N R43E Sec. 9):	1993 - tracks
Sawtell Cr. (T14N R43E Sec. 4):	1994 - tracks
Dry Cr. (T13N R40E):	1994 - sighting reported
Pasture Cr. (T14N R38E Sec. 25):	1995 - photos taken at monitoring station
Kick Cr. (T13N R40E Sec. 1):	1995 - tracks
Toms Cr. (T13N R40E Sec. 35):	1995 - tracks
Pete Cr. (T14N R37E Sec. 25/35):	1996 - tracks and pictures
Stump Cr. (T14N R37E Sec. 35):	1996 - tracks
West Camas Cr. (T14N R37E Sec. 29)	1996 - tracks

Island Park Subsection:	
Rock Creek (T09N R44E Sec, 24)	1985 - tracks observed
Madison Plateau Subsection:	
Snow Creek Butte (TUN R45E Sec. 14):	1962 - tracks observed
Moose Creek Butte (T10N R45E Sec. 18):	1973 - tracks observed
Fish Creek Road (T10N R45E Sec. 08):	1985 - tracks observed
Snow Creek (T10N R45E Sec. 3):	1996 - tracks observed
Teton Range Subsection:	
Teton Pass:	1968 - 1 adult sighted
Middle Fork Darby Cr.:	1972 - 1 individual sighted
Pinochle/Jackpine Road:	1975 - 1 adult sighted
Teton Pass:	1977 - 1 individual sighted
S. Jackpine-Badger Access:	1978 – 1 individual sighted
Ski Hill Road: S. Leigh	1986 - 1 individual sighted
Lakes Basin:	1991 - 1 individual sighted
Caribou Subsection:	
Sulphur Bar Creek (T02S R45E Sec. 14):	1969 - 1 wolverine sighted

For lands adjacent to the Targhee National Forest, wolverine have been documented in the following general areas: Leadore Ranger District on the Salmon/Challis N. F., Dillon and Madison Ranger Districts on the Beaverhead N. F., Dillon District of the BLM, Hebgen Lake Ranger District on the Gallatin N. F., and Yellowstone and Grand Teton National Parks.

Figures 8.5 and 8.6 show wolverine observations for the western United States (from USDA Forest Service 1994).

USDA Forest Service (1994) provides the following habitat summary:

> "1) With our dearth of knowledge, conserving wolverine populations may require large refugia, representative of the vegetation zones that wolverine occupy and connected by adequate travel corridors. Refugia have a dual purpose, also serving as a source of dispersing wolverine for other areas. Appropriate refuge sizes are unknown but will depend on habitat suitability. The lower the wolverine density, the larger the refuge necessary. It is best to think of refuge size in terms of wolverine reproductive units, 1 male and 2-6 females. How many reproductive units in a refuge are necessary to ensure population maintenance and dispersal? If population characteristics such as density and recruitment are known, modeling can help to answer this question."
>
> "2. The dispersal and travel corridors that connect refugia, at least for males, likely need not have the habitat attributes necessary to support self-sustaining populations. Atypical or low quality habitats may be important to wolverines if they connect otherwise isolated populations and allow for genetic exchange or colonization. Because females establish home ranges next to their natal area and their dispersal distances are less than for males, requirements for dispersal corridors may be more specialized. The biggest limiting factor in recolonization likely is the dispersal of young females."

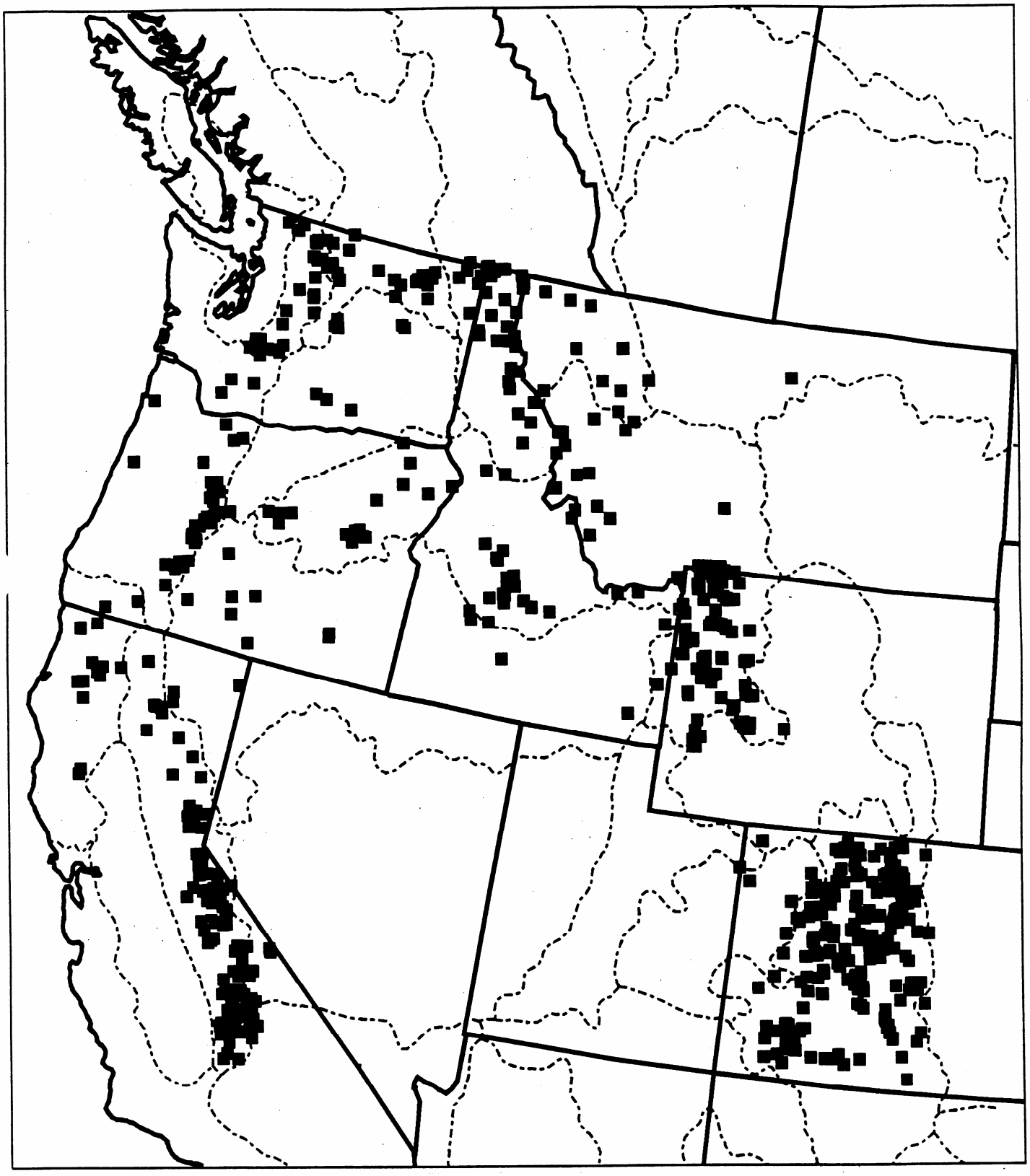


Figure 8.5

Wolverine observations
1961- 1982

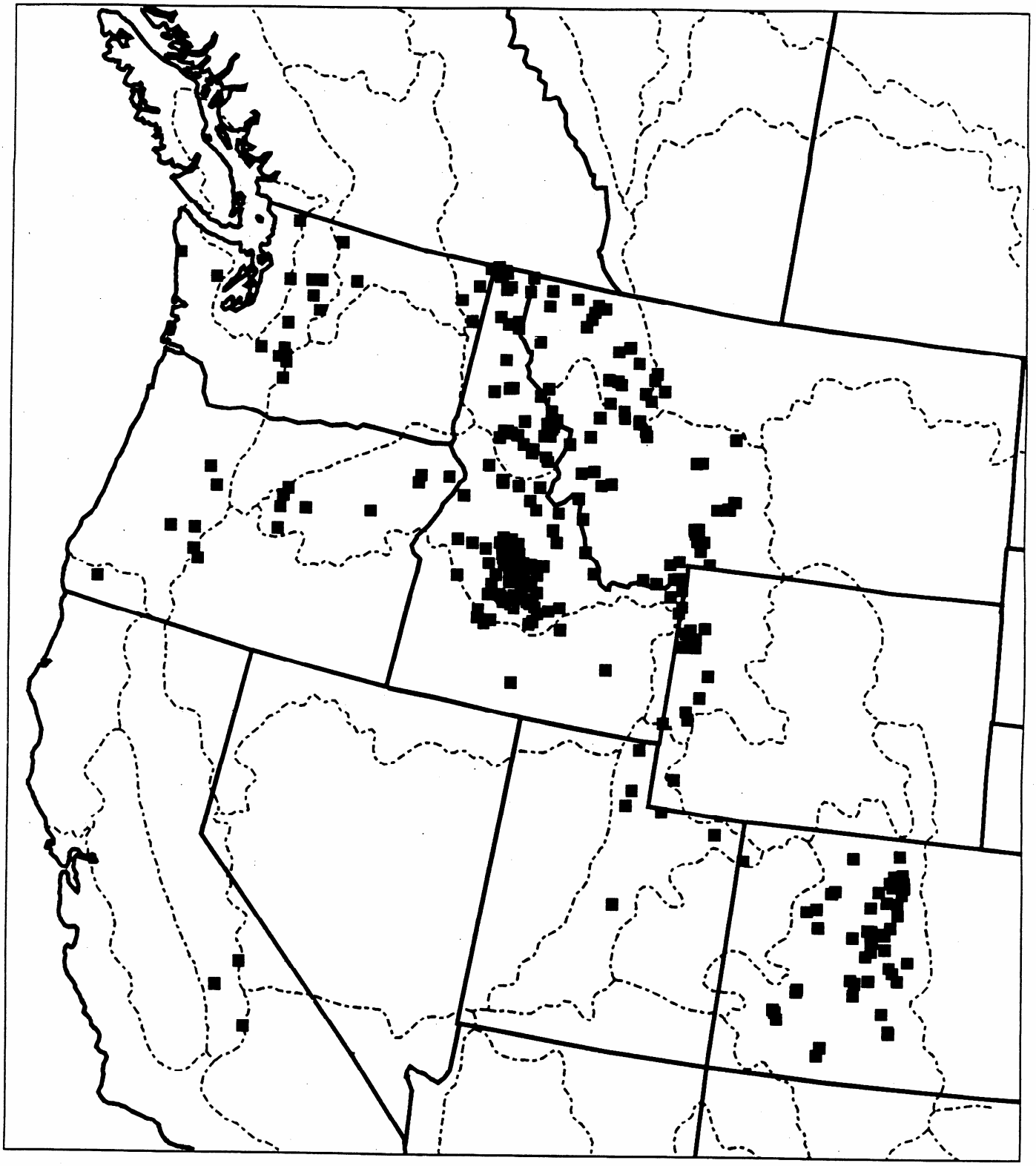


Figure 8.6

Wolverine observations
1983-1993

"3. Because refugia for wolverines will no doubt be very large, the species will benefit by being part of a large carnivore conservation strategy in which connected refugia are established for grizzly bears, wolves, cougars, and wolverines. Such a strategy will help to ensure that the entire range of wolverine habitat needs will be accommodated and lessens the chance that refugia will not be large enough or that an important requirement will not be adequately met."

"4. Until more information becomes available, habitat management prescriptions that successfully provide for the life needs of species such as the American marten, fisher, and lynx and their prey will also provide for the needs of wolverines at the stand level. However, it is not known whether this will provide for wolverine habitat needs at the landscape or larger scales."

Home ranges of adult wolverine in North America range from less than 100 sq. km to over 900 sq. km (38.6 sq. mi. to 347.5 sq. mi.) (USDA Forest Service 1994). The variation in home range sizes among studies partly may be related to differences in the abundance and distribution of food (USDA Forest Service 1994). The presence of young restricts movements and home range size of females. Yearly home ranges for females with young range from 47 sq. km to 105 sq. km (18.2 sq. mi. to 40.5 sq. mi.) (USDA Forest Service 1994.

Habitat Evaluation

Habitat evaluations for these species included the following:

A) The amount of mature and older conifer and aspen forests, analyzed at the subsection scale and at the watershed scale.

B) Cavity nesting habitat for all of the primary cavity nesting species, as one measure of coarse woody debris which is an important habitat component for these species.

C) Forest-wide standards and guidelines for managing dead and down woody debris.

A) The Amount of Mature and Older Conifer and Aspen Forests.

Table 8.1 (in the previous forest owl chapter) displays the amount of mature and older forest acres by subsection for the existing condition, and predicted changes in these acres for each alternative for the first decade based on the amount of both scheduled and unscheduled timber harvest. The greatest amount of change in mature and older forest acres for each subsection is as follows:

Lemhi & Medicine Lodge - 3.1 percent reduction in Alternative 2.
Centennial Mountains - 6.8 percent reduction in Alternative 2.
Island Park - 2.9 percent reduction in Alternative 2.
Madison Plateau - 1.3 percent reduction in Alternatives 1 and 3.
Teton Range - 2.3 percent reduction in Alternative 2.
B.H./Palisades - 2.9 percent reduction in Alternative 2.
Caribou - 3.7 percent reduction in Alternative 1.

Table 8.2a (in the previous forest owl chapter) displays estimated scheduled and unscheduled timber harvesting in each principal watershed for the first decade for each alternative. Table 8.2b (in the previous forest owl chapter) displays how much mature and older forest will be remaining in each principal watershed at the end of the first decade for each alternative. In all watersheds which currently have less than 60 percent mature and older forest, there is no proposed timber harvesting during the first decade. The greatest percent change in mature and older forest occurs in Watershed 026b, with a 17 percent reduction in acres of mature and older forest (from 79 percent to 62 percent) in Alternative 2.

B) Cavity nesting habitat for all of the primary cavity nesting species.

We used primary cavity nesting habitat analysis as one measure of providing coarse woody debris habitat for these furbearer species. The previous chapter on primary cavity nesting species provides the information about this habitat.

C) Forest-wide Standards and Guidelines for Dead and Down Large Woody Debris.

Dead and downed woody debris is an important habitat component for forest furbearers. We do not have an inventory of dead and down woody debris on the Forest. A general assumption is that in all unlogged conifer stands, there should be some natural level of dead and downed woody debris. There may be unlogged stands that are near roads where firewood gathering has occurred, and in these areas the amount of dead and down woody debris may be depleted. However, we want to provide for dead and down woody debris during and following management activities such as timber harvest and firewood gathering. Forest-wide standards and guidelines were developed for maintaining large dead and down woody debris. These S&G's are in the Revised Forest Plan and are not repeated here.

The refugia concept for wolverine habitat has not been defined, and it is larger than the context and scope of the Targhee Forest Plan Revision. It has been suggested that wolverine can benefit from the recovery efforts for the grizzly bear in the Yellowstone Ecosystem (USDA Forest Service 1994).

Determination of Effects

The proposed management actions may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

References

Groves, C. 1987. Distribution of the Wolverine (Gulo gulo) in Idaho, 1960-1987. Idaho Department of Fish and Game, Boise, ID. 24p.

Targhee National Forest. 1992. Analysis of the Management Situation. St, Anthony, ID. unnumbered pages.

Thomas, J. W. 1979. Wildlife Habitats in Managed Forests - the Blue Mountains of Oregon and Washington, USDA Forest Service, Agricultural Handbook No. 553. 512pp.

USDA Forest Service. 1994. The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx and Wolverine in the Western United States. Edited by: L. F. Ruggiero, K. B. Aubry, S. W. Buskirk, L. J. Lyon, W. J. Zielinski. General Technical Report RM-254. Rocky Mountain Forest and Range Experiment Station and Rocky Mountain Region. Fort Collins, CO. 184p.

USDI Fish and Wildlife Service. 1994c. Endangered and Threatened Wildlife and Plants: 12-Month Finding for a Petition to List as Endangered or Threatened the Contiguous United States Population of the Canada Lynx. Federal Register, Vol. 59, No. 247. pp. 66507-66509.

NORTHERN GOSHAWK

Habitat and Population Overview

The northern goshawk (hereafter referred to as just 'goshawk') is a forest habitat generalist that uses a variety of forest types, forest ages, structural conditions, and successional stages (Reynolds et al. 1992). It preys on small to medium sized birds and mammals (robins and chipmunks to grouse and hares), which it captures on the ground, in trees, or in the air (Reynolds et al. 1992). Forests within goshawk nesting home ranges should be an interspersed mosaic of structural stages - young to old forests - to increase the diversity of habitat for goshawks and their many prey species (Reynolds et al. 1992).

Goshawk monitoring on the Forest has identified 51 goshawk territories; some of these territories are historic and some active (Table 9.1 and Figure 9.1) (Patla 1990, 1991, 1992, 1993, 1995, and personal communication). Not all of the Forest has been inventoried or monitored for goshawks, therefore additional goshawk territories probably exist. Tables 9.2 and 9.3 provide additional information about identified goshawk territories on the Forest (from Patla 1995).

For lands adjacent to the Targhee National Forest, goshawks have been documented in the following areas: Idaho National Engineering Laboratory, Dillon R. D. and Madison R. D. on the Beaverhead N. F., Red Rocks Lake National Wildlife Refuge, Yellowstone and Grand Teton National Parks, Sand Creek Wildlife Management Area, Grey's River R. D. on the Bridger-Teton N. F., Gray's Lake National Wildlife Refuge, and Bureau of Land Management lands.

Nest Areas

(The following discussion on nest areas is taken from Reynolds et al. 1992)

Nest areas include one or more forest stands, several nests, and several landform characteristics. Nest areas are occupied by breeding goshawks from early March until late September, and are the focus of all movements and activities associated with nesting. The size (20-25 acres) and shape of nest areas depend on topography and the availability of patches of dense, large trees.

Nest areas are often used more than one year, and some are used intermittently for decades. Many pairs of goshawks have two to four alternate nest areas within their home range. All previously occupied nest areas may be critical for maintaining nesting populations because they contain the habitat elements that attracted the goshawks originally. Additionally, replacement nest areas are required because goshawk nest stands are subject to loss from catastrophic events and natural decline.

Goshawk nest stands have a relatively high tree canopy cover and a high density of large trees. Studies suggest that the dense vegetation in these stands provide relatively mild and stable micro-environments, as well as protection from predators of goshawks.

Nest areas are usually classified as mature and older forest stands.

Table 9.1. Known Goshawk Territories on the Targhee National Forest.

Nest Site No.	Subsection	General Location of Territories/Nests		Year Active	Comments 1/
R04F15D01-01	Medicine Lodge	Divide Creek	T13N R30E	90	family sighting; no known nest; no map; needs verification
R04F15D01-02	Medicine Lodge	Fritz Creek	T12N R31E	88,89,90,91,92	active; known nest locations
R04F15D01-03	Medicine Lodge	S. Fork Deep Cr.	T11N R32E	84,92	active; known nest locations
R04F15D01-04	Centennials	Three Mile Cr.	T12N R37E	83	historic; known nest locations
		Three Mile Cr.	T12N R37E	90,91,93,94	active; known nest locations
R04F15D01-05	Centennials	East Rattlesnake	T13N R37E	83	historic; no known nest
R04F15D01-06	Centennials	Sheep Creek	T14N R36E	90,91	active; known nest locations
		Sheep Creek	T14N R36E	85,92,93,94,96B	alternate nest site
R04F15D01-07	Centennials	Pete Creek	T14N R37E	--	historic; no known nest
R04F15D01-08A	Centennials	Miner's Cr.	T13N R37E	92,93,94,96	active; known nest locations
R04F15D01-08B	Centennials	Miner's Cr.	T13N R36E	--	active; known nest locations
R04F15D01-09	Centennials	Alex Draw	T13N R37E	83,89	active; known nest locations
R04F15D01-10	Centennials	E. Steel Creek	T13N R38E	88,91,94	active; known nest locations
R04F15D01-11	Centennials	Kay Creek	T14N R39E	89,90,91,92	active; known nest locations
R04F15D01-12	Centennials	Saw Creek	T13N R38E	93,96	active; known nest locations
R04F15D01-13	Centennials	Disaster Creek	T13N R38E	93	active; known nest locations
R04F15D02-01	Centennials	Walking Fish TS	T14N R40E	89,90,91,92	active; known nest locations
R04F15D02-02	Centennials	Taylor-Carrot	T14N R41E	92,93	active; known nest locations
R04F15D02-03	Centennials	Dry Canyon/Ice House TS	T13N R42E	90,91	active; known nest locations
R04F15D02-04	Centennials	Staley Springs	T16N R43E	90,91,92,93B,94,96	active; known nest locations
R04F15D02-05	Island Park	N. Fork TS	T12N R43E	91,92,93B	active; known nest locations
R04F15D02-06	Centennials	Elk Springs TS	T13N R43E	92	active; known nest locations
R04F15D02-07	Madison Plateau	Chick Creek TS	T13N R44E	92	active; known nest locations
R04F15D03-01	Island Park	Polebridge	T11N R44E	90,92,93B	active; known nest locations
R04F15D03-02	Island Park	N. Antelope Flat Road	T11N R42E	81	historic; used by GG Owls
R04F15D03-03	Island Park	Comp.105/Road 724	T11N R43E	85	historic; used by GG Owls
R04F15D03-04	Island Park	Eccles Road	T11N R43E	85	historic; known nest locations
R04F15D03-05	Island Park	Anderson Mill TS	T10N R43E	81	historic; known nest locations
R04F15D03-06	Island Park	Fall River Ridge	T9N R45E	89	active; known nest locations
			T9N R45E	--	alternate nest site
R04F15D03-07	Madison Plateau	MA 12	T47N R118W	89	active; known nest locations
R04F15D03-08	Island Park	Porcupine	T9N R44E	94	active; nest not found
R04F15D03-09	Island Park	Hatchery Butte	T11N R43E	95	active; known nest location
R04F15D03-10	Island Park	Hale Canyon	T10N R43E	96B	active; nest not found, adult adult sighted
R04F15D04-01	Big Hole/Palisades	Argument Ridge TS	T4N R43E	86,89,91,92,93B	active; known nest locations
R04F15D04-02	Big Hole/Palisades	Rocky Canyon	T3N R43E	86,88,90,91,92,93	active; known nest locations
R04F15D04-03	Big Hole/Palisades	Water Canyon (burned 1987)	T2N R45E	84 (fire in 1987)	(historic site); no known nest
R04F15D04-04	Caribou	Long Gulch	T1N R44E	89,91,92,93,96B	active; known nest locations
R04F15D04-05	Big Hole/Palisades	Marlow Creek	T4N R42E	91	active; known nest locations
R04F15D04-06	Big Hole/Palisades	Farnes Mtn. TS	T4N R42E	91,95	active; known nest locations 95 report by M. Maj to B.Alford
R04F15D04-07	Caribou	Van Point	T1S R45E	91	active; known nest locations

Table 9.1. Known Goshawk Territories on the Targhee National Forest (continued).

Nest Site No.	Subsection	General Location of Territories/Nests			Year Active	Comments 1/
R04F15D05-01	Island Park	Dry Creek	T7N	R45E	80	historic; no known nest
		Dry Creek II	T7N	R45E	86	historic; no known nest
R04F15D05-02	Island Park	Dry Creek II	T7N	R45E	85	historic; known nest locations
R04F15D05-03	Island Park	Pole Canyon	T7N	R45E	87,91,93	active; known nest locations
R04F15D05-04	Teton Range	Bustle Creek	T44N	R118W	90	no known nest; young birds
R04F15D05-05	Big Hole/Palisades	Grandview TS	T6N	R43E	81,82,86	historic; known nest locations
R04F15D05-06	Big Hole/Palisades	Canyon Cr.	T5N	R43E	86	historic; no known nest
R04F15D05-07	Big Hole/Palisades	Canyon Cr.	T5N	R43E	87,89,90	active; known nest locations
R04F15D05-08	Big Hole/Palisades	Kirkham Hollow	T5N	R43E	88	historic; no known nest
R04F15D05-09	Big Hole/Palisades	Gooseneck TS	T5N	R43E	90,91,93,94	active; known nest locations
R04F15D05-10	Big Hole/Palisades	Horseshoe Canyon	T5N	R44E	91,93,94,96	active; known nest locations
R04F15D05-11	Big Hole/Palisades	Dry Hollow	T5N	R44E	93,94,96B	active, known nest locations
R04F15D05-12	Big Hole/Palisades	Dude Creek	T5N	R44E	94,96B	active, known nest locations
Adjacent to the Forest:						
	Big Hole/Palisades	Rammell Hollow	T5N	R44E	94	active, known nest locations
	Big Hole/Palisades	Milk Creek	T5N	R43E	94	active, known nest locations
	Big Hole/Palisades	Grandview Point	?	?	96	active, known nest locations
	?	Copeland's	?	?	96	active, known nest locations

1/ Active: nest sites/territories have documented use by goshawks at least once from 1989 to 1996.
Historic: known nest sites/territories have no documented use by goshawks from 1989 to 1996.
GG Owls: nest sites being used by great gray owls.
Known nest locations: nest sites were found and located on maps.
No known nest: birds were observed or heard, but no nest sites were located.
'B' following year: birds were observed but not at any nest sites.

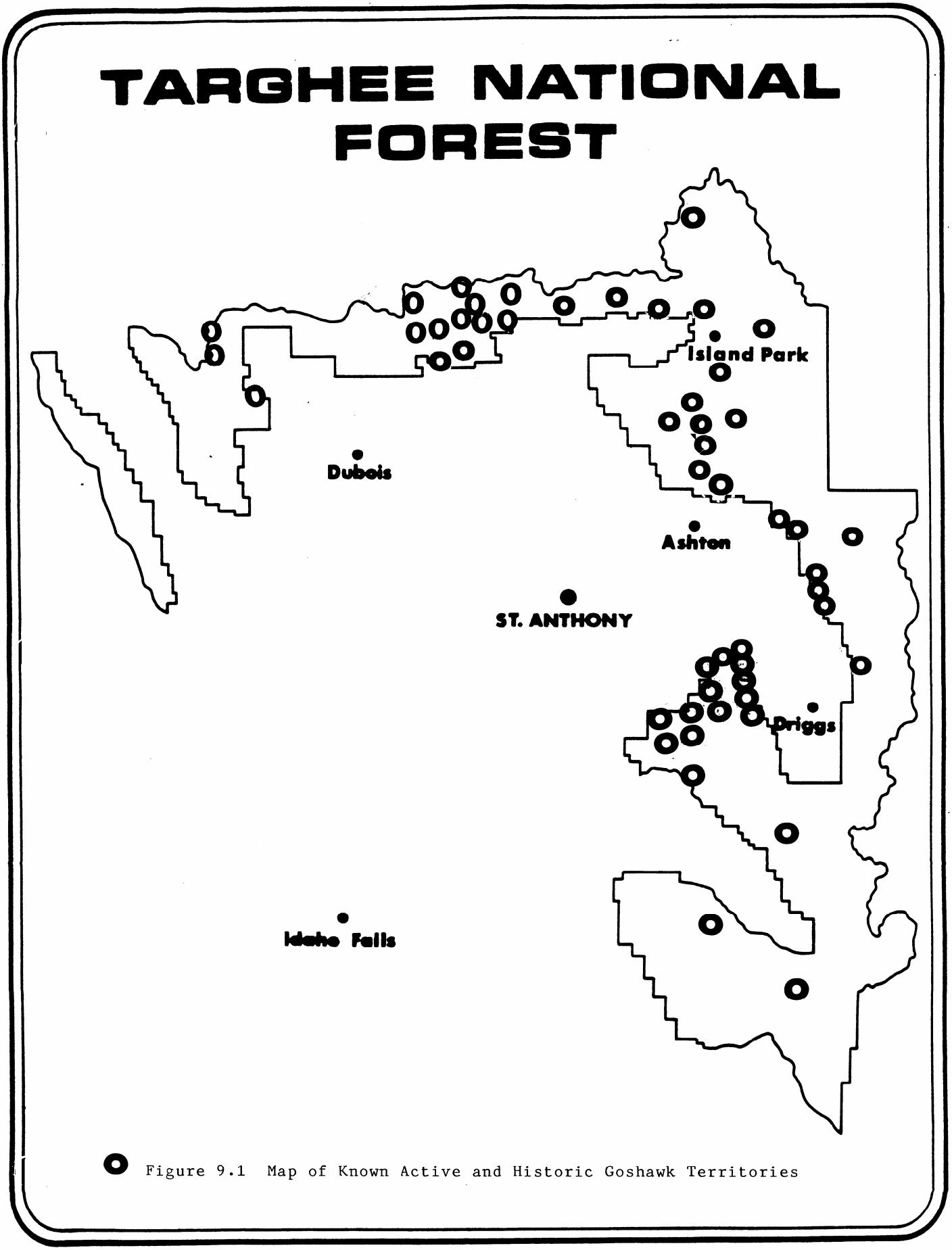


Figure 9.1 Map of Known Active and Historic Goshawk Territories

Table 9.2 Summary of survey effort and results 1989-1994 at goshawk territories which have been occupied at least once during the last six years, Targhee National Forest. Key to Results: A active goshawk, A* active no nest found, O occupied nest site, F nest failed, N alternate nest found, GG great gray owl nesting in goshawk alternate nest, B adult goshawk sighted in nest area.
Key to Monitoring Effort: a one mile searched around known nests, b 0.5 mile searched, c nest stands checked.

#	LOCATION	ID#	MONITORING EFFORT AND RESULTS							# KNOWN NESTS	YEAR of HARVEST
			1989	1990	1991	1992	1993	1994	# YR ACTIVE		
1	Fritz Creek	R4F15D1-02	A*/N	A*/N	A	A	s	c	4	2	none
2	South Fork Deep Creek	R4F15D1-03	c	c	c	A	c	c	1	1	none
3	South Three Mile Creek	R4F15D1-04	b	A	A	c	A	A	4	3	1991
4	Sheep/Chicken Cr.	R4F15D1-06	c	A	A	A/GG	A/F/GG	A/GG	5	7	1971-79
5	Miner's Creek TS Comp 380,5	R4F15D1-08		N	a	A	A	A	3	4	proposed
6	Alex Draw TS Unit 17A	R4F15D1-09	A	GG	c	c/GG	a/GG	c/GG	1	1	1987
7	East Steel Creek TS Unit F	R4F15D1-10	c	c/GG	A/GG	A/F	a/GG	A/GG	3	5	1989
8	Kay Creek TS Unit 21	R4F15D1-11	A	A	A	A/GG	a/GG	c	4	2	1991
9	Saw Creek TS	R4F15D1-12			A*/N	b	A	b	2	5	proposed
10	Disaster Creek	R4F15D1-13					A/GGO	b	1	2	none
11	Walking Fish TS Unit 9	R4F15D2-01	A	b/GG	c	A/GG	b	b	2	4	proposed
12	Taylor-Carrot TS	R4F15D2-02	b	c/GG	c/GG	A/GG	A	b/GG	2	3	1989-91
13	Dry Canyon (Icehouse TS)	R4F15D2-03		A	O	a	c	b	1	2	proposed
14	Staley Springs	R4F15D2-04		A	c	A	O/b	A	3	5	none
15	North Fork TS St 181-26	R4F15D2-05			A	A	a	b	2	1	1990
16	Elk Springs TS	R4F15D2-06				A	a	c	1	1	many
17	Chick Cr. TS	R4F15D2-07				A	a	c	1	1	many
18	Polebridge TS	R4F15D3-01		A	c	A/F	B/a	b	2	3	1987,proposed
19	Fall River Ridge	R4F15D3-06	A	c	c	c	c	b	1	1	1976-78
20	MA 12 TS Unit 326-11	R4F15D3-07	A	CP	c	c	c	b	1	1	proposed
21	Argum R. TS Unit 17	R4F15D4-01	A	c	A/F	A	B/b	a	3	2	1989,90
22	Rocky Canyon	R4F15D4-02	c	A	A	A	A		4	4	none
23	Long Gulch	R4F15D4-04	N	c	A	A	A	c	3	4	proposed
24	Marlow Creek	R4F15D4-05			A/F	c	c	c	1	2	1990
25	Pole Canyon TS Unit 23	R4F15D5-03	c		A*/GG	A/GG	A/GG	c/GG	3	3	1985-86
26	Canyon Cr. TS Unit 247/12	R4F15D5-07	A*	A	A/GG	A/GG	GG/a	c	4	5	1991
27	Gooseneck TS	R4F15D5-09		A	A	A	A	A	5	4	1990-91
28	Horseshoe Canyon	R4F15D5-10			A	A	A	A	4	3	none
29	Dry Hollow	R4F15D5-11				A	A	A	3	3	none
30	Dude Hollow	R4F15D5-12						A	1	1	none
	Following sites not actively monitored and/or no nest locations known*.							TOTAL NESTS FOUND:		75	
1	Divide Creek*	R4F15D1-01		A*					1	0	none
2	Porcupine*	R4F15D3-08						A*	1	0	?
3	Farnes Mt.	R4F15D4-06			A	c			1	1	1990
4	Bustle Creek*	R4F15D5-04		A*	c	b	a	a	1	0	none
	TOTAL OCCUPIED SITES FOUND/YEAR:		8	12	17	21	13	10			
	TOTAL ACTIVE SITES FOUND/YEAR:		8	12	16	21	12	10	79		

Table 9.3 Summary of survey effort and results for goshawk nesting locations that were reported prior to 1989, Targhee NF.
Actual nest trees (n=2) are known to exist currently at only one of these areas: D5-05. At other locations, nest trees have been lost or never were identified.
Locations marked by asterisks (*) indicate where buffer areas were left around former nest sites. Buffer size ranged from saving nest tree only to 10 acres.
Key for Results: A occupied by goshawks, N alternate nest found, B adult defensive adult or fledglings seen in area, G adult goshawk seen in area,
GG great gray owl nested in alternate goshawk nest. Key for Effort: a one mile area searched around site, b 0.5 mile area searched, c nest stand checked.

#	LOCATION	ID#	ACTIVITY CODES FOR YEARLY NEST SITE CHECKS:															YEAR OF
			1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	HARVEST
1.	East Rattlesnake*	R4F15D1-05				A	c	c			c	c	c	c	c	c	c	1990
2.	Pete Creek TS Unit 9*	R4F15D1-07						N			c				b	a/G		1985
3.	N. Antelope*	R4F15D3-02		N/GG	c	c	c	c	c	c	c			c	a	c		1978,81
4.	Road 724*	R4F15D3-03					N/GG	c						c	b	c		1984
5.	Eccles Rd. Unit 104-10*	R4F15D3-04						A	c	c	c	c		c	a	c	b	1985
6.	Anderson Mill TS*	R4F15D3-05		A							c			b				1976-81
7.	Water Canyon	R4F15D4-03					A	c	c	burn					c			burn 1987
8.	Dry Cr. TS Unit 22/24/9*	R4F15D5-01	A	A	c	G		c	A					b	a	b		1985-86
9.	Dry Cr.II Unit 20 *	R4F15D5-02						c	GG	B/s	c	c		c	c	b		1987
10.	Grandview TS *	R4F15D5-05		A	A	c			A	c	c		b	b	c	c	c	1986-87
11.	Canyon Cr.TS Unit 245/20	R4F15D5-06							B	c		G	b					1989
12.	Kirk Holl TS Unit 246/17	R4F15D5-08									B	b						1989
	TOTAL NUMBER OF ACTIVE SITES/YEAR:		1	3	1	1	1	2	3	0	1	0	0	0	0	0	0	

FIELD NOTES:

D3-03 buffer (2 ac) around nest tree completely fallen down as of 1992.
D3-05 remaining nest stand had canopy cover less than 40% in 1991 due to extensive tree fall.
D5-05 three nest trees originally identified; two nests still visible in trees 1994; other nest tree lost.
D5-06 and D5-08 no nest stands identified at these locations.

Post-fledging Family Area (PFA)

(The following discussion on PFA's is taken from Reynolds et al. 1992)

PFA's include the area used by the adults and young from the time the young leave the nest until they are no longer dependent on the adults for food. The PFA surrounds the nest area and, although it generally includes a variety of forest conditions, the vegetation structure resembles that found within nest stands. PFA's vary in size from 300 to 600 acres (mean = 415 acres). PFA's provide the young hawks with cover from predators, and sufficient prey to develop hunting skills and feed themselves in the weeks before juvenile dispersal. Forests in the PFA's should contain overstories with a canopy cover greater than 50% and well developed understories and habitat attributes critical in the life-histories of goshawk prey species.

Foraging Area

(The following discussion on foraging areas is taken from Reynolds et al. 1992)

Goshawks prey on birds and mammals in the larger body-size classes available to forest-dwelling hawks. Generally speaking, because larger species of vertebrates have less dense populations than smaller species, predators of large prey must hunt over large areas in order to meet their energy requirements. Goshawks foraging areas are about 5,000 to 6,000 acres.

Limited radio-telemetry evidence suggests that goshawks prefer mature forests for foraging. Additional information on the composition and structure of goshawk foraging habitat was gleaned from information on the habitat requirements of goshawk prey species. Raptor populations are often limited by prey populations, and choice of foraging habitat by goshawks is predicated, at least in part, on habitats where prey are abundant and accessible.

The foraging area comprises the largest portion of the goshawk nesting home range and therefore typically includes a greater diversity of landforms, forest cover types, and vegetation structural stages. Important habitat components include snags, downed logs, woody debris, openings, large trees, herbaceous and shrubby understories, and interspersion of vegetation structural stages (forest successional stages).

Additional Goshawk Information

Attachment J contains additional information about goshawks:

A memo dated Dec. 9, 1994, discussing open road density in goshawk habitat.

Goshawk Management Workshop - Sept. 20-22, 1995 - Jackson, Wyoming

Ashley National Forest - Forest Habitat Model

A memo to the Forest Leadership Team (dated July 10, 1996) discussing the Ashley National Forest - Forest Habitat Model.

The Wildlife Society Technical Review 96-2, March 1996 - "Northern Goshawk and Forest Management in the Southwestern United States."

Summary from: "Analysis of Goshawk Nesting Habitat at Five Spatial Scales in Undisturbed and Timber Harvest Territories on the Targhee National Forest - Final Report - Challenge Cost Share Research Project 1992-1995." (Patla and Trost 1997).

Goshawk Management Workshop - Feb. 27-28, 1997, Spokane, Washington.

Habitat Evaluation

Habitat evaluation for the goshawk included the following:

A) The amount of mature and older conifer and aspen forests, analyzed at the subsection scale and at the watershed scale.

B) Cavity nesting habitat for all of the primary cavity nesting species. Cavity nesting habitat is an important component of goshawk habitat.

C) Development of Forest-wide standards and guidelines for maintaining dead and down large woody debris, an important component of goshawk habitat.

D) Development of Forest-wide standards and guidelines for managing habitat at known nest sites and territories.

A) The Amount of Mature and Older Conifer and Aspen Forests.

Table 8.1 (in the previous forest owl chapter) displays the amount of mature and older forest acres by subsection for the existing condition, and predicted changes in these acres for each alternative for the first decade based on the amount of both scheduled and unscheduled timber harvest. The greatest amount of change in mature and older forest acres for each subsection is as follows:

Lemhi & Medicine Lodge - 3.1 percent reduction in Alternative 2.
Centennial Mountains - 6.8 percent reduction in Alternative 2.
Island Park - 2.9 percent reduction in Alternative 2.
Madison Plateau - 1.3 percent reduction in Alternatives 1 and 3.
Teton Range - 2.3 percent reduction in Alternative 2.
B.H./Palisades - 2.9 percent reduction in Alternative 2.
Caribou - 3.7 percent reduction in Alternative 1.

Table 8.2a (in the previous forest owl chapter) displays estimated scheduled and unscheduled timber harvesting in each principal watershed for the first decade for each alternative. Table 8.2b (in the previous forest owl chapter) displays how much mature and older forest will be remaining in each principal watershed at the end of the first decade for each alternative. In all watersheds which currently have less than 60 percent mature and older forest, there is no proposed timber harvesting during the first decade. The greatest percent change in mature and older forest occurs in Watershed 026b,

with a 17 percent reduction in acres of mature and older forest (from 79 percent to 62 percent) in Alternative 2.

B) Cavity nesting habitat for all of the primary cavity nesting species.

The previous chapter on primary cavity nesting species provides the information about this habitat.

C) Forest-wide Standards and Guidelines for Dead and Down Large Woody Debris.

Dead and downed woody debris is an important habitat component for goshawk habitat. We do not have an inventory of dead and down woody debris on the Forest. A general assumption is that in all unlogged conifer stands, there should be some natural level of dead and downed woody debris. There may be unlogged stands that are near roads where firewood gathering has occurred, and in these areas the amount of dead and down woody debris may be depleted. However, we want to provide for dead and down woody debris during and following management activities such as timber harvest and firewood gathering. Forest-wide standards and guidelines were developed for maintaining large dead and down woody debris. These S&G's are in the Revised Forest Plan and are not repeated here.

D) Forest-wide standards and guidelines for managing habitat at known nest sites and territories.

We evaluated 5 different options of Forestwide S&G's for goshawk nest areas, post-fledging family areas, and foraging areas. These 5 options were developed from both internal and external comments on the Draft Forest Plan and Draft EIS. Tables 9.4 through 9.8 display these five options.

The final Forestwide S&G's for goshawk nest areas, post-fledging family areas, and foraging areas, approved for the Forest Plan Revision, are displayed in Table 9.9. The rationale for selecting the S&G's in Table 9.9 are as follows:

Nest Areas

A 200 acre contiguous nest area was selected. This includes 20 more acres than some goshawk literature suggests. Also, this is to be a contiguous area, whereas some goshawk literature suggests nest areas to be a combination of 30 acre noncontiguous nest sites. This 200 acre contiguous area includes suitable alternative nest sites and replacement nest sites. This large contiguous area was selected based on recommendations from goshawk monitoring on the Forest which indicated that larger nest areas would be more secure and would have potentially higher occupancy rates.

Nest areas are to be maintained in mature to old growth conditions because those are the condition that make them suitable nest areas.

Biological potential for snags and snag replacement trees are to be maintained at high levels because they provide important habitat for prey species.

TABLE 9.4 - OPTION A
DRAFT FOREST PLAN

Management standards (S) and guidelines (G) for all forest types within identified goshawk nesting territories are shown below:

Attribute	Nest Area	Post-Fledging Family Area	Foraging Area
Number of areas (S) Suitable areas Replacement areas	6 Total 1/ 3 3	1	1
Size of each area (acres) (G)	≥ 30 (each)	≥ 420	≥ 5,400
Size-Class Distribution (%): (G) nonstocked/seedling sapling pole mature/old growth 2/	 0 0 0 100	 ≤ 20 ≤ 20 ≤ 20 ≥ 40	 ≤ 20 ≤ 20 ≤ 20 ≥ 40
Rotation age (years) (G)	140-240	60-240	60-240
Maximum created opening (acres) (G)	0	≤ 40	≤ 40
Snags and Reserve Trees 3/ (G)	80-100 % of potential	80-100 % of potential	80-100 % of potential
Downed logs (average/acre) (G)	Forest-wide S & G's	Forest-wide S & G's	Forest-wide S & G's
Management Season (S)	Oct-Feb	Oct-Feb	Year-long
Thinning (S)	Non-uniform 4/	Non-Uniform	Non-uniform
Open Road Density 5/ (G)	No new system roads	No new system roads	≤ Management Rx Density

1/ Where possible, manage the 6 nest sites in a 180 acre contiguous area. (G)
2/ Mature and old growth canopy closure for nest sites and post-fledging family areas should range between 75-100 percent. (G)
3/ Refer to previous section on snag/cavity nesting habitat for explanation of biological potential.
4/ Maximum diversity of structure.
5/ Open roads in goshawk territories will be given priority for closure to meet management prescription (Rx) road density standards. First priority will be to close roads in nest areas; second priority in post-fledging family areas; third priority in foraging areas. Where possible, open road density should be zero in the nest areas and the post-fledging family areas.

TABLE 9.5 - OPTION B
SUSAN PATLA RECOMMENDATIONS

Management standards (S) for all forest types within identified goshawk nesting territories are shown below:

Attribute	Nest Area	Post-Fledging Family Area	Foraging Area
Number of areas (S)	1	1	1
Size of each area (acres) (S)	≥ 200	≥ 420	≥ 5,400
Size-Class Distribution (%): (S)			
nonstocked	0	≤ 2	≤ 2
seedling	0	≤ 6	≤ 8
sapling	0	≤ 2	≤ 3
pole	0	≤ 21	≤ 28
mature/old growth 1/	100	≥ 70 **	≥ 60 **
Rotation age (years) (S)	--	320 **	230 **
Maximum created opening (acres) (S)	0	1 - 2	1 - 2
Snags and Reserve Trees 2/ (S)	80-100 % of potential	80-100 % of potential	80-100 % of potential
Downed logs (average/acre) (S)	Forest-wide S & G's	Forest-wide S & G's	Forest-wide S & G's
Management Season (S)	Oct-Feb	Oct-Feb	Year-long
Thinning (S)	Non-uniform 3/	Non-Uniform 3/	Non-uniform
Open Road Density 4/ (S)	No new roads 0	No new roads 0	≤ Management Rx Density

1/ Mature and old growth canopy closure for nest sites and post-fledging family areas should range between 75-100 percent. (G)
2/ Refer to previous section on snag/cavity nesting habitat for explanation of biological potential.
3/ Thinning would only be done with approval of a biologist.
4/ Open roads in goshawk territories will be given priority for closure to meet management prescription (Rx) road density standards. First priority will be to close roads in nest areas; second priority in post-fledging family areas; third priority in foraging areas. Where possible, open road density should be zero in the nest areas and the post-fledging family areas.

Apply the goshawk guidelines to all 'intact' areas of the Forest, even if goshawks are not present.
Create 'reserves' (no timber harvesting) in the Island Park, Jackpine Loop, and Big Hole Mountains of the remaining larger unfragmented, high canopy cover, intact stands of mature timber.
Maintain 2/3's of the lower elevation forests (below 8,000 ft) in mature/old growth condition over time.
300 ft buffer along 1st and 2nd order streams to allow for goshawk foraging and nesting opportunities.
Adopt Alternative 5 as the preferred alternative.

** Patla's # 1 recommendation is as follows: maintain 70% mature/old growth in the post-fledging family area, (this equates to a 320 year timber rotation in Douglas-fir); maintain 60% mature/old growth in the foraging area, (this equates to a 230 year timber rotation in Douglas-fir).

Patla's # 3 recommendation is for a 120 year timber rotation in lodgepole pine and a 180 year timber rotation in Douglas-fir. A 120 year timber rotation in lodgepole pine would equate to 46% mature/old growth over time. A 180 year timber rotation in Douglas-fir would equate to 47% mature/old growth over time.

Therefore, her # 1 recommendation and her # 3 recommendation are not mutually attainable.

TABLE 9.6 - OPTION C
80-Year Lodgepole & 160-Year Douglas-fir

Management Guidelines (G) within identified goshawk nesting territories are shown below:

Attribute	Nest Area	Post-Fledging Family Area	Foraging Area
Number of areas (G)	1	1	1
Size of each area (acres) (G)	≥ 200	≥ 420	≥ 5,400
Size-Class Distribution (%): (G)		LP / DF	LP / DF
nonstocked	0	≤ 6 / ≤ 3	≤ 6 / ≤ 3
seedling	0	≤ 13 / ≤ 11	≤ 13 / ≤ 11
sapling	0	≤ 10 / ≤ 4	≤ 10 / ≤ 4
pole	0	≤ 53 / ≤ 41	≤ 53 / ≤ 41
mature/old growth 1/	100	≥ 19 / ≥ 41	≥ 19 / ≥ 41
Rotation age (years) (G)	--	80 / 160	80 / 160
Maximum created opening (acres) (G)	0	RNV	RNV
Snags and Reserve Trees 2/ (G)	80-100 % of potential	80-100 % of potential	80-100 % of potential
Downed logs (average/acre) (G)	Forest-wide S & G's	Forest-wide S & G's	Forest-wide S & G's
Management Season (G)	Oct-Feb	Oct-Feb	Year-long
Thinning (G)	Non-uniform 3/	Non-Uniform 3/	Non-uniform 3/
Open Road Density 4/ (G)	No new system roads	No new system roads	≤ Management Rx Density

1/ Mature and old growth canopy closure for nest sites and post-fledging family areas should range between 75-100 percent. (G)
2/ Refer to previous section on snag/cavity nesting habitat for explanation of biological potential.
3/ Maximum diversity of structure.
4/ Open roads in goshawk territories will be given priority for closure to meet management prescription (Rx) road density standards. First priority will be to close roads in nest areas; second priority in post-fledging family areas; third priority in foraging areas. Where possible, open road density should be zero in the nest areas and the post-fledging family areas.

TABLE 9.7 - OPTION D
100-Year Lodgepole & 180-Year Douglas-fir

Management Guidelines (G) within identified goshawk nesting territories are shown below:

Attribute	Nest Area	Post-Fledging Family Area	Foraging Area
Number of areas (G)	1	1	1
Size of each area (acres) (G)	≥ 200	≥ 420	≥ 5,400
Size-Class Distribution (%): (G)		LP / DF	LP / DF
nonstocked	0	≤ 5 / ≤ 3	≤ 5 / ≤ 3
seedling	0	≤ 10 / ≤ 10	≤ 10 / ≤ 10
sapling	0	≤ 8 / ≤ 3	≤ 8 / ≤ 3
pole	0	≤ 42 / ≤ 37	≤ 42 / ≤ 37
mature/old growth 1/	100	≥ 35 / ≥ 47	≥ 35 / ≥ 47
Rotation age (years) (G)	--	100 / 180	100 / 180
Maximum created opening (acres) (G)	0	RNV	RNV
Snags and Reserve Trees 2/ (G)	80-100 % of potential	80-100 % of potential	80-100 % of potential
Downed logs (average/acre) (G)	Forest-wide S & G's	Forest-wide S & G's	Forest-wide S & G's
Management Season (G)	Oct-Feb	Oct-Feb	Year-long
Thinning (G)	Non-uniform 3/	Non-Uniform 3/	Non-uniform 3/
Open Road Density 4/ (G)	No new system roads	No new system roads	≤ Management Rx Density

1/ Mature and old growth canopy closure for nest sites and post-fledging family areas should range between 75-100 percent. (G)
2/ Refer to previous section on snag/cavity nesting habitat for explanation of biological potential.
3/ Maximum diversity of structure.
4/ Open roads in goshawk territories will be given priority for closure to meet management prescription (Rx) road density standards. First priority will be to close roads in nest areas; second priority in post-fledging family areas; third priority in foraging areas. Where possible, open road density should be zero in the nest areas and the post-fledging family areas.

TABLE 9.8 - OPTION E
120-Year Lodgepole & 230-Year Douglas-fir

Management Guidelines (G) within identified goshawk nesting territories are shown below:

Attribute	Nest Area	Post-Fledging Family Area	Foraging Area
Number of areas (G)	1	1	1
Size of each area (acres) (G)	≥ 200	≥ 420	≥ 5,400
Size-Class Distribution (%): (G)		LP / DF	LP / DF
nonstocked	0	≤ 4 / ≤ 2	≤ 4 / ≤ 2
seedling	0	≤ 8 / ≤ 8	≤ 8 / ≤ 8
sapling	0	≤ 7 / ≤ 3	≤ 7 / ≤ 3
pole	0	≤ 35 / ≤ 29	≤ 35 / ≤ 29
mature/old growth 1/	100	≥ 46 / ≥ 59	≥ 46 / ≥ 59
Rotation age (years) (G)	--	120 / 230	120 / 230
Maximum created opening (acres) (G)	0	RNV	RNV
Snags and Reserve Trees 2/ (G)	80-100 % of potential	80-100 % of potential	80-100 % of potential
Downed logs (average/acre) (G)	Forest-wide S & G's	Forest-wide S & G's	Forest-wide S & G's
Management Season (G)	Oct-Feb	Oct-Feb	Year-long
Thinning (G)	Non-uniform 3/	Non-Uniform 3/	Non-uniform 3/
Open Road Density 4/ (G)	No new system roads	No new system roads	≤ Management Rx Density

1/ Mature and old growth canopy closure for nest sites and post-fledging family areas should range between 75-100 percent. (G)
2/ Refer to previous section on snag/cavity nesting habitat for explanation of biological potential.
3/ Maximum diversity of structure.
4/ Open roads in goshawk territories will be given priority for closure to meet management prescription (Rx) road density standards. First priority will be to close roads in nest areas; second priority in post-fledging family areas; third priority in foraging areas. Where possible, open road density should be zero in the nest areas and the post-fledging family areas.

TABLE 9.9 - FINAL FOR THE REVISED FOREST PLAN

Management standards (S) and guidelines (G) for all forest types within identified goshawk nesting territories are shown below:

Attribute	Nest Area	Post-Fledging Family Area	Foraging Area
Number of areas (S)	1	1	1
Size of each area (acres) (S)	≥ 200	≥ 400	≥ 5,400
Size-Class Distribution (%): (G)			
nonstocked/seedling	0	≤ 20	≤ 20
sapling	0	≤ 20	≤ 20
pole	0	≤ 20	≤ 20
mature/old growth 1/	100	≥ 40	≥ 40
Rotation age (years) (G)	--	60-240	60-240
Maximum created opening (acres) (G)	0	≤ 40	≤ 40
Snags and Reserve Trees 2/ (G)	80-100 % of potential	80-100 % of potential	≥ 60 % unless RX is more
Downed logs (average/acre) (G)	Forest-wide S & G's	Forest-wide S & G's	Forest-wide S & G's
Management Season (S)	Oct-Feb	Oct-Feb	Year-long
Thinning (S)	Non-uniform 3/	Non-Uniform	by silvicultural Rx
Open Road Density 4/ (G)	No new system roads	No new system roads	≤ Management Rx Density

1/ Mature and old growth canopy closure for nest sites and post-fledging family areas should range between 75-100 percent. (G)
3/ Refer to previous section on snag/cavity nesting habitat for explanation of biological potential.
4/ Maximum diversity of structure.
5/ Open roads in goshawk territories will be given priority for closure to meet management prescription (Rx) road density standards. First priority will be to close roads in nest areas; second priority in post-fledging family areas; third priority in foraging areas. Where possible, open road density should be zero in the nest areas and the post-fledging family areas.

Forestwide S&G's for dead and downed logs are to be followed because they provide important habitat for prey species.

The season for management activities is from October to February so that human disturbance does not occur which might cause displacement or abandonment of the nest area.

To provide forest structural diversity, non-uniform thinning is recommended.

New system roads are not to be developed, thereby reducing the potential for human disturbance in the nesting area.

Post-fledging Family Area (PFA)

A 400 acre PFA was selected. This area is 20 acres smaller than some goshawk literature suggests because 20 more acres were added to the nest area.

PFA's are to be managed for a variety of forest serai stages (also referred to as size-classes) over time. The serai stages correspond to the forest vegetation database. The percentage to be maintained in each serai stage is designed to provide a large percentage in mature to old growth over time, and to avoid the large 'boom to bust' conditions that often exist when large amounts of a landscape are maintained in mature to old growth.

Rotation ages range from 60 to 240 years for the following reasons:

Aspen is an important forest habitat for goshawks and many other species of wildlife which are prey for goshawks. Aspen is being replaced by conifers throughout the Forest. If aspen is to be maintained in goshawk territories, rotation ages of 60 years will need to be used.

Lodgepole pine forest habitat occurs in many goshawk territories. Information for the Targhee indicates these forests are susceptible to mountain pine beetle and fire cycles when about 90 to 120 years of age. Analysis of permanent forest inventory plots indicates few lodgepole pine stands reach old growth ages and attributes. Therefore, rotation ages for lodgepole pine range from 90 to 120 years.

Douglas-fir forest habitat occurs in many goshawk territories. Analysis of permanent forest inventory plots indicates few Douglas-fir stands reach ages over 240 years. Therefore, rotation ages for Douglas-fir range up to 240 years.

We have no data evaluating the effects of different created opening sizes for goshawks on the Targhee. Principles of ecosystem management suggest the need to emulate natural disturbance patterns and sizes. Natural opening sizes range from

1,000's of acres (for example, stand replacing fires in lodgepole pine forests) to only a few acres (for example, less intense fires in Douglas-fir). Since only 20 percent of a PFA can be in a created opening at any point in time, the largest size opening could only be 80 acres, and only one of these could exist at any point in time. At this time, we selected a maximum created opening size of < 40 acres because these sizes of created openings occur in active goshawk territories. More research is needed to understand the role of natural and human disturbances on goshawk populations and habitat use.

Biological potential for snags and snag replacement trees are to be maintained at high levels because they provide important habitat for prey species.

Forestwide S&G's for dead and downed logs are to be followed because they provide important habitat for prey species.

The season for management activities is from October to February so that human disturbance does not occur which might cause displacement or abandonment of the nest area or PFA.

To provide forest structural diversity, non-uniform thinning is recommended.

New system roads are not to be developed, thereby reducing the potential for human disturbance in the PFA.

Foraging Area (FA)

A 5,400 acre FA was selected. Goshawk FA's can vary in size, depending on habitat quality and prey abundance. We do not have Targhee specific data on FA sizes. Therefore, we used the FA size recommendations from Reynolds et al. (1992).

FA's are to be managed for a variety of forest serai stages (also referred to as size-classes) over time. The serai stages correspond to the forest vegetation database. The percentage to be maintained in each serai stage is designed to provide a large percentage in mature to old growth over time, and to avoid the large 'boom to bust' conditions that often exist when large amounts of a landscape are maintained in mature to old growth.

Rotation ages range from 60 to 240 years for the following reasons:

Aspen is an important forest habitat for goshawks and many other species of wildlife which are prey for goshawks. Aspen is being replaced by conifers throughout the Forest. If aspen is to be maintained in goshawk territories, rotation ages of 60 years will need to be used.

Lodgepole pine forest habitat occurs in many goshawk territories. Information for the Targhee indicates these forests are susceptible to mountain pine beetle and fire cycles when about 90 to 120 years of age. Analysis of

permanent forest inventory plots indicates few lodgepole pine stands reach old growth ages and attributes. Therefore, rotation ages for lodgepole pine range from 90 to 120 years,

Douglas-fir forest habitat occurs in many goshawk territories. Analysis of permanent forest inventory plots indicates few Douglas-fir stands reach ages over 240 years. Therefore, rotation ages for Douglas-fir range up to 240 years.

We have no data evaluating the effects of different created opening sizes for goshawks on the Targhee. Principles of ecosystem management suggest the need to emulate natural disturbance patterns and sizes. Natural opening sizes range from 1,000's of acres (for example, stand replacing fires in lodgepole pine forests) to only a few acres (for example, less intense fires in Douglas-fir). Since only 20 percent of a FA can be in a created opening at any point in time, the largest size opening could be 1,080 acres, and only one of these could exist at any point in time. At this time, we selected a maximum created opening size of < 40 acres because these sizes of created openings occur in active goshawk territories. More research is needed to understand the role of natural and human disturbances on goshawk populations and habitat use.

Biological potential for snags and snag replacement trees corresponds to the existing average biological potential for the forest (see previous chapter on cavity nesting species). Selecting a level higher than this would require massive treatments or disturbances which would kill trees. We did not think this was necessary to maintain suitable goshawk habitat.

Forestwide S&G's for dead and downed logs are to be followed because they provide important habitat for prey species.

The season for management activities is year long. Human activities in the FA are not as disturbing to goshawks as in the PFA and nest area.

Thinning in the FA can provide a variety of habitat conditions, which thereby provide for a variety of prey species. Thinning does not need to be non-uniform all of the time.

Human presence and activities are not as disturbing to goshawks in the FA, therefore road densities can be as high as the overall management prescription standard.

Determination of Effects

The proposed management actions may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

References

Patla, Susan. 1990. Northern Goshawk Monitoring Project Report, 1989, Targhee National Forest, St. Anthony, ID. unpublished report. 37p.

Patla, Susan. 1991. Northern Goshawk Monitoring Project Report #2, 1990, Targhee National Forest, St. Anthony, ID. unpublished report. 41p + appendices.

Patla, Susan. 1992. Northern Goshawk Monitoring Project Report #3, 1991, Targhee National Forest, St. Anthony, ID. unpublished report. lip + appendices.

Patla, Susan. 1993. Goshawk Research Project, 1992 Summary, Targhee National Forest. unpublished report. unnumbered pages.

Patla, Susan and Dr. C. H. Trost. 1997. Analysis of Goshawk Nesting Habitat at Five Spatial Scales in Undisturbed and Timber Harvest Territories on the Targhee National Forest - Final Report - Challent Cost Share Research Project 1992-1995. Idaho State University, Pocatello, ID. 68pp + Data Tables 1-25.

Reynolds, Richard T., Graham, Russell T., Reiser, M. Hildegard, Bassett, R. L., Kennedy, P. L., Boyce, Douglas A. Jr., Goodwin, Greg, Smith, Randall, and Fisher, E. Leon. 1992. Management Recommendations for the Northern Goshawk in the Southwestern United States. Gen. Tech. Rep. RM-217. Ft. Collins, CO. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. 90p.

The Wildlife Society. 1996. Northern Goshawk and Forest Management in the Southwestern United States. The Wildlife Society, Technical Review 96-2, March 1996. Bethesda, MD. 19pp.

Thomas, J. W. 1979. Wildlife Habitats in Managed Forests - the Blue Mountains of Oregon and Washington. USDA Forest Service, Agricultural Handbook No. 553. 512pp.

Habitat Overview

Food items normally eaten by red squirrels include seeds, fleshy fruits, green plant matter, fungus (red squirrels are an important link with michorizal fungi), flesh and insects (Klugh 1927, Hatt 1929, Layne 1954, Ferron et al. 1986). However, red squirrels are so strongly associated with conifer forests that their population densities fluctuate with cone crops (Smith 1968, Gurnell 1983, Halvorson and Engeman 1983). Since red squirrels are so strongly dependant upon conifer seeds as a food supply, conifer forests must be of seed producing age before red squirrels will make significant use of them. Seed producing ages for conifer species on the Forest are presented in Table 10.1. Habitat quality is also related to nesting cover and food caching sites. Natural cavities are preferred by red squirrels as nest sites (Hamilton 1939, Layne 1954). However, underground nests and external tree nests are more commonly used where cavities are not available (Fancy 1980). Large diameter trees, large standing snags, and fallen trees are important sites for cone storage (Vahle and Patton 1983).

Table 10.1. Conifer Seed Producing Ages,

Species	Seed Producing Ages
Lodgepole Pine	5 to 10 years begins bearing cones for open grown trees; 15-20 years for heavily stocked trees.
Douglas-fir	20-30 years begins bearing cones for open grown trees; 200-300 years for maximum production.
Engelmann Spruce	16-25 years begins bearing cones; 200-250 years for maximum production.
Subalpine Fir	20 years begins bearing cones; 150-200 years for maximum production.
Whitebark Pine	20-30 years begins bearing cones; 100 + years for maximum production.
Limber Pine	20-40 years begins bearing cones; 80-100 years for maximum production.

References: USDA, Agric. Handbook No. 271, Silvics of Forest Trees of the United States. USDA Gen. Tech. Rpt. INT-270, Proceedings-Symposium on Whitebark Pine Ecosystems: Ecology and Management of a High-Mountain Resource.

Suitable habitat for red squirrels exists in all subsections. At the present time, about 80 percent of the forested acres are of cone-bearing age (about 928,000 acres).

Red squirrels are known to defend territories of 0.5 to 7.5 acres in size (USDA Forest Service 1991). This would provide a range of 85 to 1,280 red squirrels per square mile of suitable habitat. There is about 1.450 square miles of suitable habitat on the Forest, so a population range for the Forest could be 123,000 to 1,856,000 squirrels. As stated above, red squirrel populations will fluctuate depending on fluctuations in cone crops. The red squirrel is considered abundant on the Forest.

Habitat Evaluation

Habitat components and/or conditions evaluated include:

A) The amount of cone bearing age conifer habitat within watersheds of the Forest (cone bearing age conifer habitat is defined as pole to mature and older conifer forest habitat).

B) primary cavity nesting species habitat as a measure of snag habitat availability.

C) Development of standards and guidelines for maintaining dead and downed large woody debris.

A) Cone bearing age conifer habitat within watersheds.

Table 10.2 displays the acres of cone bearing age conifer habitat within watersheds of the Forest for the existing condition, and for each alternative at the end of the first decade.

For the existing condition, 80 percent of the total conifer acres on the Forest are of cone bearing age. Watersheds range from having about 3,800 to 75,500 acres of cone bearing age conifer; and watersheds range from 45 to 100 percent of their conifer acres being of cone bearing age.

During the first decade, we estimate that about 25,200 acres will grow into cone bearing age; this is based on an estimate that 50 percent of the acres currently in the sapling size class will grow to cone bearing age during the decade. However, these acres will not be high quality cone bearing habitat because cone production will be low and the overall habitat quality will not be as high as in mature and older stands of trees.

Timber harvesting during the first decade will reduce the acres of mature and older conifer habitat (see Table 4.6 in the Elk Habitat Effectiveness Chapter for acres expected to be harvested during the first decade). Timber harvesting will not reduce the acres of cone bearing conifers below 53 percent in any of the watersheds. On a forestwide basis, the amount of cone bearing habitat ranges from 79 percent (Alternatives 1, 2, 3) to 82 percent (Alternative 6) of all conifer habitat acres.

Table 10.2 Acres and Percent of Cone Bearing Age Conifer Habitat for the Existing Condition, and Each Alternative at the End of the First Decade.

Wtrshed	Existing Cond.		1st Dec.Growth		Alt.1 End of 1st Dec		Alt.2 End of 1st Dec		Alt.3 End of 1st Dec		Alt.3M End of 1st Dec		Alt.4 End of 1st Dec		Alt.5 End of 1st Dec		Alt.6 End of 1st Dec	
No.	Acres	Prcnt	Acres	Prcnt	Acres	Prcnt	Acres	Prcnt	Acres	Prcnt	Acres	Prcnt	Acres	Prcnt	Acres	Prcnt	Acres	Prcnt
002I	4,473	100	4,473	100	4,399	98	4,407	99	4,437	99	4,443	99	4,453	100	4,453	100	4,459	100
002W	11,619	100	11,619	100	11,323	97	11,355	98	11,475	99	11,499	99	11,539	99	11,539	99	11,563	100
003I	8,389	100	8,389	100	8,234	98	8,199	98	8,294	99	8,294	99	8,344	99	8,344	99	8,329	99
003W	12,893	97	12,893	97	12,738	96	12,703	96	12,798	96	12,798	96	12,848	97	12,848	97	12,833	97
004	24,567	100	24,567	100	24,367	99	24,327	99	24,387	99	24,437	99	24,197	98	24,427	99	24,537	100
005	15,418	95	15,418	95	14,788	91	14,728	91	14,768	91	14,798	91	15,138	93	15,038	93	15,418	95
006	21,796	99	21,796	99	20,936	95	20,806	94	20,866	95	20,906	95	21,006	95	21,656	98	21,696	99
007/033	16,735	91	16,958	92	16,028	87	15,898	86	15,998	87	16,088	87	16,158	88	16,628	90	16,798	91
008	75,484	76	79,315	80	78,795	79	78,795	79	78,795	79	78,795	79	78,855	79	78,795	79	78,795	79
009A	43,336	87	44,006	88	41,209	83	40,749	82	41,272	83	42,084	84	42,557	85	43,143	87	44,006	88
009B	23,792	71	25,264	76	23,621	71	23,351	70	23,658	71	24,135	72	24,413	73	24,757	74	25,264	76
010	19,695	45	23,001	53	23,001	53	23,001	53	23,001	53	23,001	53	23,001	53	23,001	53	23,001	53
011	59,747	56	65,056	61	65,056	61	65,056	61	65,056	61	65,056	61	65,056	61	65,056	61	65,056	61
012	50,936	63	54,000	66	54,000	66	54,000	66	54,000	66	54,000	66	54,000	66	54,000	66	54,000	66
013	28,890	65	31,865	72	31,865	72	31,865	72	31,865	72	31,865	72	31,865	72	31,865	72	31,865	72
014/034	25,394	88	26,587	92	23,527	82	23,027	80	23,597	82	24,377	85	24,377	85	26,587	92	26,467	92
015I	10,507	73	11,110	77	10,210	71	11,005	76	10,200	71	10,240	71	10,800	75	10,815	75	10,800	75
015W	13,951	79	14,275	81	13,375	76	14,170	80	13,365	76	13,405	76	13,965	79	13,980	79	13,965	79
016I	11,037	81	11,676	86	9,894	73	9,528	70	9,870	72	10,284	75	11,298	83	11,316	83	11,304	83
016W	35,558	98	35,643	98	34,455	95	34,211	94	34,439	95	34,715	96	35,391	98	35,403	98	35,395	98
017I	5,007	100	5,007	100	4,872	97	4,787	96	4,827	96	4,837	97	4,857	97	4,847	97	4,902	98
017W	18,806	100	18,806	100	18,671	99	18,586	99	18,626	99	18,636	99	18,656	99	18,646	99	18,701	99
018	8,824	100	8,824	100	8,594	97	8,564	97	8,594	97	8,604	98	8,624	98	8,644	98	8,624	98
019	11,412	100	11,412	100	11,072	97	10,972	96	11,012	96	11,082	97	11,132	98	11,052	97	11,132	98
020	12,486	91	12,486	91	12,166	89	11,946	87	12,006	87	12,086	88	12,106	88	12,126	88	12,206	89
021I	9,691	61	10,521	66	9,761	62	9,636	61	9,741	61	9,836	62	9,861	62	10,126	64	10,101	64
021W	39,802	88	39,900	88	39,140	86	39,015	86	39,120	86	39,215	87	39,240	87	39,505	87	39,480	87
022	25,205	97	25,234	97	23,994	92	24,104	93	23,894	92	24,214	93	24,144	93	24,394	94	24,874	95
023/024	27,400	82	27,833	83	26,803	80	26,603	79	26,543	79	26,773	80	26,813	80	27,033	80	27,273	81
025	42,978	78	42,978	78	37,668	68	36,788	67	37,778	68	39,148	71	39,148	71	39,538	72	41,628	75
026A	15,072	82	15,072	82	13,677	75	13,446	74	13,707	75	14,061	77	14,061	77	14,319	78	14,724	81
026B	16,720	80	16,727	80	13,472	64	12,933	62	13,542	64	14,368	68	14,368	68	14,970	71	15,915	76
027/028	23,428	93	23,428	93	22,578	90	22,718	90	22,588	90	22,698	90	22,768	90	22,938	91	23,298	92
029	15,336	85	15,336	85	14,706	82	14,566	81	14,736	82	14,766	82	14,936	83	14,976	83	15,316	85
030A	17,114	97	17,114	97	16,724	95	16,589	94	16,754	95	16,849	96	16,809	95	16,824	95	16,924	96
030B	17,520	77	17,520	77	17,130	75	16,995	74	17,160	75	17,255	75	17,215	75	17,230	75	17,330	76
031A	18,148	100	18,148	100	17,848	98	17,823	98	17,858	98	17,943	99	17,898	98	17,898	98	17,958	99
031B	5,742	99	5,742	99	5,442	94	5,417	93	5,452	94	5,537	95	5,492	95	5,492	95	5,552	96
035	3,795	100	3,795	100	3,515	93	3,615	95	3,615	95	3,635	96	3,645	96	3,635	96	3,635	96
036	10,720	98	10,720	98	10,190	93	10,580	97	10,520	96	10,420	95	10,420	95	10,370	95	10,390	95
037	32,003	100	32,003	100	30,953	97	30,913	97	30,873	96	30,873	96	31,063	97	31,013	97	31,753	99
038	25,717	100	25,717	100	23,737	92	23,977	93	24,067	93	24,247	94	24,787	96	24,537	95	25,507	99
039	5,044	91	5,057	91	4,697	85	4,697	85	4,707	85	4,747	86	4,777	86	4,787	86	4,777	86
040	5,565	93	5,659	95	5,339	89	5,309	89	5,309	89	5,379	90	5,399	90	5,399	90	5,399	90
TOTAL	927,752	80	952,950	83	914,570	79	911,760	79	915,170	79	922,429	80	927,480	80	933,950	81	942,950	82

During the late 1960's and 1970's, the extensive mature lodgepole pine forests were attacked by the mountain pine beetle, and a high percentage of the mature trees died. The remaining mature lodgepole pine stands today have greatly reduced live trees, and thus reduced cone crops. This undoubtedly results in lower habitat quality for red squirrels in these types of stands.

B) Cavity nesting habitat for all of the primary cavity nesting species.

The previous section on primary cavity nesting species provides the information about this habitat.

C) Forest-wide Standards and Guidelines for Dead and Down Large Woody Debris.

Dead and downed woody debris is an important habitat component for red squirrels. We do not have an inventory of dead and down woody debris on the Forest. A general assumption is that in all unlogged conifer stands, there should be some natural level of dead and downed woody debris. There may be unlogged stands that are near roads where firewood gathering has occurred, and in these areas the amount of dead and down woody debris may be depleted. However, we want to provide for dead and down woody debris during and following management activities such as timber harvest and firewood gathering. Forest-wide standards and guidelines were developed for maintaining large dead and down woody debris. These S&G's are in the Revised Forest Plan and are not repeated here.

This analysis indicates that suitable red squirrel habitat will be maintained in all watersheds in all alternatives.

References

Fancy, S. G. 1980. Nest-tree Selection by Red Squirrels in a Boreal Forest. Canad. Filed-Nat. 94:198.

Ferron, J., J. P. Ouellet, Y. Lemay. 1986. Spring and Summer Time Budgets and Feeding Behaviour of the Red Squirrel (Tamiasciurus hudsonicus). Can. J. Zool. 64:385-391.

Gurnell, J. 1983. Squirrel numbers and the abundance of tree seeds. Mammal Rev. 13:133-148.

Hamilton, W. J. Jr. 1939. Observations on the Life History of the Red Squirrel in New York. Amer. Midi. Natur. 22:732-745.

Halvorson, C. H. and R. M. Engeman. 1983. Survival Analysis for a Red Squirrel Population. J. Mammal. 64:332-336.

Hatt, R. T. 1929. The Red Squirrel. Roosevelt Wildlife Annals 2:11-146.

Klugh, A. B. 1927. Ecology of the Red Squirrel. J. Mammal. 8:1-32.

Layne, J. N. 1954. The Biology of the Red Squirrel, Tamiasciurus hudsonicus loquax (Bangs), in Central New York. Ecol. Monogr. 24:227-267.

Smith, M. C. 1968. Red Squirrel Responses to Spruce Cone Failure in Interior Alaska. J. Wildl. Manage. 32:305-317.

Thomas, J. W. 1979. Wildlife Habitats in Managed Forests - the Blue Mountains of Oregon and Washington. USDA Forest Service, Agricultural Handbook No. 553. 512pp.

USDA, Agric. Handbook No. 271, Silvics of Forest Trees of the United States.

USDA Forest Service. 1991. Habitat Capability Model for Red Squirrels in Southeast Alaska. pages B147-B153 in the Tongass Land Management Plan Revision, Supplement to the Draft Environmental Impact Statement, Appendix, Volume I. Alaska Region R10-MB-145. Juneau, Alaska.

USDA Gen. Tech. Rpt. INT-270, Proceedings - Symposium on Whitebark Pine Ecosystems: Ecology and Management of a High-Mountain Resource.

Vahle, J. R. and D. R. Patton. 1983. Red Squirrel Cover Requirements in Arizona Mixed Conifer Forests. J. For. 81:14-15

BIG SAGEBRUSH {ARTEMESIA TRIDENTATA & VARIETIESWGRASSLAND HABITAT

Habitat Overview

There are about 280,000 acres of big sagebrush habitat on the Forest. The distribution of this habitat within subsections of the Forest is as follows:

Lemhi/Medicine Lodge:	51 percent of the acres
Centennial Mountains:	25 percent of the acres
Island Park	3 percent of the acres
Madison Plateau	<1 percent of the acres
Teton Range	<1 percent of the acres
Big Hole/Palisades	7 percent of the acres
Caribou	14 percent of the acres

Big sagebrush ecosystems have evolved with periodic wildfires and ungulate grazing. Aside from edaphic factors such as soil type and precipitation, fire was the greatest regulator of sagebrush density in pre-settlement times (Clark and Starkey 1990). In big sagebrush stands, natural fires occurred every 10-25 years (Clark and Starkey 1990, Houston 1973, Winward 1987). Fires played an important role in these types by maintaining a balance between shrubby and herbaceous components and overall vegetative diversity (Clark and Starkey 1990, Young 1983).

Without fire to decrease sagebrush density, the herbaceous vegetation has to compete with sagebrush for water. Due to many physiological adaptations, the big sagebrush plant is much more efficient at extracting and using water. Thus the sagebrush plants begin to increase in density and reduce the vigor of the herbaceous understory vegetation. Grazing by domestic livestock and wild ungulates further reduces the vigor of the understory species (young 1983 and Winward 1985). Eventually, a virtual monoculture of big sagebrush can result. These stands have little understory to prevent erosion and compaction; do not encourage water infiltration; and have little structural and species diversity (Winward 1987; Bunting 1991). Once a sagebrush stand has reached that point, there is almost no way to reestablish the understory vegetation without removing some of the big sagebrush cover (Winward 1991). On poor condition ranges, even complete removal of grazing by livestock will not restore understory species within a reasonable time (Blaisdell et al 1982).

Although fire does kill most of the big sagebrush present on a site, it does not eliminate the plant from the area. Like the understory species it is associated with, big sagebrush evolved with fire. The sagebrush plants regenerate rapidly from the seed source on and in the ground which is not damaged by fire. These new seedlings can produce seed only three years after a fire (Winward 1987). Most research indicates that sagebrush begins to redominate the site within 5 to 10 years of a burn (Blaisdell et al. 1982; Hironaka et al. 1983; Winward 1985, Winward 1983). A severe fire burning through a very decadent sagebrush stand can result in elimination of sagebrush from the site for up to 20 years (Clark and Starkey 1990). These hot fires, occurring when soil moisture content is low, can also damage certain understory species such as Idaho fescue and important shrub species such as bitterbrush (Purshia tridentata)(Clark and Starkey 1990, Frass et al 1992). Heavy grazing following a fire can speed up the recovery of sagebrush by

reducing the competitive ability of the herbaceous understory (Blaisdell et al 1982 and Winward 1985).

In a natural system, the periodic wildfires would create a mosaic of different aged sagebrush stands. The stands would be at various successional stages and therefore would differ in understory species and abundance, structural make-up, and age class (Bunting 1991). This mosaic would constantly be changing with new fire events, but the relative amount of acres in each class would remain quite constant. In this way, all species dependent on differing successional stages of sagebrush habitats would be provided for (Lyon and Marzluff 1985).

Since the early twentieth century, wildfires on private and public lands have been suppressed. This fire suppression, along with excessive livestock grazing in the early and mid-century, has allowed sagebrush to dominate in these areas (Burkhardt 1991 and Clark and Starkey 1990). Over much of our public lands, huge tracts of homogeneous big sagebrush vegetation types now dominate the rangelands. According to Winward (1992), historically only 10 percent of the total sagebrush acreage was in the decadent category but now approximately 90 percent is in the decadent category.

In the early days of range management, large expanses of sagebrush were sprayed with herbicides, burned, chained, etc., to reduce sagebrush density and increase livestock forage. Much of this activity was done without adequate knowledge or understanding of the consequences. In some areas the removal of the sagebrush couple with lack of understory species resulted in the invasion of weeds such as cheatgrass (Bromus tectorum)(Burkhardt 1991 and Winward 1987). In other areas, any benefit derived from removal of the sagebrush canopy cover was counteracted by excessive livestock grazing (Winward 1985). As a result of these ecological disasters, sagebrush management on public lands was seriously curtailed (Winward 1991 and 1980). Now with the advent of ecosystem management we have a prime opportunity to resume responsible sagebrush management.

Research indicates that big sagebrush stands should be manipulated on a 20-25 year rotation to maintain landscape diversity and satisfactory ecological conditions (Bunting 1991; Blaisdell et al. 1982; Winward 1983). Sagebrush manipulation will reestablish a more natural ecological balance in the overstory/understory in our sagebrush ecosystems (Winward 1991). In order to allow for species dependent on specific successional stages of big sagebrush habitats, the sagebrush removal must be carefully laid out (Winward 1991; Clark and Starkey 1990).

Habitat Management

As part of the Forest Plan Revision, the following forest-wide guidelines have been developed to guide future management of big sagebrush/grassland habitats:

> **Sagebrush/grassland habitats**. Within big sagebrush (Artemesia tridentata & varieties)/grassland habitats, strive for canopy coverage distributions on a subwatershed (generally 2,000 to 6,000 acres in size) basis of (G):
>
> > Less than 5 percent of a subwatershed in a less than 5 percent canopy coverage class.

75 percent of a subwatershed in a well distributed mosaic of canopy coverage ranging from 5-30 percent.

20 percent of a sub-watershed in a greater than 30 percent canopy coverage class.

Acknowledgements

The Habitat Overview was provided by personnel of the Dubois Ranger District, Targhee National Forest.

References

Blaisdell, J.P. and R.B. Murray and E.E. McArthur. 1982. Managing Intermountain rangelands—sagebrush-grass ranges. Gen. Tech. Rep. INT-134. USDA Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah. 41 pp.

Bunting, S.C. 1991. Effects of prescribed fire on vegetation dynamics, succession, and nutrient dynamics. Mimeographed paper from: Managing herbs and shrubs for multiple uses: 23rd annual Pacific Northwest range management shortcourse, Feb. 12-14, 1991. University of Idaho, Moscow.

Burkhardt, J.W. 1991. Vegetation dynamics of the sagebrush steppe. Mimeographed paper from: Managing herbs and shrubs for multiple uses: 23rd annual Pacific Northwest range management shortcourse, Feb. 12-14, 1991. University of Idaho, Moscow.

Clark, R.G. and E.E. Starkey. 1990. Use of prescribed fire in rangeland ecosystems. IN: Natural and prescribed fire in Pacific Northwest forests, Oregon State University Press, Corvallis, Oregon. pp. 81-91.

Frass, W.W., C.L. Wambolt, and M.R. Frisina. 1992. Prescribed fire effects on a bitterbrush-mountain big sagebrush-bluebunch wheatgrass community. IN: Proceedings—Symposium on ecology and management of riparian shrub communities. Gen. Tech. Rep. INT-289. USDA Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah. pp. 212-216.

Hironaka, M. and M.A Fosberg and A.H. Winward. 1983. Sagebrush-grass habitat types of southern Idaho. College of Forestry, Wildlife and Range Sciences Bulletin #35, University of Idaho, Moscow. 44 pp.

Houston, D.B. 1973. Wildfires in northern Yellowstone National Park. Ecology 54: 1111-1117.

Lyon, L.J. and J.M. Marzluff. 1985. Fire's effects on a small bird population. IN: Fire's effects on wildlife habitat—Symposium proceedings. Gen. Tech. Rep. INT-186. USDA Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah. pp. 16-22.

Winward, A.H. 1992. From presentation at: Prescribed fire for resource management workshop, February 18-19, 1992.

Winward, A.H. 1991. Management in the sagebrush steppe. Agricultural Experiment Station Special Report #880, Oregon State University in co-op with USDA, Agricultural Research Service. 7 pp.

Winward, A.H. 1987. Expanding the prescribed fire program. Mimeographed paper from: USDA Forest Service, Region Four silvicultural workshop, Elko, Nevada, December 2-4, 1987. 4 pp.

Winward, A.H. 1985. Fire in the sagebrush-grass ecosystem—the ecological setting. IN: Rangeland fire effects: a symposium. USDI, Bureau of Land Management, Idaho State Office, Boise. pp. 2-6.

Winward, A.H. 1983. Using sagebrush ecology in wildland management. IN: Proceedings of the first Utah shrub ecology workshop. Utah State University, Logan. pp. 15-19.

Winward, A.H. 1980. Taxonomy and ecology of sagebrush in Oregon. Agricultural Experiment Station Bulletin #642, Oregon State University, Corvallis. 15 pp.

Young, R.P. 1983. Fire as a vegetation management tool in rangelands of the Intermountain Region. IN: Managing Intermountain rangelands—improvement of range and wildlife habitats: proceedings of symposia. Gen. Tech. Rep. INT-157. USDA Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah. pp. 18-31.

PEREGRINE FALCON

AMERICAN PEREGRINE FALCON RECOVERY PLAN AND RECOVERY STATUS

The peregrine falcon occurs throughout most of North America as 3 more or less races or subspecies. The race (subspecies) Falco peregrinus anatum appears throughout the western United States from Mexico to the arctic tundra. It was this subspecies that underwent the most dramatic decline from the 1950's to 1970's (USFWS 1977, 1984). (Hereafter, falcon and peregrine falcon mean American peregrine falcon.)

The Forest is within the American Peregrine Falcon Recovery Plan - Rocky Mountain/Southwest Population (USDI Fish and Wildlife Service 1977/revised 1984). The objectives for reclassification are:

(1) a minimum of 183 breeding pairs with the following distribution: Arizona-46, Colorado-31, Idaho-17, Montana-20, Nebraska-1, New Mexico-23, North Dakota-1, South Dakota-1, Texas-8, Utah-21, and Wyoming-14;

(2) average production of 1.25 young/pair without manipulation;

(3) eggshell thickness within 10 percent of pre-DDT eggshells for a 5-year span.

When these objectives are reached or significant new data are obtained, the objectives and species classification would be reassessed (USDI Fish and Wildlife Service 1995).

In 1991, there were 363 known peregrine falcon pairs within the area covered by the Recovery Plan; in 1993, there were an estimated 450 pairs; and based on 1994 surveys, the current Rocky Mountain/Southwest population consists of 559 breeding pairs, surpassing the recovery objective by 376 pairs (USDI Fish and Wildlife Service 1994 and 1995).

With the exception of Montana, Idaho, Nebraska, and North and South Dakota, all States within the Rocky Mountain/Southwest population have met their specific recovery goals for breeding pairs (USDI Fish and Wildlife Service 1995).

In 1995, 13 pairs occupied territories within Idaho (6 of these pairs were on the Targhee N. F.); 6 pairs were successful in producing 16 young for an average of 1.2 young per pair and 2.7 young per successful pair (3 of the successful pairs and 8 of the young produced were on the Targhee N. F.) (Levine et al. 1995).

The second objective of 1.25 young/pair for 5 years has not been met in all States, but the current reproductive level has been sufficient to support considerable population growth (USDI Fish and Wildlife Service 1995).

Based on degree of recovery achieved and a general trend toward thicker eggshells, the original eggshell thickness objective appears unnecessary for the recovery (USDI Fish and Wildlife Service 1995).

At this time, the U. S. Fish and Wildlife Service has published an advanced notice of a proposal to remove the American peregrine falcon from the list of endangered and threatened wildlife (USDI Fish and Wildlife Service 1995).

AMERICAN PEREGRINE FALCON OCCURRENCE ON THE TARGHEE NATIONAL FOREST

Direction in the existing Plan was designed to promote the recovery of the peregrine falcon. During the 1980's decade the Forest cooperated with the Peregrine Fund and the Idaho Department of Fish and Game to "hack" (reintroduce) peregrine falcons into the Forest. Table 1 documents the general release site locations, the number of birds placed at each site, and the number successfully released.

In 1981 there were no occupied territories on the Forest. In 1985, the first re-establishing pair of peregrines in Idaho was discovered at the Targhee Creek release site. By 1991, there were 4 occupied territories on the Forest. In 1995, there were at least 6 occupied territories on the Forest. The number of young produced each year has ranged from 0 in 1988 to a high of 14 in 1993. Young per occupied territory has ranged from 0 to 2.8, with an average of 1.6 young per occupied territory for the years 1988 through 1995. Table 2 documents the nesting territories occupied by pairs of peregrine falcons from 1988 to 1995.

AMERICAN PEREGRINE FALCON OCCURRENCE ON ADJACENT LANDS

For lands adjacent to the Targhee National Forest, peregrine falcons have been documented in the following general areas:

Big Butte and Medicine Lodge Resource Areas of the BLM (there is a nest tower at Henry's Lake, on BLM land, that has been occupied by a pair from 1990 to the present);

Idaho National Engineering Laboratory;

Dillon Ranger District (Beaverhead N. F.);

Dillon District (BLM, Montana);

Hebgen Lake Ranger District (Gallatin N. F.);

Yellowstone and Grand Teton National Parks;

Market Lake and Mud Lake Wildlife Management Areas (nest towers are present at each area but they have only been occupied by pairs in 1992 and 1993;

Camas National Wildlife Refuge (there is a nest tower that has been occupied by a pair from 1988 to the present);

Gray's Lake National Wildlife Refuge (there is a nest tower that has been occupied by a pair from 1990 to the present);

Gray's River Ranger District (Bridger-Teton N. F.).

Table 11.1 Peregrine Falcon Release Sites on the Targhee National Forest.

Site Location	Year Release Site was Used					
	1982	1983	1984	1985	1986	1987
	number placed at site (number successfully released)					
Targhee Creek	4(4)	4(4)	4(3)	--	--	--
Palisades Creek	--	--	--	5(0)	--	4(2)
Sawtell	--	--	--	--	3(0)	--

Source: Levine, et al. 1995

Table 11.2 Nesting Territories Occupied by Pairs of Peregrine Falcons on the Targhee National Forest, 1988-1995.

Territory	Type	Occupied/Young Produced							
		1988	1989	1990	1991	1992	1993	1994	1995
Targhee Cr.**	Cliff	—	—	—	—	—	—	—	—
Sawtell	Cliff	Y/0	Y/0	Y/0	--	--	--	NS	NS
Alpine	Cliff	NS	Y/0	Y/3	Y/2	Y/4	Y/2	Y/3	Y/3
Henry's Fork	Cliff	--	NS	Y/3	Y/0	Y/2	Y/4	Y/?	Y/0
South Fork	Cliff	--	--	Y/0	Y/2	Y/0	Y/0	Y/0	Y/2
Sheep Creek	Cliff	--	--	--	Y/0	Y/4	Y/4	Y/4	Y/0
Swan Valley	Cliff	NS	NS	NS	NS	NS	Y/4	Y/?	Y/0
Teton Canyon*	Cliff	NS	Y/2*	--	--	--	--	--	Y/3*
Total Occupied Terr.		1	2	4	4	4	5	5	6
Total Young		0	2	6	4	10	14	7+	8
Young/Occupied Terr.		0	0.7	1.5	1.0	2.5	2.8	1.4+	1.3

Y = territory occupied by a pair in that year.
-- = territory not occupied in that year.
NS = territory not surveyed in that year.
+ = in 1994, productivity was not determined for all territories.
** = Targhee Creek was occupied with a pair of peregrine falcons from 1985 through 1987; from 1988 to the present, no pairs have been documented.
* = The south side of Teton Canyon was surveyed every year between 1989 and 1995, but birds were not found; 1995 was the first year that the north side of the canyon was surveyed. It could be that the birds found in 1995 on the north side had been using it for several years, but we'll never know.
Source: Levine, et al. 1995; M.Oechsner, personal communication.

HABITAT - OVERVIEW

Currently peregrines are distributed throughout North America and their numbers are increasing after a drastic decline in the 1950's and 1960's due to the use of DDT (USDA Forest Service 1991, USDI Fish and Wildlife Service 1994). They have been successfully reestablished in the eastern United States where they were at one time extinct. Peregrine falcons generally migrate south for the winter to the Gulf of Mexico, and into Mexico and Central America, or to large rivers and wildlife refuges in the United States (USDA Forest Service 1991).

Peregrine falcons occupy a wide range of habitats, typically found in open country near rivers, marches, lakes, and coasts. They capture prey by striking from above with their talons after a high-speed dive (USDA Forest Service 1991). Foraging habitat includes wetlands and riparian habitats, meadows and parklands, croplands such as hayfields and orchards, gorges and mountain valleys, and lakes which support good populations of small to medium terrestrial birds, shorebirds, and waterfowl.

Cliffs are preferred nesting sites (also known as eyries), although reintroduced birds now regularly nest on man-made structures such as towers and high-rise buildings. Peregrines may travel more then 18 miles from the nest site to hunt for food, however a 10 mile radius around the nest is an average hunting area, with 80% of foraging occurring within a mile of the nest (USDA Forest Service 1991).

Peregrine falcons do not breed until 2 years of age. Paired peregrine falcons arrive at their eyries around mid-March. Eggs are laid directly on the cliff substrate starting in early to mid-April. Clutches can range from 1-6 eggs, averaging 3-4 eggs. Incubation lasts 33 days. Both adults may incubate though the female performs most of this duty and the male performs most of the foraging. Fledging occurs from mid-June to mid-July, about 42 days post hatching. Juvenile birds stay in the areas several weeks after hatching. Little is known about post breeding habitat (USDA Forest Service 1991).

SIGNIFICANCE OF ENVIRONMENTAL CONTAMINANTS AND OTHER POTENTIAL THREATS

Peregrine falcons declined precipitously in North America following World War II (USDI Fish and Wildlife Service 1995). Research implicated organochlorine pesticides, particularly the pesticides DDT, DDE (a metabolite of DDT), and dieldrin, applied in the United States and Canada during this same period as causing the decline (USDI Fish and Wildlife Service 1994 and 1995). Use of these chemicals peaked in the 1950's and early 1960's and continued through the early 1970's (USDI Fish and Wildlife Service 1995).

There was a clear relationship between the timing of application and distribution of use of DDT and dieldrin and the decline of several subspecies of the peregrine falcon in North America, Europe, and elsewhere (USDI Fish and Wildlife Service 1994). The relationship between eggshell thinning, reproductive failure, population decline, and DDE has been reviewed in detail, and these effects have also been produced in falcon species under experimental conditions (USDI Fish and Wildlife Service 1994 and 1995).

Recent research has shown that the mere presence of DDE in American peregrine falcon eggs or prey, or the occurrence of thin eggshells, does not necessarily constitute a threat to the American peregrine falcon at the population level. Thinning does not cause population decline unless it exceeds 17 percent as a population-wide average, and none of 12 populations with less than 17 percent thinning was unstable or showed a decline (USDI Fish and Wildlife Service 1994).

By 1991, throughout most of the West, eggshell thinning did not appear to be present to the degree that would negatively affect population viability of the American peregrine falcon (USDI Fish and Wildlife Service 1994).

Other contaminants, including PCB, dioxin, anticholinesterase pesticides, and heavy metals, may also affects American peregrine falcons. However, the effects of these contaminants on American peregrine falcons appear to be relatively minor in comparison to those of DDE and are currently not well-documented (USDI Fish and Wildlife Service 1994).

There is no evidence, thus far, that any environmental contaminant other then DDT/DDE have been recently causing significant, widespread mortality or reproductive failure in the American peregrine falcon in the western United States (USDI Fish and Wildlife Service 1994).

The most significant event in the recovery of the peregrine falcon was the restriction placed on the use of organochlorine pesticides. Use of DDT was restricted in Canada in 1970 and in the United States in 1972 (USDI Fish and Wildlife Service 1995). Restriction that controlled the use of aldrin and dieldrin were imposed in the United States in 1974 (USDI Fish and Wildlife Service 1995). Since implementation of these restrictions, residues of the pesticides have significantly decreased in many regions where they were formerly used. Consequently, reproductive rates in most surviving peregrine falcon populations in North America improved and numbers began to increase (USDI Fish and Wildlife Service 1995).

If widespread use of DDT in Latin America significantly increases, American peregrine falcons in the western united States could be adversely affected. However, there is no current indication that increased use in Latin America is likely. To the contrary, use of organochlorines impacting American peregrine falcons may be decreasing in Latin America (USDI Fish and Wildlife Service 1994).

Other known negative factors, such as illegal shooting and collisions with wires, fences, cars, and buildings, are much less significant to the western American peregrine falcon at the population level (USDI Fish and Wildlife Service 1994). On an individual nest-site basis, human-caused disturbance or habitat alterations close to an active peregrine falcon nest can be a problem. For example, in some areas, rock-climbing is a growing sport and has resulted in nest failure. Breeding-season closure of rock-climbing cliff areas also in close proximity to nesting American peregrine falcons has recently prevented adverse effects. Power lines, especially distribution lines, cause peregrine falcon mortality; but the rate must be low, because many peregrine falcons nest successfully each year near power lines, especially in urban areas (USDI Fish and Wildlife Service 1994). Land-use practices adjacent to American peregrine falcon eyries that do not result in extensive habitat changes or excessive disturbance sometimes appear to have little adverse effect on nesting success (USDI Fish and Wildlife Service

1994). Generally, the recent apparent increase in the number of pairs of American peregrine falcons in the West provides evidence that significant adverse factors affecting the western subspecies at the population level are being alleviated or have been reduced (USDI Fish and Wildlife Service 1994).

CONSERVATION STRATEGY - TARGHEE FOREST PLAN REVISION

Forestwide Objectives, Standards and Guidelines

A forestwide peregrine falcon objective, and standards and guidelines were developed for the Forest Plan Revision. These are in the Revised Plan and are not repeated here. These standards and guidelines specifically address the factors which have been documented as having adverse effects on habitat and populations (chemicals which cause egg shell thinning and activities in close proximity to nest sites).

Peregrine falcons prey on birds in a wide variety of open habitats such as wetlands and riparian habitats, meadows and parklands, and rangelands. Other Forestwide goals, objectives, standards and guidelines, and management prescriptions promote diversity and properly functioning conditions in these types of habitats, and promote suitable habitat conditions for peregrine falcons (see Forestwide Goals, Objectives, Standards and Guidelines for: Properly Functioning Condition; Fisheries, Water and Riparian Resources; Vegetation; Wildlife; Range. Also the Aquatic Influence Zone Management Prescription).

DETERMINATION OF EFFECTS

May Affect - Not Likely to Adversely Affect

The most significant event in the recovery of the peregrine falcon was the restriction placed on the use of organochlorine pesticides. Consequently, reproductive rates in most surviving peregrine falcon populations in North America improved and numbers have increased.

Other known negative factors, such as illegal shooting and collisions with wires, fences, cars, and buildings, are much less significant to the western peregrine falcon at the population level.

Land-use practices adjacent to peregrine falcon eyries that do not result in extensive habitat changes or excessive disturbance appear to have little adverse effect on nesting success.

On an individual nest-site basis, human-caused disturbance or habitat alterations close to an active peregrine falcon nest can be a problem. Forestwide standards and guidelines address this concern.

Human presence and activities will still occur within and adjacent to peregrine falcon territories. As long as humans are present, there will be probable occurrences of short-term displacement. Therefore, the proposed

action may have some affect on individuals or pairs, but not likely to adversely affect the population.

REFERENCES

Levine, Ed, Wayne Melquist, Jon Beals. 1995. Idaho Peregrine Falcon Survey, Nest Monitoring, and Release Program - 1995. Idaho Department of Fish and Game, Boise, ID. 25pp.

Targhee National Forest. 1992. Analysis of the Management Situation. Targhee National Forest, St. Anthony, ID. Unnumbered pages.

USDA Forest Service. 1991. Threatened, Endangered, and Sensitive Species of the Intermountain Region. U. S. Forest Service, Intermountain Region, Ogden, UT. Unnumbered pages.

USDI Fish and Wildlife Service. 1995. Endangered and Threatened Wildlife and Plants; Advance Notice of a Proposal to Remove the American Peregrine Falcon from the List of Endangered and Threatened Wildlife. Federal Register 60 (126): 34406-34409.

USDI Fish and Wildlife Service. 1994. Addendum to the Pacific Coast and Rocky Mountain/Southwest American Peregrine Falcon (Falco peregrinus anatum) Recovery Plans. Portland, Oregon. 40pp. '(note: This is a draft document. Robert Mesta, USFWS Peregrine Recovery Coordinator, said this document could be referenced for the most up-to-date information on the status of peregrine falcons (personal communication, May 22, 1995)).

USDI Fish and Wildlife Service. 1984. American Peregrine Falcon Recovery Plan (Rocky Mountain/Southwest Populations). Prepared in cooperation with the American Peregrine Falcon Recovery Team. USFWS, Denver, CO. 105pp.

USDI Fish and Wildlife Service. 1977. American Peregrine Falcon Recovery Plan (Rocky Mountain/Southwest Populations). Prepared by the Rocky Mountain/Southwestern Peregrine Falcon Recovery Team. USFWS, Washington D. C. 183pp.

SPOTTED BAT AND WESTERN BIG-EARED BAT

Habitat and Population Overview

The spotted bat and western big-eared bat are listed as a Forest Service sensitive species (USDA Forest Service 1991),

The spotted bat is known from the northeastern portion of the Greater Yellowstone Area in Montana and Wyoming (Clark et al. 1989). Spotted bats use a variety of habitats including open ponderosa pine, desert scrub, pinyon-juniper, and open pasture and hay fields. They roost alone in rock crevices high up on steep cliff faces. Cracks and crevices ranging in width from 0.8 - 2.2 inches in limestone and sandstone cliffs are critical roosting sites. Spotted bats are rare and may be limited by suitable roosting sites.

Western big-eared bats are known from several locations in Yellowstone and Grand Teton National Parks and from the Custer and Gallatin National Forests in Montana (Clark et al. 1989). Western big-eared bats use juniper/pine forests, shrub/steppe grasslands, deciduous forests, and mixed conifer forests from sea level to 10,000 feet elevation. During winter they roost singly or in small clusters in caves, mine shafts, at rocky outcrops, or occasionally in old buildings. Big-eared bats are very sensitive to human disturbance and will abandon roost sites if disturbed.

In 1991, the Forest cooperated with the Wyoming Natural Diversity Database and the Bridger-Teton National Forest in a survey for these two bat species on the Wyoming portion of the Forest. The report documenting the results of the surveys stated: "Neither target species was positively located and a review of historical records showed that these species have never been documented in the study area" (Garber 1991).

During the summer of 1995, an intensive effort to determine status, distribution, and habitat preferences for bat species in Idaho was initiated (Lewis and Wackenhut 1996). Three sites in southeast Idaho were inventoried:

Egin Lake - about 25 miles from the nearest Forest boundary.
S. Leigh Cr. - about 1/2 mile from the nearest Forest boundary.
Pine Creek - may have been just within the Forest boundary.

Bat species found in the 1995 inventory included:

Egin Lake -	None
S. Leigh Cr. -	Little brown myotis
	Long-eared myotis
	Long-legged myotis
	Yuma myotis
	Hoary bat
Pine Creek -	Silver-haired bat
	Little brown myotis
	Long-eared myotis

During 1984 and 1985, a winter survey of hibernating bats was conducted on the Idaho National Engineering Laboratory (INEL), which is near the western portion of the Forest (Genter 1986). Two species of bats were found hibernating in lava tube caves: Leib's bat and western big-eared bat. Other

than this reference of the western big-eared bat hibernating in lava-tube caves, a literature review by the Forest Planning team found no documented records for the spotted bat and the western big-eared bat on the Targhee National Forest.

Habitat Evaluation

For the Forest Plan Revision, the following objective was developed for spotted and western big-eared bat habitat:

> Develop management plans for any caves, mine shafts, and other suitable habitats where these bat species are found to be present.

At this time, no specific habitat evaluation will be done for these bat species for the Forest Plan Revision. From a general habitat perspective, Forest-wide standards and guidelines for caves, late successional forests, and cavity nesting habitat should contribute toward protecting and maintaining habitat for these bat species (if they occur on the Forest) and other bat species.

References

Clark, T. W., A. H. Harvey, R. D. Dorn, D. L. Genter, C. Groves, eds. 1989. Rare, Sensitive, and Threatened Species of the Greater Yellowstone Ecosystem. Northern Rockies Conservation Cooperative, Montana Natural Heritage Program, The Nature Conservancy, and Mountain West Environmental Services. 153p.

Garber, C. S. 1991. A survey for Townsend's big-eared bat (Plecotus townsendii) and the spotted bat (Euderma maculata) on Bridger-Teton and Targhee National Forests in Wyoming. Wyoming Natural Diversity Database, Laramie, Wy. 75p.

Genter, D. L. 1986. Wintering Bats of the Upper Snake River Plain: Occurrence in Lava-Tube Caves. Great Basin Nat. 46(2):241-244.

Lewis, L. and M. C. Wackenhut. 1996. 1995 Idaho Bat Status Survey Report. Idaho State Conservation Effort. Boise, ID. Upp*

USDA Forest Service. 1991. Threatened, Endangered, and Sensitive Species of the Intermountain Region. Forest Service, Intermountain Region, Ogden, UT. unnumbered pages.

NEOTROPICAL MIGRATORY BIRDS

We do not know and cannot provide population estimates for neotropical migratory birds. Hejl et al. (1995) conducted an extensive review of literature on forest birds in the Rocky Mountains, and provided a relative abundance rating for species during the breeding season for general forest habitats, emphasizing mature or older stands. Table 12.1 presents the information from Hejl et al. (1995) for the four general forest types which encompass the Targhee National Forest. Only bird species documented to occur on or adjacent to the Forest (Targhee N. F., AMS, 1992) are listed in Table 12.1.

Of the 143 species listed in Table 12.1, 52 (36%) are long distance migrants, 48 (34%) are short distance migrants, and 43 (30%) are permanent residents.

Hejl et al. (1995) reviewed studies documenting differences in birds among natural stands of different ages. No common results for any one species nor obvious trends for any particular migrant group were found in the studies comparing natural stands of different ages.

Hejl et al. (1995) reviewed studies documenting the effects of silvicultural treatments (timber harvesting) on birds in conifer forests, aspen forests, and old second growth forests. The following summaries are from Hejl et al. (1995):

> **Effects of Silvicultural Treatments on Birds in Conifer Forests.** Table 12.2 displays indices of the tendency for a bird species to be more or less abundant in clearcut or partially cut forest than in uncut forest. From community-wide studies, 26 species were less abundant in treated areas as compared to unlogged areas in general. In contrast, 15 species were generally more abundant in treated areas than in unlogged ones.
>
> **Differences in Birds between Cut and Uncut Aspen Forests.** In a review of aspen studies, Hejl et al. (1995) report that the combined results are equivocal; therefore, no assessments can be made as to the effects of cutting aspen on any particular migrant group.
>
> **Old-growth and Old Second-growth.** In a review of four studies which compared old-growth with old second-growth, 15 species were more abundant in old growth in at least one study; however, no species was consistently more abundant in old growth in all four studies that compared old-growth with old second-growth stands.

Table 12.1. Relative abundance of species (A = abundant, C = common, U = uncommon, R = rare, \ = no information or usually not associated with the forest type) in the breeding season in four forest types: MC = mixed conifer, LP = lodgepole pine, SF = spruce fir, As = aspen (From: Hejl, et al. 1995)

Species	NTMB Status[a]	MC	LP	SF	AS
Turkey Vulture	B	C	\	U	U
Bald Eagle	R	\	\	\	R
Sharp-shinned Hawk	B	C	U	C	C
Cooper's Hawk	B	C	C	U	C
Northern Goshawk	B	C	C	C	C
Swainson's Hawk	A	\	\	\	U
Red-tailed Hawk	B	U	U	C	C
Ferruginous Hawk	B	\	\	\	R
Golden Eagle	B	R	U	U	U
American Kestrel	B	U	\	C	C
Merlin	A	R	\	R	R
Peregrine Falcon	A	R	R	\	R
Prairie Falcon	B	\	\	\	\
Blue Grouse	R	\[c]	\	C	C
Ruffed Grouse	R	U	\	U	C
Killdeer	B	\[c]	\	\	U
Band-tailed Pigeon	A	U	\	U	U
Mourning Dove	B	U	\	U	U
Barn Owl	R	\	\	\	\
Flammulated Owl	A	C	\	R	R
Western Screech-Owl[b]	R	U	\	\	C
Great Horned Owl	R	C	R	U	C
Northern Pygmy-Owl	R	C	R	C	U
Great Gray Owl	R	U	R	U	R
Long-eared Owl	B	U	R	U	U
Boreal Owl	R	\	\	C	U
Northern Saw-whet Owl	R	C	R	U	C
Common Nighthawk	A	U	U	C	C
Common Poorwill	B	\	\	\	U
Vaux's Swift	A	R[c]	\	\	\
White-throated Swift	A	R	\	C	C
Black-chinned Hummingbird	A	\	\	\	\
Calliope Hummingbird	A	U	R	C	C
Broad-tailed Hummingbird	A	U	C	C	C
Rufous Hummingbird	A	U	\	C	C
Lewis Woodpecker	B	\	\	\	R
Yellow-bellied Sapsucker	B	\	\	\	R
Red-naped Sapsucker	B	U	R	C	C
Williamson's Sapsucker	B	U	U	U	U
Downy Woodpecker	R	R	\	C	C
Hairy Woodpecker	R	C	U	C	C
Three-toed Woodpecker	R	R	U	U	U
Black-backed Woodpecker	R	R	R	R	R
Northern Flicker	B	C	C	C	C
Olive-sided Flycatcher	A	U	R	C	C
Western Wood-Pewee	A	U	\	C	C
Willow Flycatcher[b]	A	R	\	U	U
Hammond's Flycatcher	A	C	\	C	C
Dusky Flycatcher	A	C	\	C	C
Gray Flycatcher	A	\	\	\	\

Table 12.1. Continued.

Species	NTMB Status 1/	MC	LP	SF	AS
Cordilleran Flycatcher	A	C	C	U	U
Say's Phoebe	B	R	\	\	\
Western Kingbird	A	\	\	\	R
Horned Lark	B	\	\	\	\
Tree Swallow[b]	B	R	\	C	C
Violet-green Swallow	A	R	\	U	U
Cliff Swallow	A	\	\	\	\
Gray Jay	R	C	A	C	C
Steller's Jay	R	U	U	C	C
Blue Jay	R	\	\	\	\
Scrub Jay	R	\	\	\	\
Pinyon Jay	R	\	\	\	\
Clark's Nutcracker	R	U	C	A	C
Black-billed Magpie	R	\	\	R	\
American Crow	R	R	\	R	U
Common Raven	R	U	U	C	C
Black-capped Chickadee	R	C	\	C	C
Mountain Chickadee	R	A	A	C	A
Plain Titmouse	R	\	\	\	\
Bushtit	R	\	\	\	\
Red-breasted Nuthatch	R	C	C	C	C
White-breasted Nuthatch	R	U	\	C	C
Brown Creeper	B	C	C	C	C
Rock Wren	B	\	\	R	U
Canyon Wren	R	\	\	\	R
House Wren	A	U	\	C	A
Winter Wren	R	U	\	C	\
American Dipper[b]	R	\	\	U	U
Golden-crowned Kinglet	R	C	U	A	C
Ruby-crowned Kinglet	B	A	C	A	C
Blue-gray Gnatcatcher	A	R[c]	\	\	\
Western Bluebird	B	R[c]	\	\	R
Mountain Bluebird	B	U	\	U	U
Townsend's Solitaire	B	C	C	C	C
Swainson's Thrush	A	C	C	C	C
Hermit Thrush	B	C	A	C	C
American Robin	B	A	A	C	C
Varied Thrush	R	U	\	U	U
Northern Mockingbird	B	\	\	\	R
Bohemian Waxwing	R	\	\	C	U
Cedar Waxwing	B	R	\	R	R
Loggerhead Shrike	B	\	\	\	\
European Starling	R	R	\	\	\
Solitary Vireo	A	C	U	\	\
Warbling Vireo	A	C	\	C	A
Red-eyed Vireo	A	\	\	\[c]	\
Tennessee Warbler	A	\	\	R[c]	\
Orange-crowned Warbler	A	C	\	U	U
Nashville Warbler	A	U[c]	\	\	\
Virginia's Warbler	A	U	\	\	\
Yellow Warbler[b]	A	U	\	C	C
Yellow-rumped Warbler	B	A	A	A	A
Black-throated Gray Warbler	A	C[c]	\	U	U

Table 12.1. Continued.

Species	NTMB Status 1/	MC	LP	SF	AS
Townsend's Warbler	A	C	\	C	C
American Redstart[b]	A	U	\	\	R
Ovenbird	A	R	\	R	U
Northern Waterthrush[b]	A	U	\	U	\
MacGillivray's Warbler	A	C	\	U	U
Common Yellowthroat[b]	A	\	\	\	R
Wilson's Warbler	A	U	\	C	U
Summer Tanager	A	\	\	\	\
Western Tanager	A	A	U	C	C
Black-headed Grosbeak	A	C	\	R	U
Lazuli Bunting	A	U	\	U	U
Green-tailed Towhee	A	R[c]	\	C	C
Rufous-sided Towhee	B	U[c]	\	\	R
Chipping Sparrow	A	A	U	C	C
Brewer's Sparrow	A	\	\	\	\
Vesper Sparrow	B	R	\	R	R
Lark Sparrow	A	\	\	\	\
Black-throated Sparrow	B	\	\	\	\
Sage Sparrow	B	\	\	\[c]	\
Fox Sparrow	B	U	\	U	R
Song Sparrow[b]	B	U	\	U	U
Lincoln's Sparrow	A	R	C	U	U
White-crowned Sparrow	B	R	\	C	U
Dark-eyed Junco	B	A	A	A	A
Western Meadowlark	B	\	\	\	R
Yellow-headed Blackbird[b]	A	\	\	\	R
Brewer's Blackbird	B	R	\	\	U
Common Grackle	R	R	\	\	R
Brown-headed Cowbird	B	C	R	R	C
Northern Oriole	A	\	\	\	R
Pine Grosbeak	R	U	C	C	U
Purple Finch	B	\	\	C[c]	\
Cassin's Finch	B	C	U	U	U
House Finch	R	\	\	\	R
Red Crossbill	R	C	C	C	U
White-winged Crossbill	R	\	R	R	\
Pine Siskin	B	A	A	C	C
American Goldfinch	B	R	\	\	R
Evening Grosbeak	R	C	\	C	U
House Sparrow	R	\	\	\	R

[a] As designated by the Partners in Flight preliminary list: A = long-distance migrant species, those that breed in N. American and spend their nonbreeding period primarily south of the United States; B = short-distance migrant species, those that breed and winter extensively in N. America; R = permanent resident species that primarily have overlapping breeding and nonbreeding areas.

[b] Species associated with wet areas in these habitats.

[c] Species at least locally found in that habitat type. While there is probably a north/south difference in bird species in most habitats, it is most notable in mixed conifer.

Table 12.2. Indices of the tendency for a bird species to be more or less abundant in clearcut or partially cut forest than in uncut forest. A species was scored as being more abundant (+1), less abundant (-1), or similarly abundant 0 in treated vs. untreated areas. Values in the table are averages of these scores over all studies on which the species was recorded. Species are ranked in ascending order from -1.00 based on low-shrub clearcut column. Sample sizes in parentheses (we only included sample sizes ≥ 3). (From Hejl et al. 1995)

	Clearcuts			Partially
	Low	Tall	Pole-	Cut
Species	Shrub	Shrub	Sapling	
Mountain Chickadee	-1.00 (10)	-1.00 (5)	0.00 (3)	-0.77 (13)
Red-breasted Nuthatch	-1.00 (10)	-1.00 (5)	-1.00 (3)	-0.70 (10)
Brown Creeper	-1.00 (10)	-1.00 (4)	----	-1.00 (12)
Golden-crowned Kinglet	-1.00 (9)	-1.00 (3)	----	-0.60 (10)
Ruby-crowned Kinglet	-1.00 (9)	-1.00 (4)	----	-0.40 (10)
Winter Wren	-1.00 (7)	----	----	-0.20 (5)
Swainson's Thrush	-1.00 (7)	-1.00 (3)	----	-0.50 (6)
Varied Thrush	-1.00 (7)	-1.00 (3)	----	-0.75 (4)
Townsend's Warbler	-1.00 (7)	-1.00 (3)	----	-0.40 (5)
Three-toed Woodpecker	-1.00 (6)	----	----	-0.50 (6)
Black-capped Chickadee	-1.00 (6)	-0.67 (3)	----	-0.67 (3)
Solitary Vireo	-1.00 (5)	0.33 (3)	----	0.33 (9)
Hammond's Flycatcher	-1.00 (4)	-1.00 (4)	----	----
Evening Grosbeak	-1.00 (4)	----	----	----
White-breasted Nuthatch	-1.00 (3)	----	----	-0.14 (7)
Western Tanager	-0.86 (7)	-1.00 (4)	----	0.09 (11)
Hermit Thrush	-0.71 (7)	----	----	-0.80 (10)
Steller's Jay	-0.67 (6)	0.33 (3)	----	-0.29 (7)
Clark's Nutcracker	-0.67 (6)	----	----	0.33 (3)
Warbling Vireo	-0.67 (6)	1.00 (4)	----	0.33 (9)
Yellow-rumped Warbler	-0.67 (12)	-0.50 (6)	1.00 (3)	-0.46 (13)
Gray Jay	-0.60 (10)	-0.50 (4)	0.00 (3)	-0.25 (4)
Black-headed Grosbeak	-0.62 (8)	0.40 (5)	----	0.22 (9)
Orange-crowned Warbler	-0.60 (5)	----	----	-0.50 (4)
Violet-green Swallow	----	----	----	-0.60 (5)
Pine Grosbeak	-0.50 (4)	----	----	-1.00 (3)
Pine Siskin	-0.45 (11)	0.00 (6)	0.00 (3)	-0.08 (12)
Western Wood-pewee	-0.43 (7)	----	----	-0.50 (4)
House Wren	-0.40 (5)	0.00 (3)	----	0.86 (7)
Hairy Woodpecker	-0.36 (11)	-0.33 (6)	0.33 (3)	-0.25 (12)
Cooper's Hawk	-0.33 (3)	----	----	-0.67 (3)
Common Raven	-0.33 (9)	-0.25 (4)	----	-0.17 (6)
Brown-headed Cowbird	-0.33 (3)	----	----	----
Red Crossbill	-0.33 (3)	-0.25 (4)	----	-0.33 (3)
Common Nighthawk	-0.25 (4)	-0.33 (3)	----	-0.50 (4)
Northern Flicker	-0.18 (11)	0.67 (6)	0.67 (3)	-0.17 (12)
Wilson's Warbler	-0.17 (6)	0.67 (3)	----	----
Fox Sparrow	-0.17 (6)	0.67 (3)	----	----
Red-naped Sapsucker	-0.14 (7)	0.00 (5)	0.67 (3)	0.17 (6)
MacGillivray's Warbler	-0.12 (8)	1.00 (4)	----	0.17 (6)
American Robin	-0.08 (13)	0.50 (6)	1.00 (3)	0.15 (13)
Rufous Hummingbird	0.00 (6)	1.00 (3)	----	0.33 (3)
Cassin's Finch	0.00 (5)	-0.20 (5)	0.67 (3)	0.60 (5)
Lincoln's Sparrow	0.00 (3)	0.67 (3)	----	----

Table 12.2. Continued.

Species	Clearcuts: Low Shrub	Clearcuts: Tall Shrub	Clearcuts: Pole-Sapling	Partially Cut
Cordilleran Flycatcher	----	----	----	0.00 (6)
Williamson's Sapsucker	----	----	----	0.00 (5)
Chipping Sparrow	0.18 (11)	0.67 (6)	1.00 (3)	0.60 (10)
Western Bluebird	----	----	----	0.20 (5)
Olive-sided Flycatcher	0.25 (12)	0.25 (4)	----	0.67 (9)
Broad-tailed Hummingbird	0.33 (3)	1.00 (3)	----	0.25 (4)
Tree-Swallow	0.40 (5)	----	----	----
Dark-eyed Junco	0.46 (13)	1.00 (6)	1.00 (3)	0.38 (13)
Northern Goshawk	0.50 (4)	-0.60 (5)	0.00 (3)	----
Red-tailed Hawk	0.50 (4)	0.33 (3)	----	0.33 (3)
Mourning Dove	0.50 (4)	----	----	0.67 (3)
White-crowned Sparrow	0.50 (6)	----	----	----
Townsend's Solitaire	0.57 (7)	0.25 (4)	----	-0.25 (8)
American Kestrel	0.67 (3)	1.00 (4)	0.67 (3)	----
Dusky Flycatcher	0.67 (3)	1.00 (3)	----	----
Mountain Bluebird	0.90 (10)	1.00 (5)	0.33 (3)	0.67 (6)
Song Sparrow	----	1.00 (3)	----	----
Calliope Hummingbird	----	----	----	1.00 (3)
Rock Wren	----	----	----	1.00 (3)

Numerous public comments on the DEIS noted there was little discussion on the effects of fragmentation on wildlife, and particularly neotropical migratory birds. The following discussion on neotropical migratory birds in the Rocky Mountains is taken verbatim from Hejl et al. (1995), and provides the most in-depth overview that we know of at this time.

> We cannot offer managers as complete a synthesis as we would like. Too few studies have been conducted on the effects of silvicultural practices on birds in forests in the Rocky Mountains to make robust conclusions. Our results are limited in that they focus on short-term distributional changes as the result of two broad categories of timber harvesting (clearcutting and partial logging) lumped across conifer forests. The data indicate that many forest birds were less abundant in clearcuts than in uncut forests, and species that frequent open forests or open habitats were more abundant in clearcuts than in uncut forests. Most permanent residents were less abundant after either kind of harvesting treatment,* whereas about half of the migrant species were less abundant and half more abundant in harvested areas. The effects of partial cutting were less dramatic than those of clearcutting; these results may be partly due to the fact that partial cutting included many different kinds of harvesting treatments.
>
> Our information was limited to how distribution and abundance during the breeding season in general may be affected by clearcutting and partial cutting. We do not know what the actual effects of these harvest practices are on individual species (e.g., if nesting success for any individual species is lower in clearcuts than in uncut forests), what the effects of other silvicultural treatments are, how effects vary among forest-cover types and regions, and what landscape effects these

treatments are creating. Because we examined studies of breeding habitat, studies on reproductive success in these habitats would help us interpret distributional patterns. We could not summarize results from other seasons because we found too little information on birds in other seasons. Understanding the effects of silvicultural practices on the distribution of individual species during nonbreeding seasons may be as critical in the maintenance of viable populations of these species.

Our clearest results were for common species. Whereas cumulative effects on each common species may be important in the long-term viability of that species, short-term effects may be greatest on uncommon species whose declines go unnoticed for lack of an adequate sample size. To demonstrate the effects of forest management on raptors, woodpeckers, and other species that are difficult to detect and/or have large home ranges will require intensive, individual species studies of their density and demographics in treated and untreated areas (Hejl 1994). Therefore, our statements about those species should be viewed with caution. The effects of timber harvesting on rare species might be of even graver concern than we now know.

Neither long nor short-distant migrants can be treated as a guild for managing forests. Each species responded individually to silvicultural treatments. Fore example, some long-distance migrants (Swainson's Thrush and Townsend's Warbler) are found more often in unlogged forests and others (Broadtailed Hummingbird and Dusky Flycatcher) in clearcuts when these areas are compared. Emphasizing any one silvicultural practice would favor some birds at the expense of others. Our results suggest that proportionally more resident than migrant species will be deleteriously affected by the loss of uncut forests.

The greatest effect of silvicultural practices may come through changes in landscape pattern. Unfortunately, too few studies have examined the effects on forest birds of silvicultural changes in Rocky Mountain landscapes for any conclusions to be made (Freemark et al., Chapter 14, this volume). Indeed, it is difficult to isolate the relative contribution of stand-level and landscape level factors to a particular species' distribution in a logged area (Dodkin 1994). Some of the patterns that we noted for silvicultural treatments might be attributable to changes in the landscapes caused by those treatments.

Our dissatisfaction with this synthesis stems from the inadequate number of studies on the effects of silvicultural treatments on bird populations in the Rocky Mountains. We could only find studies that examined timber harvesting, not other silvicultural treatments. Within those studies, we did not have enough information to make specific conclusions for any logging treatment or stand age in a particular forest type or region. Not only are there too few studies in any one habitat or about a particular silvicultural treatment, but individual studies are often based on few replicates. Most authors did not deal with potential interpretive problems associated with observer differences. A large amount of variation or "noise" enters into our analysis as a result of having to lump across conifer habitats, harvesting methods, and studies based on different sampling methods and sample sizes. We could not examine increasing or decreasing trends that may be evident with gradations in severity of treatment.

We had enormous problems summarizing the literature, because the authors of studies often did not describe their control or treated areas very well. Patterns are undoubtedly confounded not only because of having to group survey data from all conifer forests into only two broad classes of harvesting methods, but because of the variety of postharvest treatments that may have been applied. Unfortunately, most studies failed to describe postharvest treatments. Indeed, we could not determine the preharvest age of the stand in many instances. To tease apart effects of all these variables over a broad range of vegetation cover types will take a lot more thoroughly described data than have been collected to this point in time.

Long-term study sites with many replicates in all habitats throughout the Rockies would help us assess the short-term and long-term effects of various silvicultural practices on as many individual species as possible. We need studies that are designed to distinguish between effects due to timber harvesting at the stand level versus the landscape level. Because most studies on western forest birds have shown great yearly fluctuations in bird numbers (Raphael and White 1984, Szaro and Balda 1986, Hejl et al. 1988), long-term studies at various locations are necessary to identify avifaunal changes due to timber management practices independent of weather and other factors. Basic autecological studies are needed to determine why a species responds as it does to habitat alteration. Of particular concern are species' responses to truncated succession, loss of early-successional and old-growth forests, loss of snags, especially in burns, and loss of all types of burned habitats [similar concerns to those in Thomas et al. (1975)].

Our judgment of an "effect" of timber harvesting is colored by the fact that we are comparing limited data from only one uncut and two cut vegetation types across the Rocky Mountains. Knowledge of the complete distribution of a species among habitats (more rigorously derived than our Table 8-1) and the distribution of habitats is required before we could say whether or not a local population decline in response to timber harvesting translates into a serious population problem. A certain level of decline presumably is much less serious a concern for a species than occurs over a broad range of additional habitat types than it is for a species confined to a single uncut forest type. We have presented preliminary information on species' distributions based on at least a few known, reported studies in each habitat, but more information is needed on bird distribution across habitats and the distribution of habitats themselves to assess which species are truly of concern.

Philosophically, determining the "effects of timber harvesting" is very complicated. The "effect" can be measured as either a short-term or a long-term consequence of the harvesting activity and on small or large spatial scales. Our review deals with short-term, small-scale consequences but the managers' goal should be one of placing these results in a long-term, broad-scale perspective (Barlett and Jones 1992, Kessler et al. 1992) with a focus on managing the land in an ecological manner that will serve to sustain natural populations, abiotic and biotic interactions, patterns, and processes. We agree with the recommendation of Thompson et al. (Chapter 7, this volume) to make management decisions first at the large scale and secondarily at the small scale. From such a perspective, a manager might want to consider that a timber-harvesting practice that might immediately cause a relatively great amount of change

from preharvest conditions may be one component of a strategy for maintaining populations of all wildlife species for the long term. In other words, we suggest that any one individual piece of a landscape might be managed to the detriment of some species and benefit of others, with the goal of maintaining enough variety within the different pieces of the landscape (i.e., in the constantly shifting mosaic of logging treatments and successional stages) that all native species are being managed simultaneously over a broad landscape [for an example from the Pacific Northwest, see Hof and Raphael (1993)]. While it is clearly important to emphasize the maintenance and restoration of old growth forests, it is similarly important to consider the maintenance of early successional and other ages of forests. This concept may be especially important for areas that experience frequent and widespread disturbance, but such judgments require more knowledge of the way birds are affected by natural processes. Rather than simply asking what the short-term effect of a given harvest method is, we should also be asking which methods best operate to mimic natural patterns and processes, and how we can manage for those species that do no benefit from this approach; for a review of some information for the Northern Rockies, see Heji (1992).

To illustrate the point of mimicking natural patterns and processes, consider that the Northern Rocky Mountain conifer forests are part of fire-maintained systems (Hejl 1992). Much less vegetation cover in early successional stages exists now than prior to fire control in some cover types (Gruell 1983). If, of all timber-harvesting practices, clearcuts come closest to matching the pattern of a naturally intense fire regime, then perhaps the method affecting the greatest change from preharvest conditions in an immediate sense (i.e., clearcuts) is the best practice in a long-term sense. We caution that we need hard data to answer this question, but to many bird species, clearcuts are not the same as intense canopy burns (Hutto 1995). "Sloppy" clearcuts (some snags and trees remaining) or selection cutting may come the closest to mimicking intense burns, depending upon forest cover type. Nonetheless, current thinking and current research efforts need to be directed along these lines if we are to make progress migratory landbirds, resident landbirds, all other plant and animal species, and their interactions (i.e., biological diversity).

We think that fire is so important as a creator of variety in landscapes that the conservation of native diversity may only be accomplished through the maintenance of fire as a process. Some bird species may simply need the maintenance of open forests as occurs with low-intensity fires (Marshall 1963). Frequent, low-intensity understory fires, however, do not satisfy the needs of all fire-dependent species. Some of these species probably rely on the presence of large, high-intensity crown fires that characterize the historical fire regime of many conifer forest types (Loope and Gruell 1973; Heinselman 1981, 195).

Finally, we suggest the following goal for managing forests; to maintain natural bird populations, ecological patterns, and ecological processes over broad landscapes. Suggested steps to work toward that goal include: (1) maintain all habitats (e.g., forest cover types and successional stages) and important habitat components (e.g., snags); (2) strive to mimic (either retain or restore within the range of variation of) presettlement ("natural") proportions and distribution of forest types, successional stages, and habitat components; (3) allow or reintroduce

natural disturbance patterns (e.g., let fires burn or use prescribed fire); and (4) constantly monitor birds so see how this plan is working and redirect efforts if need be (with special emphasis for species that seem to be declining).

We emphasize sustaining species and ecosystems within a flexible framework (i.e., use adaptive management; Holling 1978), while acknowledging the constraints imposed by current landscape patterns. Current landscape patterns are the result of continual habitat modification. Burns have been salvage logged. Fire suppression has led to the change in forest structure and composition in many habitats in the Rocky Mountains and, in addition, a great proportion of old-growth forests have been logged. We merely suggest the above steps as goals. In future research efforts, we need to determine whether or not these steps will lead to the maintenance of forest bird populations in the Rocky Mountains.

References

Hejl, S. J., R. L. Hutto, C. R. Preston and D. M. Finch. 1995. Effects of Silvicultural Treatments in the Rocky Mountains. pages 220-244 in Ecology and Management of Neotropical Migratory Birds, A Synthesis and Review of Critical Issues. Edited by T. E. Martin and D. M. Finch. Oxford University Press, Inc. New York, NY. 489pp.

BIGHORN SHEEP

Summary of a Literature Review Regarding the Compatibility between Bighorn and Domestic Sheep (Martin et al 1996)

In both fenced studies and free ranging herds, most contact between bighorn sheep and domestic sheep has resulted in pneumonia in bighorns and the deaths of all or most bighorns while domestic sheep remained healthy. Published research has shown that Pasteurella haemolytica (usually biotype A, serotype 2) is the major pathogen responsible for the death of bighorn sheep after contact with domestic sheep. DNA fingerprinting has proven the transfer of Pasteurella spp. between bighorn and domestic sheep under both controlled "experimental" and range conditions. No studies reported any bighorn herds, fenced or free ranging, that have come into contact with domestic sheep and remained healthy. No vaccine currently exists that will prevent bighorn sheep from developing pneumonia after contact with virulent strains of Pasteurella. Conclusion: Bighorn sheep and domestic sheep should not occupy the same ranges or be managed in close proximity to each other, because of the potential adverse effect from disease on bighorn sheep.

How does Pasteurella get transferred from domestic sheep to bighorn sheep? (from discussions with Tim Schomer, Wildlife Biologist, Wallowa-Whitman N. F., and Dr. Beth Williams, Dept. of Veterinary Science, Wyoming State Veterinary Lab, Univ. of Wyoming, Laramie)

Must have "nose to nose" contact between bighorn and domestic sheep. Nose to nose contact is defined as 5-ft or closer.

The Pasteurella must be a "virulent" strain. Sometimes there have been contact between bighorns and domestic sheep without die-offs; reason - the domestic sheep did not have a virulent strain.

There is no way to test for virulent strains at the present time.

Death usually occurs within 48 hours. (I asked how the disease gets transmitted from one bighorn to the next if death usually occurs so quickly. Answer: If a very healthy bighorn gets the disease from domestic sheep, it may be able to live for up to 2 weeks. If it returns to a group of bighorns before it dies, then this is how it gets transmitted.)

Summary of the Situation at Hells Canyon National Recreation Area (from discussion with Tim Schommer, Wildlife Biologist, Wallowa-Whitman N. F.)

100 miles of continuous, year-around bighorn sheep habitat; no natural breaks or barriers in the habitat.

Bighorn sheep were moving 60 mile distances; moving a lot more than expected.

There were year-around domestic sheep allotments. Impossible to keep all of the sheep together; individual domestic sheep would wander all over.

Tried buffers for 15 years, but these did not work because: 1) continuous, year-around bighorn sheep habitat; 2) year-around domestic sheep grazing; 3) long distance movements of bighorn sheep; 4) strays from domestic sheep bands.

Two times of year when contact between bighorns and domestic sheep are more likely to occur: 1) During the fall breeding season (November & December) when the younger rams are displaced by the older rams. The younger rams will often get involved with domestic ewes while looking for a mate. 2) During the spring (not sure of the mechanism involved causing increased contact during the spring).

The die-off of bighorns this past winter was not due to domestic sheep. A domestic goat strayed away from its home and met up with bighorn sheep which started the die-off.

Overview of Bighorn Sheep Populations on the Targhee N. F.

Bighorn sheep are present in 4 areas of the Forest, with an estimated total population of 225 animals (Targhee N. F., AMS, 1992).

A. **Lemhi Mountains:** These bighorn sheep are part of a population that includes the adjacent Challis National Forest. In 1983, IDFG transplanted 19 bighorn sheep into Badger Creek (Challis N. F.). In 1984, IDFG transplanted 22 bighorn sheep into Uncle Ike Creek (Challis N. F.). A helicopter survey conducted in 1988 by IDFG found 31 bighorns (14 ewes, 8 lambs, 9 rams). No hunt has been authorized on these sheep. (references: Targhee N. F., AMS, 1992)

B. **South Beaverhead Range** (also referred to as the southern Bitterroot Mountains or the Medicine Lodge area): Forty-one bighorn sheep were introduced into the south Beaverhead Range in four transplants between 1976 and 1982 as follows (Targhee N. F., AMS, 1992):

1976	Long Canyon	6 bighorn sheep
1978	Long Canyon	12 bighorn sheep
1981	Bloom Canyon	14 bighorn sheep
1982	Goddard Canyon	9 bighorn sheep

This herd has not grown as expected. We do know that the transplanted bighorn sheep had lung worms at the time they were transplanted. A helicopter survey conducted in 1988 by IDFG found only 17 bighorns (13 ewes, 3 lambs, 1 ram). The ear tags or remains of several of the released sheep have been found since the releases, but mortality causes are unknown. No hunt has been authorized on these sheep. Monitoring of bighorn sheep through recording ground observations has been done by the Dubois Ranger District and IDFG. A summary of these observations follows (Targhee N. F., AMS, 1992; Dubois Ranger District personal communication; L.Bleggi, personal communication):

Date	Location	Number of Rams/Ewes/Lambs/Unclassified
Apr. 1982	Long Canyon	0 rams/ 3 ewes/2 lambs
Jun. 1982	Sullivan Ridge	6 rams/ 0 ewes/0 lambs
Mar. 1983	Goddard Canyon	0 rams/11 ewes/0 lambs
Apr. 1983	Goddard Canyon	4 rams/18 ewes/0 lambs
May. 1983	Goddard Canyon	0 rams/ 2 ewes/0 lambs
Sep. 1983	Burnt/Timber/Reno	1 rams/ 5 ewes/2 lambs
Feb. 1984	Goddard Canyon	2 rams/ 4 ewes/4 lambs
Apr. 1984	Skull Canyon	1 rams/ 2 ewes/1 lambs
Jan. 1985	Goddard Canyon	3 rams/ 0 ewes/0 lambs/17 Unc.
Feb. 1985	Goddard Canyon	0 rams/16 ewes/0 lambs
Mar. 1985	Goddard & Skull	0 rams/11 ewes/0 lambs/12 Unc.
Dec. 1990	Goddard Canyon	14 rams/ 1 ewe /0 lambs
Jul/Aug. 1992	Copper Mtn. Area	16 rams/12 ewes/6 lambs/ 2 Unc.
Oct. 1995	Long Canyon	5 rams/32 ewes and lambs
Aug. 1996	Copper Mtn. Area	2 rams/ 5 ewes/3 lambs

The Dubois Ranger District has implemented several habitat projects for bighorns in the south Beaverhead Range. Seven water developments, three of these in cooperation with the Foundation for North American Wild Sheep, have been installed for bighorns. Other water developments for upland game, deer, and elk on Forest Service and BLM lands are used by bighorns on transition range. Prescribed burns have been done to reduce sagebrush density and improve forage quality for bighorns.

All of the winter observations of which we know about have been on the Birch Creek side of the mountain range (we are not aware of observations in the Nicholia, Chandler, Kelly and Snakey drainages during the winter).

C. **Lionhead Area:** These bighorn sheep are part of a population that includes the Gallatin National Forest in Montana. During the summer and fall months, 12 to 15 sheep can frequently be seen in Idaho. Idaho has never authorized a hunt on this herd. The history of the Montana hunts on these sheep has been to issue a few permits a year until the herd declines, close the hunt and let the herd rebuild and then open it again for a few years (Targhee N. F., AMS, 1992).

This sheep population winters on high elevation windswept ridges. There is historical low elevation winter range available, but the sheep do not use it. In the early 1990's, the Montana Department of Fish, Wildlife and Parks introduced bighorn sheep into the low elevation winter range, hoping they would associate with the bighorns at the higher elevations during the summer, and re-establish the migration to the low winter ranges. This has not happened; the introduced bighorns have remained at the low elevations year-around.

D. **Westslope of the Tetons:** These bighorn sheep are part of a population that includes Grand Teton National Park. WGF authorizes a hunt for bighorns on the Targhee National Forest; no hunting is allowed in Grand Teton National Park. A total of 11 rams were harvested from 1977 to 1986; no bighorns have been harvested during the hunt from

1987 to 1991. The following is a summary of herd composition counts which have been done by WGF:

Date	Total	Rams/Ewes/Lambs/Unclassified
Nov. 1991	66	21 rams/28 ewes/17 lambs
Feb. 1991	90	27 rams/40 ewes/23 lambs
Nov. 1989	54	19 rams/27 ewes/ 8 lambs
Dec. 1988	89	25 rams/35 ewes/29 lambs
Mar. 1981	46	10 rams/25 ewes/11 lambs
Jan. 1979	60	13 rams/28 ewes/10 lambs/9 unclass.
Dec/Jan. 1977-78	39	12 rams/18 ewes/ 9 lambs
Jan/Mar. 1976	53	17 rams/23 ewes/13 lambs(+18 tracks)
Nov/Dec. 1975	26	9 rams/11 ewes/ 6 lambs
Apr. 1974	42	14 rams/15 ewes/ 7 lambs/ 6 unclass.
Mar. 1957	60	8 rams/12 ewes/10 lambs/30 unclass.

Interviews with old timbers who were familiar with the Teton Range suggest that the bighorn population may have declined to a low point in the 1930's and 1940's, with some recovery in numbers during subsequent years. Minimum counts of bighorn sheep (not necessarily based on full coverage of suitable habitat) have ranged from 39 to 97 since 1976. Whitfield (1983) believed that the total population approached 125 in 1981 and was static or declining. Annual winter counts and high winter mortality during the last 2 years indicate that the population may have declined substantially (page 18 of working group report)

Winter range is probably the limiting factor for this bighorn sheep population. All of the bighorns are wintering at elevations above 9,000 ft. on windswept ridges. For the past 8-9 years, no bighorn sheep have been documented wintering on the Targhee; all have been found wintering in Grand Teton National Park.

Since 1994, GTNP has been doing a bighorn sheep study which involved radio-collaring and tracking. Movements during the winter were minimal, commonly with sheep located only a few hundred meters away from the previous location. Movements increased substantially in May when sheep commonly moved to lower elevations at the mouth of the canyons where snowmelt had occurred on south and east exposures. Summer ranges consisted of upper-elevation grassy benches and ledges near cliff areas for escape. Figure 1 shows the average distances moved between relocations by month.

Overview of Domestic Sheep Allotments within or adjacent to Bighorn Sheep

A. **Lemhi Mountains:** There is one winter domestic sheep allotment on the southern end of the Lemhi Mountains which includes mostly BLM land but some National Forest land. (note: At one time there were 2 allotments, but they have been combined to form one allotment). This allotment is administered by the BLM.

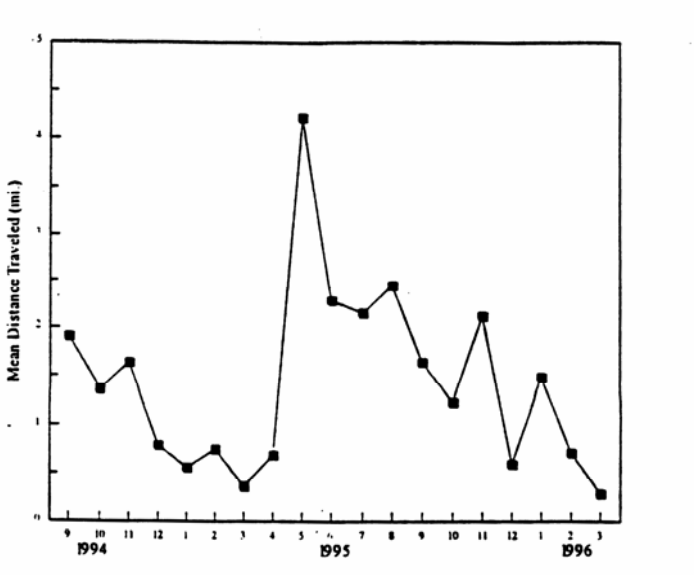


Figure 1. Average distances moved between relocations by month.

B. **South Beaverhead Range:** There are five domestic sheep allotments as follows:

Snakey Canyon S&G and Kelly Canyon S&G: These are two winter allotments, with use periods of Nov. 25 to Jan. 5. Currently 1 band of domestic sheep uses both allotments. The U. S. Sheep Experiment Station is the permittee.

Nicholia Chandler S&G: This is a combination summer & winter allotment as follows: 1 band uses the allotment during the summer, with one year in Nicholia and the following year in Chandler. On the year that Nicholia is used in the summer, Chandler is used as a winter allotment. Summer use is from June 1 to Sept. 10; winter use is from Nov. 20 to Jan. 20. Because of a poisonous plant (oxytropis), only dry ewes and yearlings can be grazed.

Mahogany S&G and Scott Canyon S&G: These two allotments have been in none use status for the past 5 years. The District would like to convert them to winter cattle allotments, but has not had the time and resources to prepare all of the necessary documents for the conversions.

There are 16,854 acres of National Forest land closed to domestic livestock grazing to benefit bighorn sheep and other wildlife.

C. **Lionhead Area:** All domestic sheep grazing was terminated 12 to 15 years ago.

D. **Westslope of the Tetons:** The number of domestic sheep allotments on the Westslope of the Tetons has been declining for more than a decade. All of the domestic sheep allotments north of Bitch Creek have been closed (these are in Situation 1 grizzly bear habitat).

South of Bitch Creek, there are six summer domestic sheep allotments as follows:

Badger-Jackpine S&G: This allotment was vacant from 1985 to 1995. Domestic sheep began using the allotment again in 1996. Use dates are July 1 to Sept. 20. The upper portion of the allotment is administratively closed to grazing to provide for use by bighorn sheep. This allotment is currently classified as Management Situation 2 grizzly bear habitat within the grizzly bear recovery line.

Green Mountain S&G: Use dates are July 1 to Sept. 20. The upper portion of the allotment is administratively closed to grazing to provide for use by bighorn sheep. This allotment is currently classified as Management Situation 2 grizzly bear habitat within the grizzly bear recovery line.

Mill Cr.-Table Rock S&G: This allotment has not been used for the past 6 years. If used, use dates would be July 1 to Sept. 20. This is an allotment which the District has kept as an available area for sheep to be moved to if a conflict arises with the allotments in Situation 2 grizzly bear habitat.

Dry Basin S&G: Use dates are July 1 to Sept. 20. This allotment is located outside the areas used by bighorn sheep.

Canyon-Badland S&G: The Canyon portion of this allotment is in the Bighole Mountains, and the Badland portion is on the Westslope. Use dates for the Badland portion are Aug. 10 to Sept. 20. The upper portion of this allotment is closed to grazing to provide for use by bighorn sheep.

Moose Creek S&G: Use dates are July 1 to Sept. 20. Portions of this allotment are administratively closed to grazing for high use recreation areas.

South of Bitch Creek, there are 45,700 acres of National Forest land closed to domestic livestock grazing to benefit bighorn sheep and other wildlife.

Since 1968, there have only been 3 documented bighorn sheep observations within areas which are currently used by domestic sheep. To say it another way, domestic sheep grazing is currently not occurring where bighorn sheep use has occurred, as documented by recorded observations of bighorn sheep from 1968 to the present).

Note: (We do have a data set of bighorn sheep observations which goes back to 1937, but we have not analyzed all of the data points in comparison with domestic sheep use).

Issues/Concerns Presented by the Teton Range Bighorn Sheep Working Group

The Teton Range Bighorn Sheep Working Group raised 4 issues/concerns:

1. Loss or abandonment of former low-elevation winter range due to human disturbance (e.g., developments, poaching, recreational activities) and vegetation succession from alteration of the natural fire regime.

2. Potential disease transmission from, and competition with, domestic sheep that graze on the Targhee and Bridger-Teton National Forests.

3. Likely genetic isolation and related consequences of inbreeding.

4. Displacement from seasonal ranges due to recreational activities.

The following is a brief discussion about each of these issues/concerns.

1. There is no argument that former low elevation winter ranges are not being used for a variety of factors. However, the working group provides no analysis/evaluation about the feasibility of restoring use to these former low elevation winter ranges.

   Some of the winter ranges are probably permanently lost due to permanent developments.

   Historical bighorn range in the Palisades and Bighole Mountains areas is now occupied by mountain goats. It is our understanding that mountain goats use the same habitats, are more aggressive, and will out compete bighorn sheep.

   What burning conditions are necessary to restore appropriate vegetation conditions? Can prescribed burning be done under those conditions? The working group report documents that 'natural fire regimes' were often the result of native americans and early trappers. Can these fire regimes be restored today?

   The Teton Basin Ranger District has tried since the mid-1980's to do a spring prescribed burn in Darby Creek. They have tried slashing the brush to create more dry fuel, they have put a cat line around it to allow for more severe burning conditions, and they have used both diesel fuel and a helitorch to get it to burn, but with no success.

   How do you get bighorn sheep to use historical areas or new areas? Observations from bighorn sheep in the Lionhead area, and the efforts of the Montana Department of Fish, Wildlife and Parks suggests it may be very difficult to get bighorn sheep to use different areas. Even to get bighorns to use new areas that are in proximity to each other usually requires transplanting them.

2. The working group states: "that the single most important and ominous threat to the continued existence of bighorn sheep in the Teton Range is the potential for a die-off of the entire

population due to disease transmission from domestic sheep" (pages 5 & 6 of the working group report).

On the Westslope of the Tetons, 45,700 acres have been closed to domestic sheep grazing. These are the areas with the highest current bighorn sheep use and the highest historical bighorn sheep use.

Domestic sheep are not grazed on the Westslope during the seasons when 'nose-to-nose' contact with bighorns is likely to occur (the fall breeding season or the early spring).

A bighorn sheep study is currently being conducted by Grand Teton N. P. Several dead bighorn sheep have been sent to Dr. Beth Williams for necropsy. No Pasteurella from domestic sheep was found. Dr. Williams said the bighorns were very healthy. (Discussions with Dr. Beth Williams, Sept. 1996).

3. The working group states: "The Teton Range bighorn sheep population is scientifically valuable because it is among a small number of bighorn sheep populations that are endemic and have not been augmented with animals from other bighorn sheep populations." (page 3 of the working group report)

   The working group further states: "Teton Range bighorn sheep had the lowest heterozygosity of 12 herds in Wyoming which were analyzed for genetic variability (Fitzsimmons 1992). This is consistent with observations that suggest potential inbreeding problems in the population, such as poor lamb survival and small body size (Whitfield 1983, Grand Teton National Park, unpublished data). Fitzsimmons' analysis was based on only 4 individual bighorn sheep from the Teton Range. Pending analyses of samples from 16 additional individuals collected during the Park's research should help clarify the herd's genetic status." (page 17 of the working group report)

   The concern for genetic isolation and related consequences of inbreeding appear to be diametrically opposed to the scientific value of an endemic population. What is a feasible answer to this dilemma?

4. Recreational activities must be evaluated and coordinated between all of the agencies. This includes the permitting of hunting by the Wyoming Game and Fish Department.

Options & Suggestions Developed by the Targhee Bighorn Sheep/Domestic Sheep Task Group for Consideration in the Revised Forest Plan:

Option A: No change from present. With this option, all of the areas currently closed to grazing would remain closed, all of the areas currently administratively closed would remain closed, all of the allotments currently in non-use would remain in non-use.

The Badger-Jackpine and Green Mountain allotments on the westslope would be phased out due to being in grizzly bear habitat.

The risk of disease transfer is low with this option because:

domestic sheep grazing is not occurring in the areas currently: used by bighorn sheep;

recent data collected by GTNP indicates that bighorn sheep on the Westslope are not making large movements during the time that domestic sheep grazing is occurring;

domestic sheep grazing on the Westslope of the Tetons is not occurring during the bighorn breeding season;

in the Southern Beaverhead range, documented winter bighorn sheep use is not occurring in the areas where the winter domestic sheep grazing is occurring.

If bighorn sheep populations would somehow expand in numbers and increase their range, there may be an increased risk of disease transfer.

Option B: Incorporate a 3-mile buffer from all currently used habitat, historically used habitat, and potential habitat on the Westslope of the Tetons. Incorporate a 3-mile buffer from currently used habitat in the Southern Beaverhead area. Use a 'phase out' program to implement the 3-mile buffer.

All of the sheep allotments on the Westslope of the Tetons would be phased out. (This was the proposal in the DEIS)

The Nicholia Chandler, Snakey, and Kelly allotments in the Southern Beaverhead area would be phased out.

While the phase-out is occurring, the risk of disease transfer is low for the same reasons as stated in Option A.

If bighorn sheep populations would somehow expand in numbers and increase their range, there may be an increased risk of disease transfer until the allotments are completely phased out.

After the allotments are phased out, there would be no risk of disease transfer.

Option C: This is the same as Option B, but instead of a phase out, allotments would be closed within 3 to 5 years (or whatever length of time the FLT chose).

The risk of disease transfer would be low until the allotments are closed (see reasons as stated in Option A).

After the allotments are closed, there would be no risk of disease transfer.

Option D (Westslope of Tetons): This is the same as Option A, but add an objective to the DREV to require additional 'fine tuning' of the allotments to more effectively use natural barriers, change grazing patterns, adjust use periods, administratively close some additional areas, etc., to further separate domestic sheep from bighorn sheep. State in the objective that this would be done within 3 years of signing of the ROD.

How much more 'fine tuning' could be done is not known for sure. Whether or not additional fine tuning would further reduce a low risk of disease transfer is not known. Additional fine tuning may allow for some expansion of the bighorn sheep population without additional contact with domestic sheep, but this is unknown until the fine tuning is done.

Option D (Southern Beaverhead) Same as Option A, with the following additional restrictions: Close winter grazing in the Chandler area (winter grazing has only occurred there during the last 15 years, and only occurs every other winter). Close winter grazing in the Juniper Gulch area of the Snakey Allotment, and combine the remaining part of the Snakey Allotment with the Kelly Allotment to make one allotment instead of two.

On paper, this would reduce the amount of domestic sheep grazing which occurs during November and December, which is during the bighorn sheep breeding season, which is the time of the year when contact between bighorns and domestic sheep is potentially the highest. However, to our knowledge, bighorn sheep have not been documented on those winter allotments during that time period, so the real benefit could be questionable.

Some additional ideas from the task group:

Add an objective to evaluate recreational use and impacts on bighorn sheep.

Add an objective to complete and approve a fire management plan for the entire Westslope of the Tetons which would include opportunities for improving bighorn sheep habitat.

Final Management Direction in the Revised Forest Plan

Following a review of the options and suggestions listed above, final management direction was adopted in the Revised Forest Plan as follows:

Lemhi/Medicine Lodge Subsection

Objective:

Within three years of signing the ROD, assess opportunities to modify grazing allotment boundaries and permits to more effectively use natural barriers, change grazing patterns, adjust seasons of use, administratively close some additional areas, etc.; to further

separate winter domestic sheep grazing in the Medicine Lodge portion of the subsection from bighorn sheep.

Standards and Guidelines:

To better manage bighorn sheep habitat, the Kelly Canyon and Snakey Canyon winter sheep allotments in the Medicine Lodge portion of the subsection, on the Dubois Ranger District, will be phased out on an opportunity basis. In addition, the winter sheep grazing permit will be phased out on the Nicholia-Chandler S&G allotment. An opportunity is defined as a suitable or favorable time to abolish or close an allotment because of nonuse violations, term permit waivers where the permit is waived back to the government, resource protection, or permit actions resulting in cancellation of the permit. If opportunities do not arise, then efforts will be made to relocate or accommodate sheep to other areas. When all winter sheep allotments in that portion of the subsection have been vacated, they will be closed. The intent of not closing these individual allotments as they become vacated is to provide an opportunity to minimize conflicts between domestic and bighorn sheep. (S)

Teton Range Subsection

Goals and Objectives:

By 2007, complete a fire management plan for the Teton Range subsection which will include opportunities for improving bighorn sheep habitat.

Coordinate with Grand Teton National Park and the Wyoming Game and Fish Department in the management of the bighorn sheep population and habitat.

Work with the Intermountain Research Station to establish a research project to study the effects of recreation on bighorn sheep in the Teton Range subsection.

Within three years of signing the ROD, assess opportunities to modify grazing allotment boundaries and permits to more effectively use natural barriers, change grazing patterns, adjust seasons of use, administratively close some additional areas, etc.; to further separate domestic sheep from bighorn sheep.

Standards and Guidelines:

To better manage grizzly bear and bighorn sheep habitat, all sheep allotments in the Teton Range Subsection on the Teton Basin Ranger District will be phased out on an opportunity basis. These allotments are the Moose, Creek; Canyon Badlands; Dry Basin; Badger Twin; and Green Mountain S&G allotments. Opportunities to vacate an allotment include such events as nonuse violations, term permit waivers where the permit is waived back to the government, resource protection, or permit actions resulting in cancellation of the permit. If opportunities do not arise, then efforts will be made to relocate or accommodate sheep to other areas. Vacated allotments in these areas will be made available as needed to resolve conflicts between grizzly

bear and domestic sheep in other sheep allotments in Situation 2 habitat. (S)

When all sheep allotments in the portion of the subsection within the grizzly bear recovery area have been vacated, they will be closed. Likewise, when all sheep allotments in bighorn sheep habitat have been vacated, they will be closed. The intent of not closing these individual allotments as they become vacated is to provide an opportunity to minimize conflicts between domestic sheep and bighorn sheep or grizzly bear. (S)

References

Martin, K. D., T. Schommer, V. L. Coggins. 1996. Literature Review Regarding the Compatibility between Bighorn and Domestic Sheep. Photocopied Report. 10pp.

Targhee National Forest. 1992. Analysis of the Management Situation. Targhee National Forest, St. Anthony, ID. unnumbered pages.

MOUNTAIN GOATS

The IDFG letter (June 25, 1996) stated that conflicts between mountain goats and domestic sheep (in the Palisades area) were not addressed in the draft plan and DEIS. They stated two concerns:

> 1) Mountain goats being displaced to winter range by domestic sheep during the summer months. They specifically mention the following areas: Neeley Cove, the heads of Canyon Cr., Waterfall Canyon, Little Horn, and Hell's Hole, and the ridge between the heads of Waterfall Canyon and Little Elk Creek.
>
> 2) The potential of disease transmission from domestic sheep to mountain goats.

Here is my brief overview and some recommendations:

GENERAL POPULATION OVERVIEW

Mountain goats are not native to the Palisades area. They were introduced by IDFG in 1969 to 1971 as follows:

1969 -	3 females (age unknown) and 2 males (age unknown) into Palisades Creek
1970 -	3 yearling males into Black Canyon
1971 -	2 adult females, 1 male kid, 1 yearling male

The introductions were successful, and by 1983 a population estimate of 141 goats was made by Jim Hayden (a graduate student studying the population).

IDFG has conducted ground and helicopter counts from the mid-1980's to 1994 (the last count). The highest counts occurred in the late 1980's and early 1990's, with counts of 210-215. The last count in 1994 was 176. They have a helicopter count scheduled for August of this year, (personal communication with Justin Naderman)

IDFG began hunting the population in 1983, with 6 hunting permits being issued. Data on hunting permits and harvest for the years 1983 to 1995 are as follows:

	Year												
	83	84	85	86	87	88	89	90	91	92	93	94	95
No. of Permits	6	10	10	16	24	24	24	24	13	13	13	13	11
Harvest	5	10	7	15	24	21	21	21	12	12	?	13	?

Wyoming Game and Fish is interested in starting a hunt. This summer, they plan on doing a goat count on the Wyoming portion to see if they have enough goats to begin a hunt.

The Palisades goat population has done so well, that IDFG has captured goats from this population to transplant into other areas of the State (Bud Alford,

personal communication). They have captured 12 to 15 goats every other year, with the last capture occurring in 1994. They planned to capture more goats this summer, but due to funding problems they are not going to do it (Justin Naderman, personal communication).

IDFG was concerned that the combination of hunting and capturing may have resulted in a reduction in the population, so they reduced the number of hunting permits (Justin Naderman, personal communication)(see Table above).

DISEASE OVERVIEW

I asked the Intermountain Research Station to do a literature search on disease problems with domestic sheep and mountain goats. They searched Wildlife Review, BIOSIS, Life Sciences Collection, Ecological Record, AGRICOLA, Species Index, the FS INFO Database, and their reference collection. They found no documentation of disease problems with domestic sheep and mountain goats.

The Intermountain Research Station did give me a list of mountain goat diseases and parasites, and suggested that I visit with Dr. Tom Thorne at the wildlife disease lab at the University of Wyoming. I did this, and Dr. Thorne said that none of the diseases or parasites listed would be associated with domestic sheep. He asked me to send the list to him for further study, which I did.

I also talked with the wildlife lab of the U. S. Fish and Wildlife Service in Montana. Neil Anderson who works at the lab said the same thing that Dr. Thorne said.

DISPLACEMENT OVERVIEW

IDFG provided no data in their letter, but in talking with Justin Naderman I learned the following about their concern:

> In 1986 IDFG conducted a ground count of goats in the Mount Baird area, and counted 104 goats. Later in the summer they did a helicopter count and only counted 52 goats. They observed goats on winter range areas when doing the helicopter count.

I talked with Bud Alford about his knowledge of mountain goats being displaced by domestic sheep. He said a few years ago he counted mountain goats with some other observers from Idaho State University. They observed more goats in allotments being grazed by domestic sheep than in non-grazed allotments.

A few week ago, Palisades Ranger District had a coordination meeting with IDFG, and they agreed to have a field trip on August 5 & 6 this summer to look at the mountain goat situation.

In 1991 and 1992, we had a series of management indicator species (MIS) workshops with the State Fish and Game Departments. There was a lot of debate about which species should be MIS's, but in the end, mountain goats were not selected as an MIS for the Forest Plan Revision. I believe this was a good decision because they are a transplanted species in the Palisades area, and I do not believe Forest Service management actions have much effect on

populations or habitat conditions. The mountain goat population increased dramatically after being introduced, with the presence of domestic sheep grazing.

Recommendation:

Do not include mountain goats in the Forest Plan Revision for the following reasons:

There is no documentation of disease problems between mountain goats and domestic sheep.

Conflicts with mountain goats being displaced by domestic sheep in specific areas, if they exist, should be taken care of at the project level, when allotment management plans are developed.

Support the Palisades Ranger District on their planned field trip with IDFG on Aug. 5 & 6.

DEAD AND DOWNED WOODY MATERIAL

Logs and other woody debris, such as stumps, root wads, bark, and piles of limbs, occur on the floor of most forest ecosystems. These features provide diversity in the environment and are of varying significance as habitat for terrestrial wildlife (Thomas 1979).

In general, the larger the diameter and the greater the length of a log, the more useful it is; however, small material is better than none (Thomas 1979).

Logs oriented along the contours of a slope appear to be used more by small vertebrates than are logs oriented across contours (Thomas 1979)•

The relative contributions, and the optimal mix, of undecayed, moderately decayed, and well decayed woody debris make to forest-floor function is unknown; similarly the influence of size of pieces of coarse woody debris is unknown (Carey et al., 1996). It is not known if small coarse woody debris added to the ecosystem in the stem exclusion stage can substitute for large coarse woody debris, even though some shrews selectively use areas with high concentrations of small coarse woody debris (Carey et al., 1996).

Thomas (1979), for the Blue Mountains of Oregon and Washington, recommended woody debris should be retained for wildlife cover on 10 percent of the area; and at least 5 uncharred class 1 or class 2 logs per hectare (2/acre) should be retained as wildlife habitat. Furthermore, all class 3, 4, and 5 logs, which have little or no commercial value but are acceptable as fuel loading should be retained. For a maximum function as wildlife habitat, the logs should be at least 30 to 43 centimeters (12 to 17 in.) in diameter at the large end and 6 meters (20 ft) or more in length.

Carey et al., (1996), for the Forests of western Washington, suggested felling trees > 20 inches dbh when legacies and natural mortality have not provided 8-10% cover of large (> 20 inches), slightly to moderately decayed, coarse woody debris.

Regional old growth definitions (USDA Forest Service 1993) indicated that dead and down coarse woody debris in old growth forests would have:

> minimum diameters ranging from 8 to 20 inches, depending on forest type;
>
> downed logs per acre ranging from 1 to 50 or more, depending on forest type;
>
> and logs would be a minimum length of 8 to 10 feet, depending on forest type.

Using the above information as a guide, forestwide standards and guidelines for dead and downed coarse woody debris were developed as follows:

1. Dead and Down Material.

(Note: These requirements are interrelated with the woody residue requirements in the Physical Elements, Soils Section; they help meet those requirements and are not cumulative to those requirements.)

A. On at least 60 percent of the forested acres of each analysis area an average of 21 logs per acre should be left consisting of logs in decomposition classes 1, 2 and 3 where they exist (USFS,1979). (G) (Note: Data may be lacking for this analysis, so managers can assume that any unmanaged stand or stand where management did not include the removal or piling of down material, meets Forestwide standards and guidelines for down woody material.)

When this amount of down material is not present on at least 60% of the forested acres in an analysis area, an average of 42 logs per acre should be left in all activity areas (harvest units) consisting of logs in all decomposition classes where they exist. Fewer logs may be left if fuel loading would exceed 25 tons per acre. (G)

1) Logs should be at least 7 inches in diameter at the small end, be at least 20 feet long, and have a volume of at least 10 cubic feet (e.g., a log averaging 9.5 inches in diameter and 20 feet long). (G)

a. Smaller size logs may only be used in meeting this volume criteria if the area is incapable of producing larger trees, or the stand is too young to produce these trees. In these cases, logs representing the largest tree diameter class present in the stand should be retained and at least 200 cubic feet (approximately 2.3 tons) per acre of down logs shall be retained.

b. For every 2-acre area in an activity area, a minimum of two logs should be left, where they exist, to maintain distribution of down woody material.

These guidelines recognize that there will be variability in the distribution of logs in decomposition classes, and that our intent is not to physically sort thru logs in each unit to achieve some arbitrary proposed mix in decomposition classes. Also, these guidelines recognize that the distribution of dead and down logs will be highly variable, therefore 60 percent of the forested acres are to meet these guidelines. Where 60 percent of the forested acres do not meet them, additional logs per acre (42) should be left in all activity areas. The guideline of 7 inches dbh at the small end is in recognition of smaller tree sizes on the Targhee.

References

Carey, A. B., C. Elliott, B. R. Lippke, J. Sessions, C. J. Chambers, C. D. Oliver, J. F. Franklin, M. G. Raphael. 1996. Washington Forest Landscape Management Project - A Pragmatic, Ecological Approach to Small-Landscape Management. Washington State Department of Natural Resources; Washington Forest Landscape Management Project Report No. 2. Olympia, WA. 99pp + figures.

Thomas, Jack Ward. 1979. Wildlife Habitats in Managed Forests - the Blue Mountains of Oregon and Washington. USDA Forest Service, Agriculture Handbook No. 553. 512pp.

USDA Forest Service. 1993. Characteristics of Old-Growth Forests in the Intermountain Region. Intermountain Region, Ogden, UT. 86pp.

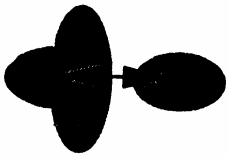
VIABILITY RATINGS FOR MAMMALS, BIRDS, AMPHIBIANS AND REPTILES

Definitions for Viability Ratings

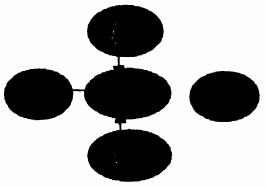
Habitat is broadly distributed across the planning area with opportunity for continuous or nearly continuous occupation by the species, little or no limitation on population interactions.

1 

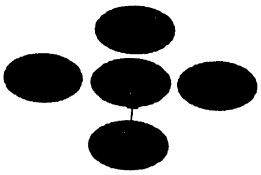
Habitat is broadly distributed across the planning area but gaps exist within this distribution. Disjunct patches of habitat are typically large enough and close enough to other patches to permit dispersal among patches and to allow species to interact as a metapopulation.

2 

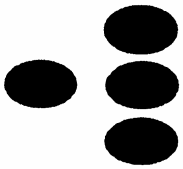
Habitat exists primarily as patches, some of which are small or isolated to the degree that species interactions are limited. Local sub-populations in most of the species' range interact as a metapopulation, but some patches are so disjunct that sub-populations in those patches are essentially isolated from other populations.

3 

Habitat is typically distributed as isolated patches, causing strong limitations for population interaction among patches, and limited opportunity for dispersal among patches. Some local populations may be extirpated and rates of recolonization will likely be slow.

4 

Habitat is very scarce throughout the area with little or no possibility of interactions among local populations, strong potential for extirpations and little likelihood of recolonization.

5 

Basis for Viability Ratings

Viability ratings are based on the distribution, quantity, and quality of habitats on the Targhee National Forest, and the ability of species to interact with species and habitats on adjacent lands. The most important habitat parameters used for these viability ratings included the following:

> Habitat Distribution: Data on the distribution of forested and nonforested habitats among ecological subsections and principal watersheds, as presented in the FEIS and Process Paper D.

Mature and Older Forest: Data on the distribution and quantity of mature and older forests among ecological subsections and principal watersheds, as presented in the FEIS and Process Paper D. The change in acres of mature and older forest habitat between the alternatives is 2% (76% mature and older forest remaining in Alt. 1, and 78% mature and older forest remaining in Alt. 6).

Aquatic Influence Zones and Riparian Habitat: Data on the percent of riparian acres meeting DVC's. The range among the alternatives is 8%, (68% meeting DVC's in Alternative 1 to 76% meeting DVC's in Alternative 6). Also, additional information on AIZ and riparian habitat as presented in the FEIS.

Upland Range Acres Meeting DVC's: Data on the percent of upland range acres meeting DVC's. The range among the alternatives is 2% (79% meeting DVC's in Alternative 1 to 81% meeting DVC's in Alternative 6).

Snag Habitat: Data on the biological potential for primary cavity nesting species. Analysis indicates no change in the biological potential for primary cavity nesting species.

Analysis for all of the MIS: Information on the distribution, population trends, and habitat for the MIS, which includes all of the TES species occurring on the Forest.

Forestwide Standards and Guidelines: Forestwide S&G's apply to all alternatives, and have a great affect on the distribution, quantity, and quality of habitats for all wildlife species. Forestwide S&G's are the main reason why the range of effects between the alternatives is small.

Management Prescriptions: Management prescription direction varies among the alternatives, depending on the mix of management prescriptions and where they are applied on the Forest. Management prescription direction also influences the effects between the alternatives.

Information contained in the 'Adjacency Reports:' For lands adjacent to the Forest, information was gathered on the management direction and presence of TES species.

Information on Species Habitat Relationships: An overview of wildlife species was presented in the AMS. This information was used, plus additional information obtained from the ICBEMP and other sources of information pertinent to the Forest.

Information on Historical Vegetation Conditions: Two studies were done on two watersheds to obtain historical vegetation conditions dating back to the mid-1800's. Information was also obtained from vegetation maps made during the early 1900's.

Viability Ratings

Tables 13.1 to 13.3 illustrate the viability ratings for species which are known to occur or potentially occur on the Forest.

Viability ratings are presented for 6 Alternatives. For most species, viability ratings do not vary among the alternatives, because the range in habitat conditions among the alternatives is small, and the range does not result in a difference in viability.

The viability ratings presented in Tables 13.1 to 13.3 are applicable only to the analysis and programmatic decisions being made in the Revised Forest Plan, and our knowledge of populations, habitats, and management direction on lands immediately adjacent to the Targhee.

These tables also display the viability ratings from the ICBEMP (USDA Forest Service and USDI Bureau of Land Management 1996). In most cases, the viability ratings for the Forest are better than the viability ratings from the ICBEMP. The following example explains why this is the case:

> Bald eagle populations in the GYA have increased rapidly, as previously documented in the bald eagle chapter of this process paper. All of the nest sites that have become established on the Forest have been maintained. The eagle population in the GYA has exceeded the goals established in the bald eagle recovery plan. There are no barriers to bald eagles on the Forest interacting with other bald eagles in the GYA. Based on this record, bald eagles received a viability rating of 2.0 for all alternatives in the Forest Plan Revision. The ICBEMP gave bald eagles a rating of 2.8 for historic conditions and 3.6 for current conditions.

References

USDA Forest Service and USDI Bureau of Land Management. 1996. Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins. T. M. Quigley, R. W. Haynes, R. T. Graham, Technical Editors. Pacific Northwest Research Station, General Technical Report - PNW-GTR-382. Portland, Oregon. 303pp.

Table 13.1. Viability Rating for Mammal Species Potentially Occurring on the Targhee National Forest.

Abreviations: Season: (Y) = documented presence or highly expected presence seasonally or year around; a blank ( ) for season means potential presence.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL 1/	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Cinereous/Masked Shrew (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Vagrant Shrew (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Dusky Shrew (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Water Shrew (Y)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Merriam's Shrew (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Preble's Shrew ( )			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Little Brown Bat (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Yuma Bat ( )			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Cave Brown Bat ( )			not enough information about caves and mine tunnels on the Forest						
Long-eared Brown Bat (Y)	2.4	3.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Fringed Brown Bat ( )	2.7	3.7	not enough information about potential habitats on the Forest						
Long-legged Brown Bat ( )	2.7	3.7	not enough information about potential habitats on the Forest						
California Brown Bat (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Silver-haired Bat ( )	2.5	3.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Big Brown Bat (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Hoary Bat ( ) (may migrate)	2.2	3.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Spotted Bat ( )	4.0	4.2	not enough information about potential habitats on the Forest						
Townsend's Big-eared Bat ( )	3.1	4.0	not enough information about potential habitats on the Forest						
Pallid Bat ( )			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Common Pika (Y)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Pygmy Rabbit (Y)	3.7	4.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Nuttail's Cottontail (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Snowshoe Hare (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
White-tailed Jack Rabbit (Y)	1.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Black-tailed Jack Rabbit (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Least Chipmunk (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Yellow Pine Chipmunk (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Red-tailed Chipmunk ( )			not enough information about potential habitats on the Forest						
Uinta Chipmunk ( )			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Yellow-bellied Marmot (Y)			2.5	2.5	2.5	2.5	2.5	2.5	2.5
Townsend's Ground Squirrel (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Richardson's Ground Squirrel(Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Elegant Ground Squirrel (Y)			2.5	2.5	2.5	2.5	2.5	2.5	2.5
Uinta Ground Squirrel (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Golden-mantled Grnd Squirrel(Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Red Squirrel (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Northern Flying Squirrel (Y)	2.1	3.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Northern Pocket Gopher (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Idaho Pocket Gopher (Y)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Great Basin Pocket Mouse (Y)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Ord's Kangaroo Rat (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0

Table 13.1. Continued.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Beaver (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Western Harvest Mouse (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Common Deer Mouse (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Northern Grasshopper Mouse (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Bushy-tailed Wood Rat (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Gapper's Red-backed Vole (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Heather Vole (Y)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Common Meadow Vole (Y)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Montane Meadow Vole (Y)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Long-tailed Meadow Vole (Y)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Richardson's Water Vole (Y)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Sagebrush Vole (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Muskrat (Y)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
House Mouse (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Western Jumping Mouse (Y)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Porcupine (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Coyote (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Gray Wolf (Y)	1.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red Fox (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Gray Fox ( )			not enough information about potential habitat on the Forest						
Black Bear (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Grizzly Bear (Y)	1.4	4.0	2.5	2.5	2.5	2.0	2.0	2.0	2.0
Raccoon (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Marten (Y)	2.1	3.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Fisher (Y)	2.8	3.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Short-tailed Weasel/Ermine (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Long-tailed Weasel (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Mink (Y)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Wolverine (Y)	3.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Badger (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Spotted Skunk (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Striped Skunk (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
River Otter (Y)			1.5	1.5	1.5	1.5	1.5	1.5	1.5
Mountain Lion/Cougar (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lynx (Y)	3.0	4.4	a breeding lynx population has never existed on the Forest						
Bobcat (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1

Table 13.1. Continued.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Elk (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Mule Deer (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
White-tailed Deer (Y)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Moose (Y)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Pronghorn/Antelope (Y)	2.0	2.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Mountain Goat (Y)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Bighorn Sheep (Y)			4.0	4.0	4.0	4.0	4.0	4.0	4.0
Bison (Y)			Bison rarely migrate from YNP to the Targhee						

1/ No number in the ICBEMP columns means no rating was given for the species in the Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins.

Table 13.2. Viability Rating for Bird Species Potentially Occurring on the Targhee National Forest.

Abreviations: (Season: B = confirmed evidence of breeding; b = circumstantial evidence of breeding; t = migrants (transients) or non-breeding summer visitors; W = over-wintering species (15 Dec. to 15 Feb.); w = winter visitors or late fall stragglers; a blank ( ) for season means no documentation for that species)

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL 1/	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE						
			ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Pacific Loon (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Common Loon (bwt)	3.8	3.6	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Pied-billed Grebe (BW)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Horned Grebe (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Eared Grebe (B)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Western Grebe (B)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Red-necked Grebe (B)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Clark's Grebe (t)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
White Pelican (bt)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Double-crested Cormorant (bt)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
American Bittern (B)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Great Blue Heron (BW)	3.2	3.4	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Great (Common) Egret (t)	3.2	3.4	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Cattle Egret (t)	3.2	3.4	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Snowy Egret (Bt)	3.2	3.4	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Green-backed Heron (t)	3.2	3.4	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Black-crowned Night-heron (B)	3.2	3.4	2.5	2.5	2.2	2.2	2.0	2.0	2.0
White-faced Ibis (B)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Tundra Swan (Wt)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Trumpeter Swan (BW)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Snow Goose (wt)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Greater White-fronted Goose (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Ross' Goose (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Canada Goose (BW)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Wood Duck 1/ (Bt)	2.9	3.0	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Harlequin Duck (B)	3.2	4.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Green-winged Teal (BW)	2.8	3.3	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Mallard (BW)	2.8	3.3	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Northern Pintail (BW)	2.8	3.3	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Blue-winged Teal (B)	2.8	3.3	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Cinnamon Teal (B)	2.8	3.3	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Northern Shoveler (Bt)	2.8	3.3	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Gadwall (BW)	2.8	3.3	2.5	2.5	2.2	2.2	2.0	2.0	2.0
American Wigeon (BW)	2.8	3.3	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Canvasback (B)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Redhead (Bw)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Ring-necked Duck (BW)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Greater Scaup (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0

Table 13.2. Continued.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Lesser Scaup (Bwt)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Oldsquaw (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Surf Scoter (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
White-winged Scoter (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Common Goldeneye 1/ (Wt)	3.5	3.7	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Barrow's Goldeneye 1/ (Bwt)	3.5	3.7	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Bufflehead 1/ (Bwt)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Hooded Merganser 1/ (W)	2.9	3.0	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Common Merganser 1/ (BW)	2.9	3.0	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Red-breasted Merganser (wt)	2.9	3.0	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Ruddy Duck (Bw)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Turkey Vulture (bt)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Osprey 1/ (B)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Bald Eagle (BWt)	2.8	3.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Northern Harrier (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Sharp-shinned Hawk (BWt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Cooper's Hawk (Bw)	1.8	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Northern Goshawk (BWt)	2.1	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Broad-winged Hawk (t)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Swainson's Hawk (B)	2.1	1.9	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Red-tailed Hawk (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Ferruginous Hawk (B)	2.3	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Rough-legged Hawk (Wt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Golden Eagle (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
American Kestrel (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Merlin (bwt)	2.9	3.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Gyrfalcon (w)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Peregrine Falcon (Bwt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Prairie Falcon (BWt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Gray Partridge (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Chukar (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Blue Grouse (BW)	1.5	2.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Ruffed Grouse (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Sage Grouse (BW)	1.6	3.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Sharp-tailed Grouse (B)	1.4	4.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Virginia Rail (Bt)	3.4	3.6	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Sora (B)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
American Coot (Bw)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Sandhill Crane (Bw)	3.1	3.2	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Whooping Crane (t)			efforts to establish a breeding population in SE Idaho failed						

Table 13.2. Continued.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL 1/	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Killdeer (BW)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Mountain Plover (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Black-bellied Plover (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Lesser Golden Plover (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Semi-palmated Plover (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Black-necked Stilt (B)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
American Avocet (Bt)	3.4	3.6	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Greater Yellowlegs (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Lesser Yellowlegs (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Willet (B)	3.7	3.9	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Solitary Sandpiper (t)	1.9	2.2	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Spotted Sandpiper (B)	2.5	2.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Upland Sandpiper (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Long-billed Curlew (B)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Marbled Godwit (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Least Sandpiper (t)	1.9	2.2	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Common Snipe (Bwt)	2.9	3.1	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Red-necked Phalarope (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Wilson's Phalarope (B)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Short-billed Dowitcher (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Long-billed Dowitcher (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Pectoral Sandpiper (t)	1.9	2.2	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Ruddy Turnstone (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Red Knot (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Sanderling (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Western Sandpiper (t)	1.9	2.2	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Semi-palmated Sandpiper (t)	1.9	2.2	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Baird's Sandpiper (t)	1.9	2.2	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Dunlin (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Stilt Sandpiper (t)	1.9	2.2	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Parasitic Jaeger (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Pomarine Jaeger (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Franklin's Gull (Bt)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Ring-billed Gull (Bt)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
California Gull (BW)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Herring Gull (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Bonapart's Gull (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Sabine's Gull (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Caspian Tern (B)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Common Tern (t)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Forster's Tern (Bt)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Black Tern (B)	3.2	3.5	2.5	2.5	2.2	2.2	2.0	2.0	2.0

Table 13.2. Continued.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Mourning Dove (Bw)		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Rock Dove (bW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Band-tailed Pigeon (t)	4.0	4.1	not enough information about potential habitat on the Forest						
Yellow-billed Cuckoo (B)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Black-billed Cuckoo (b)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Common Barn Owl (wt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Flammulated Owl (Bt)	2.2	3.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Western Screech Owl (B)	2.4	2.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Great Horned Owl (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Snowy Owl (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Northern Pygmy Owl (BWt)	1.3	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Burrowing Owl (Bt)	1.5	2.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Great Gray Owl (BW)	3.0	3.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Long-eared Owl (Bt)	3.1	3.6	2.0	2.0	2.0	2.20	2.0	2.0	2.0
Short-eared Owl (Bw)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Boreal Owl (bw)	2.9	3.7	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Northern Saw-whet Owl (B)	1.3	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Common Nighthawk (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Common Poorwill (Bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Vaux's Swift (t)	3.9	3.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0
White-throated Swift (bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Black-chinned Hummingbird (B)	2.8	3.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Calliope Hummingbird (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Broad-tailed Hummingbird (Bt)	2.4	3.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Rufous Hummingbird (B)	2.3	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Belted Kingfisher (BW)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Lewis' Woodpecker (b)	2.3	3.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red-headed Woodpecker (t)			not enough information about potential habitat on the Forest						
Yellow-bellied Sapsucker (Bw)	2.0	3.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Williamson's Sapsucker (Bt)	2.2	3.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Downy Woodpecker (bWt)	1.8	2.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Hairy Woodpecker (Bw)	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Three-toed Woodpecker (B)	2.6	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Black-backed Woodpecker (b)	2.2	3.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Northern (Common) Flicker (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Olive-sided Flycatcher (bt)	1.2	3.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Western Wood-Pewee (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Willow Flycatcher (B)	2.6	3.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Hammond's Flycatcher (Bt)	1.7	3.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Table 13.2. Continued.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Least Flycatcher (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Dusky Flycatcher (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Gray Flycatcher (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Cordillern Flycatcher (bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Say's Phoebe (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ash-throated Flycatcher ( )	2.1	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Western Kingbird (bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Eastern Kingbird (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Horned Lark (BW)	2.5	1.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Tree Swallow (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Violet-green Swallow (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
N. Rough-winged Swallow (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Bank Swallow (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Cliff Swallow (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Barn Swallow (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Gray Jay (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Steller's Jay (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Blue Jay (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Scrub Jay ( )			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Pinyon Jay (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Clark's Nutcracker (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Black-billed Magpie (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
American Crow (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Common Raven (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Black-capped Chickadee (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Mountain Chickadee (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Plain Titmouse (b)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Bushtit ( )	3.4	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red-breasted Nuthatch (bw)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
White-breasted Nuthatch (bwt)	2.2	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Brown Creeper (bwt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Rock Wren (B)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Canyon Wren (t)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
House Wren (Bw)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Winter Wren (bt)	2.0	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Marsh Wren (Bw)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
American Dipper (BW)			2.5	2.5	2.2	2.2	2.0	2.0	2.0

Table 13.2. Continued.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Golden-crowned Kinglet (bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ruby-crowned Kinglet (bw)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Blue-gray Gnatcatcher (bt)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Western Bluebird (b)	2.2	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Mountain Bluebird (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Townsend's Solitaire (Bw)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Veery (B)	2.4	3.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Swainson's Thrush (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Hermit Thrush (b)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
American Robin (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Varied Thrush (wt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Gray Catbird (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Northern Mockingbird (t)			not enough information about potential habitat on the Forest						
Sage Thrasher (B)	1.4	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Brown Thrasher (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Water (American) Pipit (Bwt)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Sprague's Pipit (t)			not enough information about potential habitat on the Forest						
Bohemian Waxwing (Wt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Cedar Waxwing (Bwt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Northern Shrike (wt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Loggerhead Shrike (bwt)	1.7	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
European Starling (BW)			1.1	1.1	1.1	1.1	1.1	1.1	1.1
Solitary Vireo (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Warbling Vireo (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red-eyed Vireo (B)	3.4	3.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Tennesee Warbler (t)			not enough information about potential habitat on the Forest						
Orange-crowned Warbler (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Nashville Warbler (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Virginia's Warbler (t)			not enough information about potential habitat on the Forest						
Yellow Warbler (B)	2.4	3.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Chestnut-sided Warbler (t)			not enough information about potential habitat on the Forest						
Yellow-rumped Warbler (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Black-throated Blue Warbler (t)			not enough information about potential habitat on the Forest						
Black-throated Gray Warbler(bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Townsend's Warbler (bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Blackburnian Warbler (t)			not enough information about potential habitat on the Forest						
Blackpoll Warbler (t)			not enough information about potential habitat on the Forest						
Palm Warbler (t)			not enough information about potential habitat on the Forest						
Bay-breasted Warbler (t)			not enough information about potential habitat on the Forest						
American Redstart (b)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Ovenbird (t)			not enough information about potential habitat on the Forest						

Table 13.2. Continued.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL 1/	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Northern Waterthrush (t)			not enough information about potential habitat on the Forest						
MacGillivray's Warbler (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Common Yellowthroat (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Wilson's Warbler (bt)	3.2	3.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Yellow-breasted Chat (B)	2.5	3.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Summer Tanager (t)			not enough information about potential habitat on the Forest						
Scarlet Tanager (t)			not enough information about potential habitat on the Forest						
Western Tanager (B)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Rose-breasted Grosbeak (t)			not enough information about potential habitat on the Forest						
Black-headed Grosbeak (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Blue Grosbeak (t)			not enough information about potential habitat on the Forest						
Lazuli Bunting (B)	2.4	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Indigo Bunting (t)			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Green-tailed Towhee (B)	2.7	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Rufous-sided Towhee (Bt)	2.5	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
American Tree Sparrow (W)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Chipping Sparrow (B)	1.1	1.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Clay-colored Sparrow (Bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Brewer's Sparrow (B)	1.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Vesper Sparrow (B)	1.2	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lark Sparrow (bt)	1.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Black-throated Sparrow (bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Sage Sparrow (B)	1.2	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Savannah Sparrow (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Grasshopper Sparrow (bt)	2.8	4.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Fox Sparrow (Bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Song Sparrow (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lincoln's Sparrow (Bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Swamp Sparrow (t)			not enough information about potential habitat on the Forest						
White-throated Sparrow (t)			not enough information about potential habitat on the Forest						
Golden-crowned Sparrow (wt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
White-crowned Sparrow (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Harris' Sparrow (wt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Dark-eyed Junco (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lark Bunting (bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Snow Bunting (Wt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
McCown's Longspur (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lapland Longspur (w)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Chestnut-collared Longspur (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Bobolink (B)	3.3	4.3	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Western Meadowlark (Bw)	1.1	1.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red-winged Blackbird (BW)	2.1	2.4	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Yellow-headed Blackbird (BW)			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Rusty Blackbird (t)			not enough information about potential habitat on the Forest						
Brewer's Blackbird (BW)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Brown-headed Cowbird (B)			1.1	1.1	1.1	1.1	1.1	1.1	1.1

Table 13.2. Continued.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Common Grackle (Bwt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Orchard Oriole (t)			not enough information about potential habitat on the Forest						
Northern Oriole (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Rosy Finch (bWt)	4.0	4.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Pine Grosbeak (bwt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Purple Finch (t)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Cassin's Finch (B)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
House Finch (bwt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Red Crossbill (bt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
White-winged Crossbill (Bt)	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Common Redpoll (wt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Hoary Redpoll (w)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Pine Siskin (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
American Goldfinch (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Evening Grosbeak (BWt)			2.0	2.0	2.0	2.0	2.0	2.0	2.0
House Sparrow (BW)			2.0	2.0	2.0	2.0	2.0	2.0	2.0

1/ No number in the ICBEMP columns means no rating was given for the species in the Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins.

Table 13.3. Viability Rating for Amphibian and Reptile Species Potentially Occurring on the Targhee National Forest.

Species (Season)	ICBEMP/ UCRB BLM/FS HISTORICAL	ICBEMP/ UCRB BLM/FS CURRENT 1/	TARGHEE NATIONAL FOREST - 1ST DECADE ALT. 1	ALT. 2	ALT. 3	ALT. 3M	ALT. 4	ALT. 5	ALT. 6
Eastern Long-toed Salamander			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Blotched Tiger Salamander			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Great Basin Spadefoot Toad			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Western (Boreal) Toad	2.1	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Striped (Boreal) Chorus Frog			2.5	2.5	2.2	2.2	2.0	2.0	2.0
Spotted Frog	2.1	3.1	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Northern Leopard Frog	2.9	4.7	2.5	2.5	2.2	2.2	2.0	2.0	2.0
Large-spotted Leopard Lizard			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Northern Sagebrush Lizard	1.5	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Short-horned Lizard	1.5	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Great Basin (Western) Skink			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Regal Ringneck Snake			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Rocky Mountain Rubber Boa	3.0	3.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Racer			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Great Basin Gopher Snake			2.0	2.0	2.0	2.0	2.0	2.0	2.0
Valley (Common) Garter Snake	1.5	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Wandering (W. Terr.) G. Snake			2.0	2.0	2.0	2.0	2.0	2.0	2.0

1/ No number in the ICBEMP columns means no rating was given for the species in the Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins.

ATTACHMENT A

Overview of Wildlife Species Which May Occur On or Adjacent to the Targhee National Forest.

WILDLIFE

Introduction

Distribution maps and other sources of literature indicate there are about 85 species of mammals which potentially occur on or adjacent to the Forest; 301 species of birds which potentially migrate through, reside on, or are adjacent to the Forest during some season of the year; and 7 species of amphibians and 10 species of reptiles which potentially occur on or adjacent to the Forest.

MAMMALS

Table 1 lists the 85 species of mammals which potentially occur on or adjacent to the Forest, and indicates the major kinds of plant communities which could provide habitat for these species. Generally, most of the mammal species are capable of utilizing more than one kind of major plant community. A summary of the potential number of species associated with the major plant communities on the Forest is as follows:

Lodgepole Pine:	47 species
Douglas-fir:	48 species
Spruce/Fir:	48 species
White-bark Pine:	26 species
Aspen:	52 species
Riparian Areas (cottonwood, willow, wet meadows):	62 species
Ponds, Bogs, and Lakes:	21 species
Sagebrush, Grassland:	57 species
Juniper, Mountain Brush:	45 species
Sub-alpine and Alpine Meadows:	37 species
Snags and Logs:	18 species
Other Features (cliffs, caves, talus, rimrock, etc.):	26 species

Table 1. Mammal Species Potentially Occurring on the Targhee National Forest.

Abreviations: LP = LODGEPOLE PINE; DF = DOUGLAS-FIR; SF = SPRUCE/FIR; WP = WHITE BARK PINE; A = ASPEN; S/L = SNAGS AND LOGS; R = RIVERS/CREEKS/STREAMS & ADJACENT RIPARIAN; PBL = PONDS/BOGS/LAKES/STANDING WATER; SG = SAGEBRUSH GRASS; JMB = JUNIPER, MAHOGANY, MTN. BRUSH; SAM = SUBALPINE & ALPINE MEADOWS; OTHER = CLIFFS, RIMROCK, TALUS, CAVES, ETC. m/og = mature/old growth; g = general use; c = cottonwood; w = willow; wm = wet meadows; (Season: (Y) = documented presence or highly expected presence seasonally or year around; a blank ( ) for season means potential presence.

	LP		DF		SF		WP		A		S/L 1/	R			PBL	SG	JMB	SAM	OTHER
Species (Season)	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Cinereous/Masked Shrew (Y)		x		x		x		x		x			x	x		x		x	x
Vagrant Shrew (Y)		x		x		x				x		x	x	x		x	x	x	
Dusky Shrew (Y)		x		x		x		x		x		x	x	x	x	x		x	
Water Shrew (Y)												x	x	x	x				most R type
Merriam's Shrew (Y)																x	x		
Preble's Shrew ( )														x		x			
Little Brown Bat (Y)		x		x		x				x	x	x			x				
Yuma Bat ( )		x		x		x				x	x	x	x	x	x		x		x
Cave Brown Bat ( )													x	x		x			x
Long-eared Brown Bat (Y)				x		x					x	x				x	x		
Fringed Brown Bat ( )		x														x			
Long-legged Brown Bat ( )		x		x		x				x	x					x	x		
California Brown Bat (Y)		x		x		x					x		x		x	x	x		x
Silver-haired Bat ( )		x		x		x				x	x	x			x				
Big Brown Bat (Y)		x		x		x				x	x	x			x	x			
Hoary Bat ( ) (may migrate)		x		x		x				x		x			x	x	x		
Spotted Bat ( )		x		x		x				x	x	x			x	x	x		x
Townsend's Big-eared Bat ( )		x		x		x				x		x				x	x		x
Pallid Bat ( )												x	x			x	x		x
Common Pika (Y)																		x	x
Pygmy Rabbit (Y)																x			
Nuttall's Cottontail (Y)										x		x	x			x	x		
Snowshoe Hare (Y)		x		x		x		x		x	x	x	x					x	
White-tailed Jack Rabbit (Y)										x						x	x		
Black-tailed Jack Rabbit (Y)																x	x		

Table 1. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L 1/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Least Chipmunk (Y)		x		x		x		x		x		x	x	x		x	x		x
Yellow Pine Chipmunk (Y)		x		x		x		x		x	x	x	x	x		x	x		x
Red-tailed Chipmunk ( )		x		x		x		x											
Uinta Chipmunk ( )		x		x		x				x						x	x		x
Yellow-bellied Marmot (Y)										x	x	x	x			x	x	x	x
Townsend's Ground Squirrel (Y)													x	x		x	x		
Richardson's Ground Squirrel(Y)										x		x	x			x	x		x
Elegant Ground Squirrel (Y)																x		x	
Uinta Ground Squirrel (Y)										x		x				x	x	x	
Golden-mantled Grnd Squirrel(Y)		x		x		x		x		x	x	x				x	x	x	x
Red Squirrel (Y)		x		x		x		x			x								
Northern Flying Squirrel (Y)	x		x		x						•								
Northern Pocket Gopher (Y)		x		x		x		x		x				x		x	x	x	
Idaho Pocket Gopher (Y)																x		x	
Great Basin Pocket Mouse (Y)										x						x	x		
Ord's Kangaroo Rat (Y)																x	x		
Beaver (Y)												x	x		x				
Western Harvest Mouse (Y)																x	x		
Common Deer Mouse (Y)		x		x		x		x		x	x	x	x	x		x	x	x	
Northern Grasshopper Mouse (Y)																x	x		x
Bushy-tailed Wood Rat (Y)		x		x		x				x		x	x			x	x	x	x
Gapper's Red-backed Vole (Y)		x		x		x		x		x		x	x	x					
Heather Vole (Y)		x				x				x			x			x		x	x
Common Meadow Vole (Y)													x	x	x				
Montane Meadow Vole (Y)				x		x				x		x	x	x		x		x	
Long-tailed Meadow Vole (Y)				x		x				x				x	x	x		x	
Richardson's Water Vole (Y)												x	x	x	x			x	
Sagebrush Vole (Y)										x						x	x		
Muskrat (Y)												x	x	x	x				
House Mouse (Y)												x	x	x					
Western Jumping Mouse (Y)										x		x	x	x	x	x		x	

Table 1. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L	I/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g			c	w	wm					
Porcupine (Y)		x		x		x		x		x			x	x				x		
Coyote (Y)		x		x		x		x		x			x	x			x	x	x	
Gray Wolf (Y)		x		x		x		x		x			x	x	x		x	x	x	
Red Fox (Y)		x		x		x		x		x			x	x	x		x	x	x	
Gray Fox ( )													x	x			x			x
Black Bear (Y)		x		x		x		x		x			x	x	x			x	x	
Grizzly Bear (Y)		x		x		x		x		x				x	x				x	
Raccoon (Y)											x		x	x	x	x				
Marten (Y)	x		x		x		x				*		x						x	
Fisher (Y)	x		x		x					x	*		x	x						
Short-tailed Weasel/Ermine (Y)		x		x		x				x			x	x					x	
Long-tailed Weasel (Y)		x		x		x		x		x			x	x			x	x	x	x
Mink (Y)													x	x	x	x				
Wolverine (Y)		x		x		x		x		x			x	x					x	
Badger (Y)										x							x	x	x	
Spotted Skunk (Y)		x		x						x			x	x	x	x	x	x		x
Striped Skunk (Y)		x		x						x			x	x	x	x	x	x		x
River Otter (Y)													x	x	x	x				
Mountain Lion/Cougar (Y)		x		x		x		x		x							x	x	x	x
Lynx (Y)		x		x		x		x		x			x	x					x	
Bobcat (Y)		x		x		x		x		x			x	x			x	x	x	x
Elk (Y)		x		x		x		x		x			x	x	x		x	x	x	
Mule Deer (Y)		x		x		x		x		x			x	x	x		x	x	x	
White-tailed Deer (Y)		x		x		x				x				x	x					
Moose (Y)		x		x		x		x		x			x	x	x	x	x	x	x	
Pronghorn/Antelope (Y)																	x	x	x	
Mountain Goat (Y)						x												x	x	x
Bighorn Sheep (Y)						x				x							x		x	x

Table 1. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L 1/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	ww					
Bison (Y)		x		x		x				x			x	x		x	x		

1/ A * indicates that the species is almost totally dependent upon the presence of snags or logs for its existence; a x indicates that the presence of snags or logs benefits the species but the species existence is not almost totally dependent upon snags or logs.

BIRDS

Table 2 lists the 300 species of birds which potentially occur on or adjacent to the Forest, and indicates the major kinds of plant communities which could provide habitat for that these species. Not all of the bird species use the Forest for breeding, nesting, and rearing habitat. Within the Idaho and Wyoming counties encompassing the Forest, 161 species have confirmed evidence of breeding, 40 species have circumstantial evidence of breeding, 105 species spend all or part of the winter period, and 77 species potentially occur only during migration. A summary of the potential number of species associated with the major plant communities on the Forest is as follows:

Lodgepole Pine:	93 species
Douglas-fir:	127 species
Spruce/Fir:	116 species
White-bark Pine:	4 species
Aspen:	141 species
Riparian Areas (cottonwood, willow, wet meadows):	260 species
Ponds, Bogs, and Lakes:	103 species
Sagebrush, Grassland:	121 species
Juniper, Mountain Brush:	134 species
Sub-alpine and Alpine Meadows:	78 species
Snags and Logs:	42 species
Other Features (cliffs, caves, talus, rimrock, etc.):	34 species

Neotropical Migrants. A rather recent conservation program has developed for landbirds which migrate between North and South America. These landbirds are collectively referred to as "neotropical migrants" (note that waterfowl and shorebirds are not included because conservation programs were already in place for these latter species)(Gauthreaux 1991). Neotropical migrants have been grouped into four lists according to broad patterns of breeding and nonbreeding distribution (Gauthreaux 1991). The four lists are: List A: species that breed in North America and spend their nonbreeding period primarily south of the United States (list A contains species generally recognized as neotropical migrants). List B: species that breed and winter extensively in North America, although some populations winter south of the United States. List C: species whose breeding range is primarily south of the United States/Mexican border, and

enter the United States along the Rio Grande Valley and the Mexican Highlands. List D: species whose breeding range is restricted to the Florida Peninsula. The Targhee would only have species from lists A and B.

Table 3 contains the species from List A which potentially could occur on the Targhee. Of the 301 species of birds listed in Table 2, 83 species are considered neotropical migrants from List A (Gauthreaux 1991; Winn, et al. 1991)."

Table 2. Birds Species Potentially Occurring on the Targhee National Forest.

Abreviations: LP = LODGEPOLE PINE; DF = DOUGLAS-FIR; SF = SPRUCE/FIR; WP = WHITE BARK PINE; A = ASPEN; S/L = SNAGS AND LOGS; R = RIVERS/CREEKS/STREAMS & ADJACENT RIPARIAN; PBL = PONDS/BOGS/LAKES/STANDING WATER; SG = SAGEBRUSH GRASS; JMB = JUNIPER, MAHOGANY, MTN. BRUSH; SAM = SUBALPINE & ALPINE MEADOWS; OTHER = CLIFFS, RIMROCK, TALUS, CAVES, ETC. m/og = mature/old growth; g = general use; c = cottonwood; w = willow; wm = wet meadows; (Season: B = confirmed evidence of breeding; b = circumstantial evidence of breeding; t = migrants (transients) or non-breeding summer visitors; W = over-wintering species (15 Dec. to 15 Feb.); w = winter visitors or late fall stragglers; a blank ( ) for season means no documentation for that species)

	LP		DF		SF		WP		A		S/L 2/	R			PBL	SG	JMB	SAM	OTHER
Species (Season)	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Pacific Loon (t)															x				
Common Loon (bwt)															x				
Pied-billed Grebe (Bw)												x	x		x				
Horned Grebe (t)												x	x		x				
Eared Grebe (B)												x	x		x				
Western Grebe (B)												x	x		x				
Red-necked Grebe (B)												x	x		x				
Clark's Grebe (t)															x				
White Pelican (bt)												x	x		x				
Double-crested Cormorant (bt)												x	x		x				
American Bittern (B)												x	x	x	x				
Great Blue Heron (BW)												x	x	x	x				
Great (Common) Egret (t)												x	x		x				
Cattle Egret (t)												x	x	x		x			
Snowy Egret (Bt)												x	x		x				
Green-backed Heron (t)												x	x	x	x				
Black-crowned Night-heron (B)												x	x	x	x				
White-faced Ibis (B)												x	x		x				
Tundra Swan (Wt)												x	x	x	x				
Trumpeter Swan (BW)												x	x	x	x				
Snow Goose (wt)												x	x	x	x				
Greater White-fronted Goose (t)												x	x	x	x				

Table 2. Continued.

Species (Season)	LP		DF		SF		WP		A		S/I. 2/	R			PBI.	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Ross' Goose (t)												x	x	x	x				
Canada Goose (BW)												x	x	x	x				
Wood Duck 1/ (Bt)			x		x				x		•	x	x		x				
Harlequin Duck (B)													x	x					
Green-winged Teal (BW)												x	x	x	x				
Mallard (BW)												x	x	x	x				
Northern Pintail (Bw)												x	x	x	x				
Blue-winged Teal (B)												x	x	x	x				
Cinnamon Teal (B)												x	x	x	x				
Northern Shoveler (Bt)												x	x	x	x				
Gadwall (Bw)												x	x	x	x				
American Wigeon (Bw)												x	x	x	x				
Canvasback (B)												x	x	x	x				
Redhead (Bw)												x	x	x	x				
Ring-necked Duck (Bw)												x	x	x	x				
Greater Scaup (t)												x	x	x	x				
Lesser Scaup (Bwt)												x	x	x	x				
Oldsquaw (t)															x				
Surf Scoter (t)												x	x		x				
White-winged Scoter (t)												x	x		x				
Common Goldeneye 1/ (Wt)			x		x				x		•	x	x	x	x				
Barrow's Goldeneye 1/ (Bwt)			x		x				x		•	x	x	x	x				
Bufflehead 1/ (Bwt)	x		x		x				x		•	x	x	x	x				
Hooded Merganser 1/ (W)			x		x				x		x	x	x	x	x				
Common Merganser 1/ (BW)			x		x				x		x	x	x	x	x				
Red-breasted Merganser (wt)												x	x	x	x				
Ruddy Duck (Bw)												x	x	x	x				
Turkey Vulture (bt)		x		x		x				x	x	x	x	x		x	x	x	x
Osprey 1/ (B)	x		x		x						•	x	x		x				
Bald Eagle (BWt)	x		x		x							x	x		x				
Northern Harrier (BW)													x	x	x	x		x	
Sharp-shinned Hawk (BWt)		x		x		x				x		x	x			x	x	x	
Cooper's Hawk (Bw)		x		x		x				x		x	x			x	x	x	
Northern Goshawk (BWt)	x		x		x				x			x	x			x	x	x	x
Broad-winged Hawk (t)												x							

Table 2. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L 2/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Swainson's Hawk (B)										x		x	x	x		x	x	x	x
Red-tailed Hawk (BW)		x		x		x				x		x	x	x		x	x	x	x
Ferruginous Hawk (B)												x				x	x		x
Rough-legged Hawk (Wt)										x						x	x	x	x
Golden Eagle (BW)		x		x		x				x		x	x	x		x	x	x	x
American Kestrel (BW)		x		x		x				x	•	x	x	x		x	x	x	x
Merlin (bwt)		x		x		x				x		x	x	x		x	x	x	
Gyrfalcon (w)																x	x		
Peregrine Falcon (Bwt)		x		x		x				x		x	x	x		x	x	x	x
Prairie Falcon (BWt)										x		x	x	x		x	x	x	x
Gray Partridge (BW)																x	x		
Chukar (BW)																x	x		x
Blue Grouse (BW)		x		x		x				x			x	x		x		x	
Ruffed Grouse (BW)		x		x		x				x		x	x						
Sage Grouse (BW)													x	x		x	x	x	
Sharp-tailed Grouse (B)										x						x	x		
Virginia Rail (Bt)													x	x	x				
Sora (B)												x	x	x	x				
American Coot (Bw)													x	x	x				
Sandhill Crane (Bw)												x	x	x	x	x		x	
Whooping Crane (t)												x	x	x	x	x			
Killdeer (BW)												x	x	x	x	x		x	
Mountain Plover (t)																x		x	
Black-bellied Plover (t)													x	x	x				
Lesser Golden Plover (t)														x		x			
Semi-palmated Plover (t)												x	x	x	x				
Black-necked Stilt (B)													x	x	x				
American Avocet (Bt)													x	x	x			x	
Greater Yellowlegs (t)													x	x	x				

Table 2. Continued.

Species (Season)	LP m/og	LP g	DF m/og	DF g	SF m/og	SF g	WP m/og	WP g	A m	A g	S/L 2/	R c	R w	R wm	PBL	SG	JMB	SAM	OTHER
Lesser Yellowlegs (t)													x	x	x				
Willet (B)													x	x	x				
Solitary Sandpiper (t)													x	x	x				
Spotted Sandpiper (B)												x	x	x	x				
Upland Sandpiper (t)																x		x	
Long-billed Curlew (B)													x	x	x	x			
Marbled Godwit (t)													x	x	x				
Least Sandpiper (t)													x	x	x				
Common Snipe (Bwt)												x	x	x	x			x	
Red-necked Phalarope (t)													x	x	x				
Wilson's Phalarope (B)													x	x	x				
Short-billed Dowitcher (t)													x	x	x				
Long-billed Dowitcher (t)													x	x	x				
Pectoral Sandpiper (t)													x	x	x				
Ruddy Turnstone (t)												x	x	x	x				
Red Knot (t)												x	x	x	x				
Sanderling (y)													x	x	x				
Western Sandpiper (t)													x	x	x				
Semi-palmated Sandpiper (t)													x	x	x				
Baird's Sandpiper (t)													x	x	x				
Dunlin (t)												x	x	x	x				
Stilt Sandpiper (t)													x	x	x				
Parasitic Jaeger (t)												x	x	x	x				
Pomarine Jaeger (t)															x				
Franklin's Gull (Bt)															x				
Ring-billed Gull (Bt)												x	x	x	x	x			
California Gull (Bw)												x	x	x	x	x			
Herring Gull (t)												x	x	x	x	x			
Bonapart's Gull (t)													x	x	x				
Sabine's Gull (t)													x	x					
Caspian Tern (B)													x	x	x				
Common Tern (t)												x	x	x	x				
Forster's Tern (Bt)													x	x					
Black Tern (B)												x	x	x	x	x		x	
													x	x	x	x		x	

Table 2. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L 2/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Mourning Dove (Bw)		x		x		x				x		x	x	x		x	x	x	
Rock Dove (bW)												x	x	x		x	x	x	x
Band-tailed Pigeon (t)		x															x		
Yellow-billed Cuckoo (B)										x		x	x			x	x		
Black-billed Cuckoo (b)										x		x	x			x			
Common Barn Owl (wt)				x		x				x	•	x	x	x		x	x		x
Flammulated Owl (Bt)		x		x		x				x	•	x	x			x	x		
Western Screech Owl (B)		x		x						x	•	x	x			x	x		x
Great Horned Owl (BW)		x		x		x				x		x	x	x		x	x		
Snowy Owl (t)																x	x		
Northern Pygmy Owl (BWt)		x		x		x				x	•	x	x				x		
Burrowing Owl (Bt)																x			
Great Gray Owl (BW)		x		x		x				x		x		x				x	x
Long-eared Owl (Bt)		x		x		x				x		x	x	x		x	x	x	
Short-eared Owl (Bw)										x		x	x	x		x	x	x	
Boreal Owl (bw)	x		x		x				x		•								
Northern Saw-whet Owl (B)		x		x		x				x	•	x	x	x		x	x	x	
Common Nighthawk (B)				x		x				x		x	x	x		x	x	x	
Common Poorwill (Bt)				x		x				x		x	x	x		x	x		x
Vaux's Swift (t)		x		x		x				x	•	x	x	x				x	x
White-throated Swift (bt)		x		x		x				x		x	x	x		x	x	x	x
Black-chinned Hummingbird (B)				x		x				x		x	x	x		x	x	x	
Calliope Hummingbird (B)				x		x				x		x	x	x		x		x	
Broad-tailed Hummingbird (Bt)				x		x				x		x	x	x		x	x	x	
Rufous Hummingbird (B)		x		x		x				x		x	x	x		x	x	x	
Belted Kingfisher (BW)												x	x		x				
Lewis' Woodpecker (b)				x		x				x	•	x							
Red-headed Woodpecker (t)											•	x							
Yellow-bellied Sapsucker (Bw)	x		x		x				x		•	x							
Williamson's Sapsucker (Bt)	x		x		x				x		•	x							

Table 2. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L 2/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Downy Woodpecker (bWt)		x		x		x				x	•								
Hairy Woodpecker (Bw)		x		x		x				x	•	x					x		
Three-toed Woodpecker (B)	x		x		x				x		•	x					x		
Black-backed Woodpecker (b)	x		x		x						•								Fire
Northern (Common) Flicker (BW)		x		x		x				x	•	x					x	x	
Pileated Woodpecker (bwt)			x		x						•								Fire
Olive-sided Flycatcher (bt)		x		x		x				x		x	x						
Western Wood-Pewee (B)		x		x		x				x		x	x				x		
Willow Flycatcher (B)				x						x		x	x			x	x	x	
Hammond's Flycatcher (Bt)	x		x		x				x			x	x						
Least Flycatcher (t)										x		x	x				x		
Dusky Flycatcher (B)		x		x		x				x		x	x			x	x		
Gray Flycatcher (t)																x	x		
Cordillern Flycatcher (bt)		x		x		x				x		x	x			x	x		x
Say's Phoebe (B)										x		x	x				x	x	
Ash-throated Flycatcher ( )										x	•	x	x			x	x		x
Western Kingbird (bt)										x		x	x			x	x		x
Eastern Kingbird (B)										x		x	x			x	x		
Horned Lark (BW)												x	x	x		x		x	
Tree Swallow (B)		x		x		x				x	•	x	x	x	x		x	x	
Violet-green Swallow (B)		x		x		x				x	•	x	x	x	x	x	x	x	
N. Rough-winged Swallow (B)				x		x				x		x	x	x	x	x	x		x
Bank Swallow (B)												x	x	x	x	x			x
Cliff Swallow (B)				x		x				x		x	x	x	x		x	x	x
Barn Swallow (B)				x		x				x		x	x	x	x	x	x		x
Gray Jay (BW)		x		x		x				x		x	x						
Steller's Jay (BW)		x		x		x				x		x	x				x		x
Blue Jay (t)		x		x		x				x		x	x				x		
Scrub Jay ( )																x	x		
Pinyon Jay (t)												x				x	x		
Clark's Nutcracker (BW)		x		x		x		x								x	x	x	x
Black-billed Magpie (BW)		x		x		x				x		x	x	x		x	x	x	x

Table 2. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L 2/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
American Crow (BW)		x		x		x				x		x	x	x		x	x	x	
Common Raven (BW)		x		x		x				x		x	x	x		x	x	x	x
Black-capped Chickadee (BW)		x		x		x				x	•	x	x			x	x	x	
Mountain Chickadee (BW)		x		x		x				x	•	x	x			x	x	x	
Plain Titmouse (b)											•						x		
Bushtit ( )				x						x		x	x			x	x		
Red-breasted Nuthatch (bw)		x		x		x				x	•	x							
White-breasted Nuthatch (bwt)		x		x		x				x	•	x					x		
Brown Creeper (bwt)		x		x		x				x	•	x					x		
Rock Wren (B)																x	x		x
Canyon Wren (t)																x	x		x
House Wren (Bw)		x		x		x				x	•	x	x	x		x	x	x	
Winter Wren (bt)		x		x		x				x	•	x	x						
Marsh Wren (Bw)														x	x				
American Dipper (BW)		x		x		x				x		x	x	x					
Golden-crowned Kinglet (bt)		x		x		x				x		x							
Ruby-crowned Kinglet (bw)		x		x		x				x		x	x				x		
Blue-gray Gnatcatcher (bt)												x					x		
Western Bluebird (b)		x		x		x				x	•	x	x	x		x	x	x	
Mountain Bluebird (B)		x		x		x				x	•	x	x	x		x	x	x	
Townsend's Solitaire (Bw)		x		x		x				x		x				x	x		x
Veery (B)				x		x				x		x	x	x					
Swainson's Thrush (B)		x		x		x				x		x	x				x		
Hermit Thrush (b)	x		x		x				x			x					x		
American Robin (BW)		x		x		x				x		x	x	x		x	x	x	
Varied Thrush (wt)		x		x		x				x		x	x	x				x	
Gray Catbird (B)										x		x	x	x			x		
Northern Mockingbird (t)												x					x		
Sage Thrasher (B)																x	x		x

Table 2. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L 2/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Brown Thrasher (t)												x	x			x	x		
Water (American) Pipit (Bwt)												x	x	x				x	
Sprague's Pipit (t)																x		x	
Bohemian Waxwing (Wt)		x		x		x				x		x	x				x		
Cedar Waxwing (Bwt)				x		x				x		x	x				x		
Northern Shrike (wt)				x						x		x	x	x		x	x	x	
Loggerhead Shrike (bwt)				x						x		x	x	x		x	x	x	
European Starling (BW)										x	x	x	x	x		x	x	x	
Solitary Vireo (B)		x		x		x				x		x	x				x		
Warbling Vireo (B)		x		x		x				x		x	x						
Red-eyed Vireo (B)				x						x		x	x						
Tennesee Warbler (t)												x							
Orange-crowned Warbler (B)		x		x		x				x		x	x				x		
Nashville Warbler (t)				x		x				x		x	x				x		
Virginia's Warbler (t)																	x		
Yellow Warbler (B)				x		x				x		x	x				x		
Chestnut-sided Warbler (t)												x							
Yellow-rumped Warbler (B)		x		x		x				x		x	x				x		
Black-throated Blue Warbler (t)		x		x		x				x		x							
Black-throated Gray Warbler(bt)				x						x		x	x			x	x		
Townsend's Warbler (bt)	x		x		x				x			x							
Blackburnian Warbler (t)												x							
Blackpoll Warbler (t)		x		x		x						x							
Palm Warbler (t)												x							
Bay-breasted Warbler (t)												x							
American Redstart (b)												x							
Ovenbird (t)										x		x	x				x		
Northern Waterthrush (t)										x		x	x						
MacGillivray's Warbler (B)		x		x		x				x		x	x						
Common Yellowthroat (B)				x		x				x		x	x	x			x	x	
Wilson's Warbler (bt)		x		x		x				x		x	x	x			x		
										x		x	x	x			x	x	

Table 2. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L 2/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Yellow-breasted Chat (B)				x						x		x	x	x		x	x		
Summer Tanager (t)										x		x							
Scarlet Tanager (t)										x		x							
Western Tanager (B)		x		x		x				x		x	x	x			x		
Rose-breasted Grosbeak (t)										x		x							
Black-headed Grosbeak (B)		x		x		x				x		x	x	x			x		
Blue Grosbeak (t)												x							
Lazuli Bunting (B)				x		x				x		x	x	x		x	x	x	
Indigo Bunting (t)												x	x						
Green-tailed Towhee (B)										x		x	x			x	x		
Rufous-sided Towhee (Bt)		x		x		x				x		x	x			x	x		
American Tree Sparrow (W)		x										x	x			x	x		
Chipping Sparrow (B)		x		x		x				x		x	x	x		x	x	x	
Clay-colored Sparrow (Bt)										x		x				x	x		
Brewer's Sparrow (B)										x						x	x		
Vesper Sparrow (B)										x		x	x	x		x	x	x	
Lark Sparrow (bt)										x		x	x	x		x	x		
Black-throated Sparrow (bt)																x			
Sage Sparrow (B)												x	x			x	x		
Savannah Sparrow (B)														x		x		x	
Grasshopper Sparrow (bt)														x		x			
Fox Sparrow (Bt)				x		x				x		x	x	x		x	x		
Song Sparrow (BW)				x		x				x		x	x	x		x	x	x	
Lincoln's Sparrow (Bt)		x		x		x				x		x	x	x				x	
Swamp Sparrow (t)														x	x				
White-throated Sparrow (t)		x		x		x											x		
Golden-crowned Sparrow (wt)				x		x				x		x	x	x			x	x	
White-crowned Sparrow (B)		x		x		x				x		x	x	x			x	x	Fire
Harris' Sparrow (wt)		x								x		x				x	x		
Dark-eyed Junco (BW)		x		x		x				x		x	x	x		x	x	x	
Lark Bunting (bt)																x			
Snow Bunting (Wt)																x			
McCown's Longspur (t)																x			
Lapland Longspur (w)																x			
Chestnut-collared Longspur (t)																x			

Table 2. Continued.

Species (Season)	LP		DF		SF		WP		A		S/L 2/	R			PBL	SG	JMB	SAM	OTHER
	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Bobolink (B)																			
Western Meadowlark (Bw)												x	x			x			
Red-winged Blackbird (BW)												x	x	x		x	x	x	
Yellow-headed Blackbird (Bw)													x	x	x				
Rusty Blackbird (t)													x	x	x				
Brewer's Blackbird (BW)			x		x				x			x							
Brown-headed Cowbird (B)			x						x			x	x	x			x	x	
Common Grackle (Bwt)												x	x	x		x	x		
Orchard Oriole (t)												x	x	x		x	x		
Northern Oriole (B)			x		x				x			x							
												x	x	x			x		
Rosy Finch (bWt)		x	x		x														
Pine Grosbeak (bwt)		x	x		x				x									x	x
Purple Finch (t)			x						x									x	
Cassin's Finch (B)		x	x		x				x			x				x	x	x	
House Finch (bwt)		x	x		x				x			x				x	x	x	
Red Crossbill (bt)		x	x		x				x			x	x	x		x	x	x	
White-winged Crossbill (Bt)		x	x		x							x							
Common Redpoll (wt)									x			x	x			x	x		
Hoary Redpoll (w)												x				x	x		
Pine Siskin (Bw)		x	x		x				x			x	x				x	x	
American Goldfinch (BW)			x						x			x	x				x		
Evening Grosbeak (BWt)		x	x		x				x			x					x		
House Sparrow (BW)											x	x	x	x		x	x		

1/ These waterfowl Species require tree cavities for nesting in areas adjacent to aquatic habitat; it is assumed that mature and old growth trees adjacent to aquatic habitats provide the best opportunity for these habitat requirements.

2/ A * indicates that the species is almost totally dependent upon the presence of snags or logs for its existence; a x indicates that the presence of snags or logs benefits the species but the species existence is not almost totally dependent upon snags and logs.

Table Wildlife-3

Neotropical Migrants Potentially Occurring On or Adjacent to the Forest

Broad-winged Hawk
Swainson’s Hawk

Merlin Peregrine
Falcon

Mountain Plover

Upland Sandpiper
Long-billed Curlew

Band-tailed Pigeon

Yellow-billed Cuckoo
Black-billed Cuckoo

Flammulated Owl
Burrowing Owl

Common Nighthawk

Vaux's Swift
White-throated Swift

Black-chinned Hummingbird
Calliope Hummingbird
Broad-tailed Hummingbird
Rufous Hummingbird

Olive-sided Flycatcher
Western Wood-Pewee
Willow Flycatcher
Hammond's Flycatcher
Least Flycatcher
Dusky Flycatcher
Gray Flycatcher
Cordillern Flycatcher
Ash-throated Flycatcher
Western Kingbird
Eastern Kingbird
Blue-gray Gnatcatcher

Veery
Swainson's Thrush

Gray Catbird

Solitary Vireo
Warbling Vireo
Red-eyed Vireo

Tennessee Warbler
Orange-crowned Warbler
Nashville Warbler
Virginia's Warbler
Yellow Warbler
Chestnut-sided Warbler
Black-throated Blue Warbler
Black-throated Gray Warbler
Townsend's Warbler
Blackburnian Warbler
Blackpoll Warbler
Palm Warbler
Bay-breasted Warbler
American Redstart
Ovenbird
Northern Waterthrush
MacGillivray's Warbler
Common Yellowthroat
Wilson's Warbler
Yellow-breasted Chat
Summer Tanager
Scarlet Tanager
Western Tanager
Rose-breasted Grosbeak
Black-headed Grosbeak
Blue Grosbeak
Lazuli Bunting
Indigo Bunting
Green-tailed Towhee
Chipping Sparrow
Clay-colored Sparrow
Brewer's Sparrow

Table Wildlife-3 (continued)

Neotropical Migrants Potentially Occurring On or Adjacent to the Forest

Violet-green Swallow
N. Rough-winged Swallow
Bank Swallow
Cliff Swallow
Barn Swallow

House Wren

Lark Sparrow
Grasshopper Sparrow
Lincoln's Sparrow
Lark Bunting
Bobolink
Yellow-headed Blackbird
Orchard Oriole
Northern Oriole

AMPHIBIANS AND REPTILES

Table 4 lists the species of amphibians and reptiles which potentially occur on or adjacent to the Forest, and indicates the major kinds of plant communities which could provide habitat for these species. A summary of the potential number of species associated with the major plant communities on the Forest is as follows:

Lodgepole Pine:	4 species
Douglas-fir:	6 species
Spruce/Fir:	4 species
White-bark Pine:	0 species
Aspen:	7 species
Riparian Areas (Cottonwood, willow, wet meadows):	13 species
Ponds, Bogs, and Lakes:	11 species
Sagebrush, Grassland:	13 species
Juniper, Mountain Brush:	12 species
Sub-alpine and Alpine Meadows:	5 species
Snags and Logs:	7 species
Other Features (cliffs, caves, talus, rimrock, etc.):	5 species

Table 4. Amphibians and Reptiles Potentially Occurring on the Targhee National Forest.

Abreviations: LP = LODGEPOLE PINE; DF = DOUGLAS-FIR; SF = SPRUCE/FIR; WP = WHITE BARK PINE; A = ASPEN; S/L = SNAGS AND LOGS; R = RIVERS/CREEKS/STREAMS & ADJACENT RIPARIAN; PBL = PONDS/BOGS/LAKES/STANDING WATER; SG = SAGEBRUSH GRASS; JMB = JUNIPER, MAHOGANY, MTN. BRUSH; SAM = SUBALPINE & ALPINE MEADOWS; OTHER = CLIFFS, RIMROCK, TALUS, CAVES, ETC. m/og = mature/old growth; g = general use; c = cottonwood; w = willow; wm = wet meadows.

	LP		DF		SF		WP		A		S/L 1/	R			PBL	SG	JMB	SAM	OTHER
Species	m/og	g	m/og	g	m/og	g	m/og	g	m	g		c	w	wm					
Eastern Long-toed Salamander											x	x	x	x	x	x	x	x	x
Blotched Tiger Salamander											x	x	x	x	x	x			
Great Basin Spadefoot Toad															x	x	x		
Western (Boreal) Toad		x		x		x				x	x	x	x	x	x	x	x	x	x
Striped (Boreal) Chorus Frog												x	x	x	x				
Spotted Frog												x	x	x	x				
Northern Leopard Frog												x	x	x	x				
Large-spotted Leopard Lizard																x			
Northern Sagebrush Lizard																x	x		
Short-horned Lizard																x	x		
Great Basin (Western) Skink										x	x	x	x		x	x	x		
Regal Ringneck Snake										x	x	x	x	x	x			x	
Rocky Mountain Rubber Boa				x						x	x	x	x	x		x	x		x
Racer		x		x		x				x		x	x	x		x	x	x	x
Great Basin Gopher Snake				x							x	x	x	x		x	x		x
Valley (Common) Garter Snake		x		x		x				x		x	x	x	x	x	x	x	
Wandering (W. Terr.) G. Snake		x		x		x				x		x	x	x	x	x	x	x	

ATTACHMENT B

Hiding Cover Analysis for the Forest Inventory Plots

Hiding cover analysis for the 400+ permanent forest inventory plots.

Table explanation:

Column 1	General geographic area of the Forest where the permanent forest inventory plot is located.
Column 2	Forest inventory plot number.
Columns 3&4	The range in dbh (diameter at breast height) of trees in the forest inventory plot.
Column 5	The number of live trees per acre that are 1 inch dbh or larger. Only trees greater than or equal to 1 inch dbh or larger were considered contributing to hiding cover and were used in the HIDE2 model.
Column 6	Lists the tree species found in the forest inventory plot; they are listed in numerical order (the first species in the list has the highest number of trees per acre, etc.). As = aspen; LP = lodgepole pine; DF = Douglas-fir; SAF = subalpine fir; SP = spruce; WB = whitebark pine; LI = limber pine.
Column 7	Shows how the forest inventory plot is classified according to the timber stand strata in the GIS database.
Column 8	Shows the average hiding cover for each of the timber stand strata.
Columns 9&10	Shows the range in percent hiding cover for each forest inventory plot as calculated by the HIDE2 model.
Column 11	Shows the mean hiding cover percent for each forest inventory plot as calculated by the HIDE2 model.
Column 12	Shows the standard error for hiding cover for each forest inventory plot as calculated by the HIDE2 model.

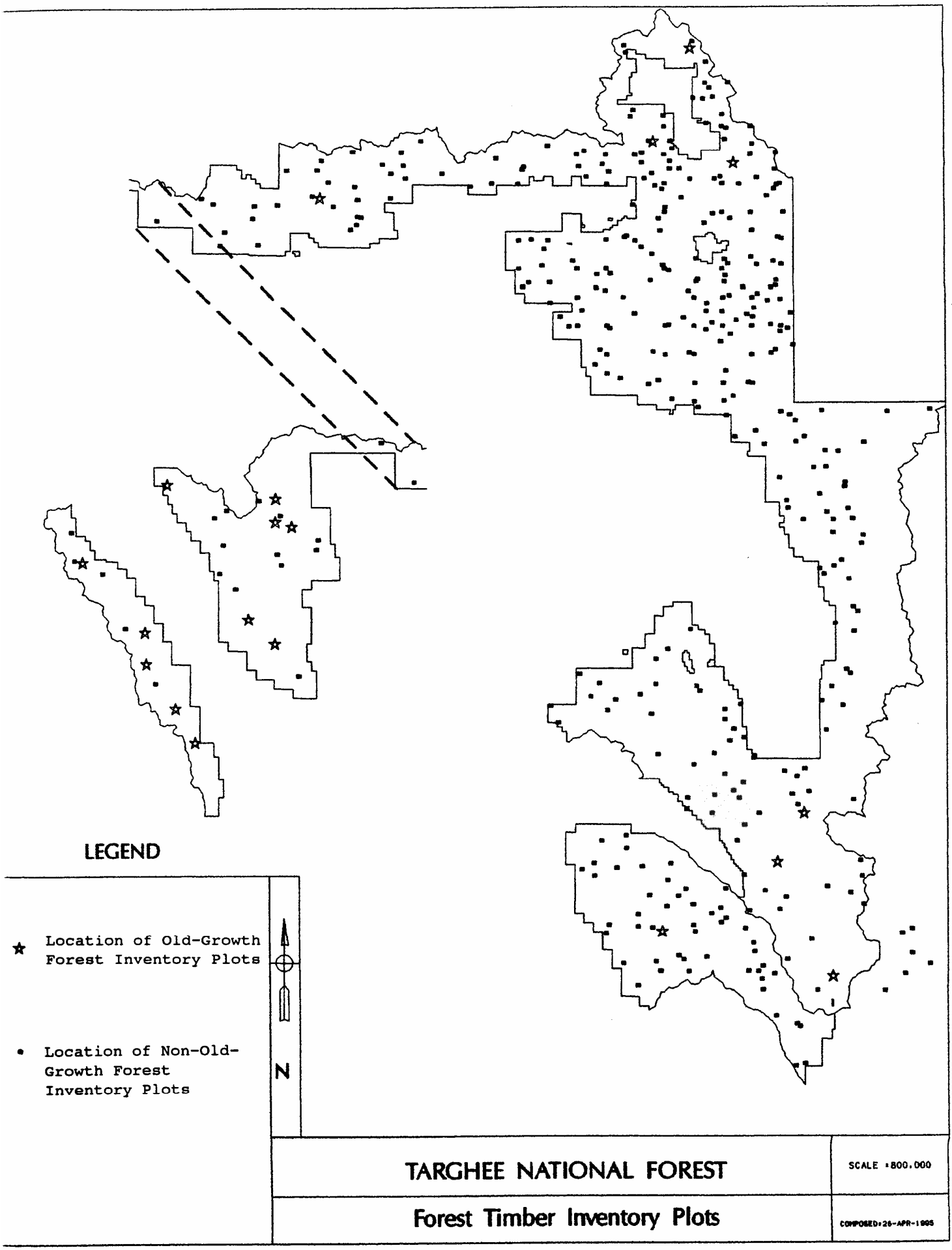

LEGEND
Location of Old-Growth Forest Inventory Plots
Location of Non-Old-Growth Forest Inventory Plots
N
TARGHEE NATIONAL FOREST
SCALE 1:800,000
Forest Timber Inventory Plots
COMPOSED:26-APR-1995

TABLE 10

1	2	3	4	5	6	7	8	9	10	11	12
		Range in dbh						Range in Hiding Cover			
Area of Forest	Forest Inventory Plot No.	low inches	high inches	No. of Live Trees/acre 1 inch dbh or larger	Tree Species Ordered by highest number in stand 1 in. dbh & larger	Timber Stand Strata		Low percent	High percent	Mean Hiding Cover percent	Std. Error
Island Park	101	1	1	43	AS	AS 5		0	10	4.7	1.0
Palisades	381	3	5	46	AS	AS 5		0	6	2.2	0.9
							AVERAGE	0.0	8.0	3.5	
West Slope	138	0	15	198	AS DF LP	AS 6		44	62	52.8	1.8
Palisades	385	0	9	188	AS	AS 6		0	5	3.3	0.7
Caribou	530	0	11	186	AS LP	AS 6		0	5	2.1	0.9
Island Park	684	0	2	81	AS	AS 6		0	25	3.4	2.5
							AVERAGE	11.0	24.3	15.4	
Island Park	171	0	11	524	AS LP	AS 7		93	100	98.3	0.7
Island Park	173	0	15	381	AS LP DF	AS 7		84	93	86.9	1.9
Island Park	229	0	8	276	AS LP	AS 7		68	79	75.3	1.2
Big Holes	354	0	10	1,574	AS SAF DF	AS 7		29	53	42.8	2.3
Big Holes	393	0	23	386	AS DF LP SAF	AS 7		0	5	4.3	1.0
							AVERAGE	54.8	66.0	61.5	
West Centennials/west of I15	375	0	12	985	AS	AS 8		13	27	19.1	1.7
Palisades	382	0	10	659	AS	AS 8		10	36	21.9	2.6
Caribou	500	0	13	482	AS DF	AS 8		0	10	5.9	1.1
							AVERAGE	7.7	24.3	15.6	
M.A. 12 & 13 & part of 14	272	0	14	622	AS LP DF	AS 9		1	15	9.3	1.5
East Centennials	376	0	12	436	AS	AS 9		1	20	8.1	1.8
M.A. 12 & 13 & part of 14	378	0	14	954	AS LP DF	AS 9		3	25	17.9	2.3
M.A. 12 & 13 & part of 14	379	0	15	475	AS	AS 9		0	18	9.0	2.0
West Slope	389	0	12	661	AS SAF	AS 9		0	13	7.9	1.3
West Slope	391	0	11	249	AS	AS 9		0	10	3.1	1.1
Caribou	507	0	23	794	AS SAF DF	AS 9		3	15	11.0	1.2
							AVERAGE	1.1	16.6	9.5	
Big Holes	9	0	21	31	DF	DF 5		0	3	1.0	0.4
Middle Centennials	15	1	34	56	DF	DF 5		0	22	10.7	2.2
South Bitterroot Mtn. Range	53	0	0	0	No live trees	DF 5		0	0	0.0	0.0
Island Park	108	0	16	143	LP DF	DF 5		15	27	22.2	1.4
Palisades	118	0	22	42	WB DF SAF	DF 5		6	18	11.2	1.4
Palisades	384	0	0	0	DF	DF 5		0	0	0.0	0.0
Big Holes	392	1	13	28	AS DF	DF 5		0	0	0.0	0.0
South Bitterroot Mtn. Range	454	0	0	0	No live trees	DF 5		0	0	0.0	0.0
							AVERAGE	2.6	8.8	5.6	
Palisades	5	4	21	309	DF AS	DF 9		22	41	29.1	1.8
Palisades	6	5	16	185	DF LI	DF 9		3	17	10.2	1.6
West Slope	7	0	42	145	DF AS	DF 9		37	68	52.6	2.8
Middle Centennials	10	0	35	67	DF AS	DF 9		1	10	6.2	0.8
Middle Centennials	16	0	26	3,480	SAF DF LP	DF 9		100	100	100.0	0.0
Middle Centennials	17	0	42	191	DF	DF 9		96	100	98.4	0.5
Middle Centennials	22	0	20	260	DF LP	DF 9		55	72	65.5	2.0
Middle Centennials	25	5	28	237	DF	DF 9		10	43	26.2	3.3
Middle Centennials	26	0	34	73	DF AS	DF 9		41	62	52.6	2.1
Middle Centennials	27	0	29	367	DF	DF 9		86	98	92.8	1.4
Middle Centennials	28	0	47	184	DF	DF 9		15	41	26.4	2.7
Middle Centennials	30	0	35	153	DF AS	DF 9		43	67	56.6	2.6

Middle Centennials	31	0	46	68	DF LI	DF 9	1	13	5.9	1.5
Middle Centennials	32	0	21	111	DF AS	DF 9	20	34	28.1	1.3
West Centennials/west of I15	34	7	40	206	DF	DF 9	13	39	26.4	2.8
West Centennials/west of I15	36	0	30	436	DF LP	DF 9	75	87	82.4	1.4
West Centennials/west of I15	38	0	47	72	DF AS	DF 9	18	39	25.9	1.9
South Bitterroot Mtn. Range	40	0	24	80	DF	DF 9	6	18	12.9	1.4
South Bitterroot Mtn. Range	43	0	21	512	DF LI LP	DF 9	98	100	99.5	0.3
South Bitterroot Mtn. Range	48	0	27	139	DF LI	DF 9	6	17	11.6	1.2
South Bitterroot Mtn. Range	49	0	32	251	DF LI	DF 9	39	51	46.6	1.8
South Bitterroot Mtn. Range	55	0	14	925	DF LI	DF 9	100	100	100.0	0.0
Lemhi	58	0	28	213	DF LI	DF 9	29	58	45.2	2.4
Lemhi	63	0	37	553	DF LI SP	DF 9	89	96	91.4	0.8
Lemhi	64	5	22	276	DF LI	DF 9	13	27	20.7	1.9
Lemhi	65	0	17	632	DF LI	DF 9	98	100	99.8	0.2
East Centennials	69	4	36	103	DF	DF 9	10	22	15.0	1.6
East Centennials	70	0	29	296	DF LI AS	DF 9	68	84	73.3	1.4
East Centennials	72	0	26	95	DF AS SAF LI	DF 9	31	55	39.7	2.5
East Centennials	76	0	46	121	DF AS SAF	DF 9	24	50	31.6	3.1
East Centennials	82	0	26	79	DF	DF 9	0	20	9.8	1.9
Island Park	83	0	30	774	DF LP	DF 9	100	100	100.0	0.0
East Centennials	84	0	38	186	DF AS SAF	DF 9	29	53	41.0	2.2
East Centennials	85	0	41	115	DF AS	DF 9	8	24	13.4	1.5
East Centennials	86	0	30	191	DF	DF 9	31	55	46.2	2.8
East Centennials	91	5	30	106	DF	DF 9	3	17	10.7	1.5
East Centennials	92	0	30	199	DF SAF AS	DF 9	27	51	42.6	2.4
Middle Centennials	94	0	32	160	DF	DF 9	15	39	22.2	2.1
Island Park	98	1	34	122	AS DF LP	DF 9	10	29	22.8	1.8
Island Park	99	0	48	510	AS DF	DF 9	93	98	95.0	0.5
Island Park	102	1	40	229	DF	DF 9	44	70	62.1	2.9
Island Park	103	0	33	179	DF AS	DF 9	20	53	37.6	3.3
Island Park	104	0	49	573	AS DF LP	DF 9	94	100	98.3	0.6
Island Park	105	4	17	165	DF	DF 9	3	12	7.4	1.0
Island Park	106	0	25	173	DF AS	DF 9	17	44	30.7	2.6
Island Park	107	0	37	1,119	AS DF LP	DF 9	98	100	99.8	0.2
Palisades	110	20	35	11	DF	DF 9	0	27	4.7	2.6
Palisades	124	7	39	47	DF	DF 9	0	6	3.8	0.6
Palisades	128	10	34	34	DF	DF 9	0	10	4.1	0.9
Palisades	129	8	21	100	DF WB	DF 9	0	13	9.0	1.4
Big Holes	135	0	28	387	AS DF	DF 9	84	91	88.8	0.7
West Slope	147	17	35	12	DF SAF	DF 9	0	8	2.8	0.9
Big Holes	153	1	36	139	DF AS SAF	DF 9	24	48	33.3	2.3
Island Park	316	0	19	1,639	AS DF	DF 9	24	55	38.1	3.4
Island Park	323	0	23	53	DF LP AS	DF 9	0	1	0.2	0.2
South Bitterroot Mtn. Range	357	0	45	49	DF LP	DF 9	0	0	0.0	0.0
Lemhi	358	6	49	77	DF LI	DF 9	0	0	0.0	0.0
Lemhi	359	0	36	161	DF LI SP	DF 9	0	8	2.4	1.0
Middle Centennials	374	0	23	375	AS DF	DF 9	0	10	4.5	1.4
Island Park	380	0	26	1,420	AS DF	DF 9	24	53	37.1	2.3
Big Holes	386	0	26	344	AS DF	DF 9	0	10	5.0	1.0
Big Holes	387	0	26	197	DF AS	DF 9	0	1	1.6	1.0
Caribou	503	3	15	186	DF	DF 9	0	1	0.5	0.3
Caribou	505	0	32	182	DF AS	DF 9	0	1	0.9	0.4
Caribou	506	0	24	80	DF AS	DF 9	0	0	0.0	0.0
Caribou	509	2	22	165	DF	DF 9	0	13	2.9	1.3
Caribou	510	2	41	101	DF AS	DF 9	0	3	0.3	0.3
Caribou	513	0	17	119	DF	DF 9	0	3	0.9	0.4
Caribou	515	2	16	240	DF	DF 9	0	3	0.7	0
Caribou	516	1	24	338	DF SAF	DF 9	0	13	4.0	1

Caribou	517	0	29	144	DF SAF	DF 9		0	10	2.2	1.1
Caribou	518	0	36	73	DF SAF	DF 9		0	1	0.3	0.2
Caribou	519	0	24	265	DF SAF	DF 9		0	3	1.7	0.4
Caribou	520	0	37	65	DF AS	DF 9		1	15	7.8	1.5
Caribou	521	0	24	49	AS DF	DF 9		0	1	0.2	0.2
Caribou	523	0	29	548	AS DF	DF 9		0	17	6.0	1.7
Caribou	524	0	21	177	DF AS	DF 9		0	5	1.7	0.6
Caribou	525	0	27	129	SAF DF	DF 9		0	6	1.4	0.7
Caribou	526	0	46	188	AS DF	DF 9		0	6	1.0	0.7
Caribou	527	9	18	84	DF	DF 9		0	0	0.0	0.0
Caribou	528	10	20	28	DF	DF 9		0	0	0.0	0.0
Caribou	534	0	27	102	DF AS	DF 9		0	1	0.3	0.2
Caribou	538	3	22	94	DF	DF 9		0	3	0.9	0.5
Caribou	542	2	19	204	DF	DF 9		0	12	2.6	1.2
Caribou	544	0	23	282	DF SAF	DF 9		0	12	3.8	1.4
Caribou	548	0	36	79	DF SAF AS LP	DF 9		0	0	0.0	0.0
Caribou	551	0	43	683	AS DF	DF 9		0	12	6.7	1.2
Island Park	622	0	24	96	DF AS	DF 9		0	1	0.3	0.2
East Centennials	625	0	21	413	DF LP	DF 9		1	18	9.0	1.8
Island Park	654	0	23	338	AS DF	DF 9		5	27	11.0	2.5
Island Park	665	0	43	229	DF AS	DF 9		0	3	1.2	0.4
Island Park	678	1	26	129	AS DF LP	DF 9		0	1	0.2	0.2
Island Park	689	0	45	181	DF AS	DF 9		0	5	1.9	0.7
East Centennials	702	0	23	152	DF	DF 9		0	1	0.3	0.2
							AVERAGE	21.3	33.1	26.8	
South Bitterroot Mtn. Range	2	0	25	20	LI DF	LM 5		0	8	2.9	0.9
							AVERAGE	0.0	8.0	2.9	
South Bitterroot Mtn. Range	47	0	28	696	LI SP	LM 7		94	100	98.3	0.6
							AVERAGE	94.0	100.0	98.3	
South Bitterroot Mtn. Range	42	0	15	266	LI SP	LM 9		20	36	27.4	1.7
South Bitterroot Mtn. Range	57	0	33	652	LI AS	LM 9		98	100	99.7	0.2
							AVERAGE	59.0	68.0	63.6	
Island Park	196	0	0	0	LP AS	LP 5		0	3	0.7	0.4
Island Park	286	2	8	228	LP	LP 5		0	13	3.8	1.3
Island Park	638	0	0	0	No live trees	LP 5		0	0	0.0	0.0
Island Park	641	0	0	0	No live trees	LP 5		0	0	0.0	0.0
Island Park	659	0	7	79	LP	LP 5		0	1	0.3	0.2
							AVERAGE	0.0	3.4	1.0	
Island Park	158	0	8	165	LP	LP 6		13	36	23.1	2.7
Island Park	159	0	10	139	LP DF	LP 6		65	79	71.4	1.3
Island Park	195	0	1	27	LP	LP 6		62	79	68.6	2.0
Island Park	209	0	8	107	LP	LP 6		22	53	35.7	2.9
Island Park	225	0	5	157	LP AS	LP 6		50	75	62.2	2.9
Island Park	231	0	17	158	LP	LP 6		0	12	4.5	1.3
Island Park	287	0	8	182	LP	LP 6		0	5	1.4	0.6
Island Park	291	0	0	0	LP	LP 6		94	98	96.6	0.4
Island Park	306	0	10	360	LP AS	LP 6		1	17	8.4	1.9
							AVERAGE	34.1	50.4	41.3	
East Centennials	77	0	11	2,536	LP DF SAF	LP 7		100	100	100.0	0.0
East Centennials	206	0	10	1,266	LP LI AS	LP 7		68	91	78.1	2.3
East Centennials	207	0	9	841	LP LI AS	LP 7		98	100	99.5	0.3
Island Park	214	0	7	223	LP AS	LP 7		56	82	65.7	2.4

Island Park	218	0	14	226	LP AS	LP 7		77	93	87.4	1.4
Island Park	319	0	9	781	LP	LP 7		13	43	22.4	2.6
Island Park	327	0	2	600	LP AS DF	LP 7		5	25	15.3	2.0
Island Park	668	0	14	400	AS LP	LP 7		1	17	9.5	2.1
							AVERAGE	52.3	68.9	59.7	
M.A. 12 & 13 & part of 14	96	0	14	625	LP AS DF	LP 8		94	100	97.9	0.7
Island Park	160	0	10	364	LP DF	LP 8		18	37	30.7	1.9
Island Park	163	0	8	2,013	LP	LP 8		84	98	92.8	1.3
Island Park	165	0	11	245	LP AS	LP 8		100	100	100.0	0.0
East Centennials	167	4	9	675	LP	LP 8		39	51	46.4	1.3
Big Holes	179	0	11	563	LP SAF DF	LP 8		62	75	74.5	2.5
West Slope	181	0	9	911	LP SAF	LP 8		56	75	67.1	2.1
Island Park	194	0	9	576	LP WB	LP 8		93	100	97.8	0.8
Island Park	204	0	13	3,281	LP SAF LI	LP 8		12	24	17.6	1.3
East Centennials	208	0	8	661	LP DF	LP 8		98	100	99.5	0.3
Island Park	211	0	5	1,919	LP	LP 8		100	100	100.0	0.0
East Centennials	220	0	9	1,443	LP SAF LI DF	LP 8		84	96	90.2	1.3
Island Park	232	0	10	519	LP DF	LP 8		0	3	1.7	0.4
Island Park	277	0	9	278	LP	LP 8		0	6	0.7	0.7
Island Park	288	0	12	648	LP	LP 8		0	8	2.4	1.1
Island Park	295	0	9	627	LP SAF DF	LP 8		1	12	4.8	1.0
Island Park	297	0	8	905	LP	LP 8		0	5	3.6	0.9
Island Park	314	0	9	238	LP	LP 8		0	6	1.6	0.8
Island Park	321	0	8	517	LP AS	LP 8		1	15	9.5	1.5
Island Park	330	0	11	566	LP	LP 8		3	20	9.5	1.7
East Centennials	618	0	9	746	LP	LP 8		0	17	7.4	1.7
Island Park	620	0	12	1,099	LP WB	LP 8		6	31	17.1	2.5
Island Park	624	0	13	1,210	LP AS	LP 8		15	32	22.1	1.8
Island Park	626	0	11	834	LP AS DF SAF	LP 8		13	34	25.9	2.0
Island Park	627	0	8	420	LP	LP 8		0	15	5.3	1.6
Island Park	629	0	9	308	LP	LP 8		0	6	1.9	0.7
Island Park	632	0	11	676	LP	LP 8		22	39	34.8	1.9
Island Park	645	0	13	554	LP AS	LP 8		0	13	5.3	1.4
Island Park	669	0	10	1,467	LP	LP 8		43	60	56.0	1.9
							AVERAGE	32.6	44.1	38.8	
West Centennials/west of I15	1	0	12	1,067	LP SAF	LP 9		100	100	100.0	0.0
Island Park	3	0	21	1,305	LP DF WB	LP 9		100	100	100.0	0.0
Palisades	8	0	11	868	SAF LP SP DF	LP 9		100	100	100.0	0.0
East Centennials	75	0	15	206	LP SAF DF	LP 9		48	67	59.8	2.4
East Centennials	78	0	37	710	AS DF LP LI SAF	LP 9		100	100	100.0	0.0
Island Park	161	0	11	310	LP	LP 9		50	75	61.4	2.2
Island Park	164	0	10	321	LP LI	LP 9		79	89	84.1	1.2
Island Park	168	0	9	2,560	LP AS	LP 9		100	100	100.0	0.0
East Centennials	170	0	10	1,707	LP LI DF	LP 9		98	100	99.7	0.2
Island Park	174	0	10	234	LP AS	LP 9		29	46	39.8	1.9
Island Park	177	0	13	1,403	LP AS	LP 9		34	55	46.9	2.2
West Slope	180	0	12	417	LP	LP 9		22	51	38.4	3.1
Big Holes	183	0	12	411	LP SAF AS	LP 9		87	96	92.1	0.9
Island Park	184	0	9	679	LP SAF WB	LP 9		98	100	99.3	0.3
Island Park	185	0	10	199	LP	LP 9		34	58	46.4	3.2
Island Park	186	0	13	844	LP LI SAF	LP 9		100	100	100.0	0.0
Island Park	199	0	12	380	LP SAF DF	LP 9		60	75	66.4	1.4
Island Park	202	0	9	330	LP WB	LP 9		87	94	92.1	0.7
Island Park	212	0	14	718	LP WB	LP 9		98	100	99.8	0.2
Island Park	213	0	12	803	LP SAF	LP 9		98	100	99.8	0
Island Park	217	0	11	532	LP	LP 9		91	98	95.7	0

East Centennials	222	0	15	1,009	LP AS DF SAF WB	LP 9	100	100	100.0	0.0
Island Park	223	0	12	801	LP	LP 9	100	100	100.0	0.0
Island Park	224	6	9	90	LP	LP 9	0	3	0.9	0.4
Island Park	226	0	9	258	LP DF	LP 9	84	100	90.9	1.4
Island Park	227	0	9	1,793	LP AS	LP 9	100	100	100.0	0.0
Island Park	228	0	13	492	LP AS	LP 9	94	100	97.8	0.7
Island Park	230	0	12	335	LP	LP 9	65	89	77.9	2.3
Island Park	234	0	12	354	DF LP	LP 9	5	20	11.6	1.8
Island Park	235	0	12	447	LP AS	LP 9	1	13	6.6	1.6
Island Park	236	0	7	1,164	AS LP DF	LP 9	24	50	34.0	2.9
Island Park	237	0	11	666	AS LP	LP 9	5	24	12.1	2.2
M.A. 12 & 13 & part of 14	238	0	10	316	LP DF	LP 9	0	8	5.3	0.9
M.A. 12 & 13 & part of 14	240	0	13	510	AS LP	LP 9	3	18	11.6	1.4
M.A. 12 & 13 & part of 14	243	0	15	1,255	AS LP	LP 9	13	44	23.8	3.0
M.A. 12 & 13 & part of 14	250	0	13	1,060	LP AS	LP 9	24	41	31.7	1.7
M.A. 12 & 13 & part of 14	253	0	15	133	LP	LP 9	0	1	0.5	4.0
Island Park	258	0	10	366	LP	LP 9	6	18	12.2	1.2
M.A. 12 & 13 & part of 14	260	0	15	408	LP WB	LP 9	34	62	50.3	2.5
M.A. 12 & 13 & part of 14	266	0	14	259	LP AS	LP 9	0	10	3.4	1.1
M.A. 12 & 13 & part of 14	270	0	12	297	LP	LP 9	0	0	0.3	0.3
M.A. 12 & 13 & part of 14	273	0	13	275	AS LP	LP 9	0	5	2.2	0.4
Island Park	275	0	18	916	LP	LP 9	15	31	24.5	1.7
Island Park	276	0	33	603	LP DF AS	LP 9	0	8	4.8	0.9
Island Park	279	0	12	461	LP WB	LP 9	1	12	6.6	1.1
Island Park	280	0	15	350	LP	LP 9	0	13	5.0	1.2
Island Park	281	0	13	467	LP	LP 9	1	17	8.4	1.8
Island Park	282	0	16	1,146	LP	LP 9	74	82	76.4	0.9
Island Park	283	0	10	298	LP SAF WB	LP 9	0	17	6.2	1.9
Island Park	289	0	13	239	LP	LP 9	6	24	15.0	1.8
Island Park	292	0	13	847	LP	LP 9	12	36	24.3	2.4
Island Park	293	0	13	350	LP	LP 9	1	17	8.1	1.5
Island Park	294	0	11	531	LP	LP 9	31	53	39.7	2.6
Island Park	296	0	15	309	SAF LP AS	LP 9	3	12	6.7	1.0
Island Park	298	0	13	204	LP SAF AS	LP 9	0	5	2.1	0.6
Island Park	301	0	11	422	LP SAF	LP 9	1	12	4.5	1.1
Island Park	303	0	11	122	LP	LP 9	0	12	2.2	1.2
Island Park	304	0	12	419	LP DF	LP 9	0	8	1.9	0.9
Island Park	307	0	9	730	LP DF AS	LP 9	12	25	20.5	1.3
Island Park	309	0	11	996	LP DF	LP 9	32	62	46.4	2.7
Island Park	312	0	9	271	LP	LP 9	0	8	3.6	0.9
Island Park	313	0	24	777	AS LP DF	LP 9	15	53	26.2	3.7
Island Park	318	1	10	61	AS LP	LP 9	0	1	0.2	0.2
Palisades	331	0	21	468	AS SAF LP DF	LP 9	1	15	7.4	1.3
West Slope	338	0	14	405	AS LP DF SAF	LP 9	0	13	6.7	1.3
West Slope	341	0	12	342	LP DF SAF	LP 9	0	5	1.7	0.6
Big Holes	351	0	32	411	LP DF SAF	LP 9	0	12	6.2	1.0
Big Holes	352	0	25	152	AS LP SAF	LP 9	0	5	0.9	0.5
M.A. 12 & 13 & part of 14	377	0	16	613	AS LP DF	LP 9	5	31	12.6	2.5
Caribou	514	0	23	294	AS LP SAF DF SP	LP 9	0	6	3.1	1.1
Caribou	532	0	16	199	LP	LP 9	41	56	47.1	1.9
East Centennials	609	0	26	1,404	LP DF SAF LI	LP 9	25	50	37.8	2.4
East Centennials	612	0	12	420	LP AS	LP 9	0	18	7.9	1.8
Island Park	623	0	10	457	AS LP	LP 9	5	24	8.3	2.1
Island Park	635	0	14	890	LP DF SAF	LP 9	17	39	27.8	2.9
Island Park	644	0	11	459	AS LP	LP 9	1	6	6.4	1.9
Island Park	656	0	13	125	LP DF	LP 9	0	3	1.0	0.4
Island Park	658	0	30	608	LP DF AS	LP 9	6	12	9.0	0.7
Island Park	664	0	10	331	LP AS	LP 9	0	12	3.1	1.1

Island Park	672	0	17	1,038	LP SAF	LP 9		50	68	57.4	2.0
Island Park	675	0	16	835	LP	LP 9		18	36	29.1	1.8
Island Park	680	0	16	272	LP	LP 9		1	8	6.7	1.9
Island Park	692	0	13	704	LP DF	LP 9		5	22	12.9	2.0
							AVERAGE	31.9	44.1	37.6	
Middle Centennials	13	0	31	26	SAF LP DF	MX 5		0	10	2.8	1.0
							AVERAGE	0.0	10.0	2.8	
Island Park	187	0	2	82	LP SAF	MX 6		62	79	68.6	1.9
							AVERAGE	62.0	79.0	68.6	
Island Park	290	0	40	638	DF LP	MX 8		6	18	12.2	1.5
							AVERAGE	6.0	18.0	12.2	
Middle Centennials	11	0	35	109	DF LP AS	MX 9		1	24	11.0	2.5
Middle Centennials	18	0	27	956	SAF DF LP	MX 9		100	100	100.0	0.0
Middle Centennials	19	0	17	390	DF SAF LP	MX 9		100	100	100.0	0.0
Middle Centennials	23	0	31	138	LI DF	MX 9		74	86	79.7	1.1
Middle Centennials	29	1	43	348	DF LI LP SAF	MX 9		31	48	35.0	3.0
South Bitterroot Mtn. Range	41	0	22	411	DF LI	MX 9		63	89	79.1	2.4
South Bitterroot Mtn. Range	51	0	37	69	DF LI	MX 9		3	29	12.2	2.2
Lemhi	59	6	29	78	DF LI	MX 9		1	12	6.9	1.1
East Centennials	79	0	43	667	SAF DF LP	MX 9		98	100	99.8	0.2
Island Park	90	0	27	306	LP DF AS	MX 9		67	87	77.9	2.0
Island Park	109	0	27	489	AS DF LP	MX 9		91	98	95.9	0.9
Palisades	112	0	21	409	SAF DF LP	MX 9		91	98	94.8	0.7
Island Park	176	0	19	415	LP DF AS	MX 9		89	98	93.4	0.9
East Centennials	205	0	47	736	DF LP SAF	MX 9		94	100	98.6	0.6
Island Park	219	0	10	943	LP AS DF	MX 9		100	100	100.0	0.0
Island Park	233	0	20	675	LP DF	MX 9		8	29	15.2	2.2
M.A. 12 & 13 & part of 14	241	0	44	339	LP AS DF	MX 9		0	10	4.5	1.7
M.A. 12 & 13 & part of 14	249	0	26	205	LP DF AS	MX 9		0	8	2.9	1.1
M.A. 12 & 13 & part of 14	256	0	42	733	AS LP DF	MX 9		5	24	12.8	2.3
M.A. 12 & 13 & part of 14	265	0	22	431	LP SAF DF WB	MX 9		5	27	14.3	2.3
Island Park	284	0	49	386	AS LP DF	MX 9		1	6	4.0	0.6
Island Park	305	0	13	804	LP AS DF	MX 9		10	29	20.9	1.7
Island Park	308	0	22	169	AS LP DF	MX 9		0	13	2.6	1.3
Island Park	310	0	28	458	AS DF LP	MX 9		1	18	7.9	1.7
Island Park	311	0	15	755	LP AS DF	MX 9		5	24	13.1	1.9
Island Park	328	0	22	770	LP AS DF	MX 9		12	31	17.2	2.0
Big Holes	333	0	18	465	LP AS DF	MX 9		3	15	7.6	1.1
Big Holes	334	0	23	626	AS LP DF	MX 9		1	15	6.4	1.6
Palisades	335	0	33	214	LP DF	MX 9		0	10	1.6	1.0
West Slope	336	0	19	322	LP DF	MX 9		0	8	2.6	0.8
West Slope	340	0	25	127	LP DF SAF AS	MX 9		0	5	1.7	0.6
West Slope	345	10	18	36	LP DF	MX 9		0	0	0.0	0.0
West Slope	349	0	22	1,150	LP DF WB	MX 9		15	36	24.0	2.6
West Slope	390	0	18	508	AS LP DF SP	MX 9		6	29	17.6	2.2
Caribou	501	0	23	312	DF SAF SP LP	MX 9		0	12	3.4	1.3
Caribou	502	0	14	453	DF LP LI	MX 9		0	5	3.4	0.6
Caribou	508	0	23	573	AS DF SAF LP	MX 9		6	17	13.1	1.1
Caribou	549	0	33	493	LP SP DF SAF AS	MX 9		8	25	16.6	1.9
Caribou	550	8	30	70	DF SAF LP	MX 9		0	1	0.3	0.2
Island Park	647	0	23	97	LP DF	MX 9		0	5	1.0	0.6
Island Park	657	0	15	368	LP DF SAF	MX 9		0	15	7.2	1.8
Island Park	685	0	20	357	SAF DF LP	MX 9		0	8	3.3	0.8
Island Park	699	0	33	426	AS LP DF	MX 9		0	6	3.4	0.

						AVERAGE	25.3	37.2	30.5	
West Slope	347	0	9	357	AS DF SAF LP SP	MX3 6	0	8	5.2	0.9
						AVERAGE	0.0	8.0	5.2	
Middle Centennials	14	0	36	586	SAF DF	MX3 9	91	100	96.9	0.7
Middle Centennials	20	0	26	963	SAF DF SP LI LP	MX3 9	100	100	100.0	0.0
Middle Centennials	21	0	28	792	SAF LP DF	MX3 9	100	100	100.0	0.0
Middle Centennials	24	0	46	998	SAF DF LI LP	MX3 9	100	100	100.0	0.0
West Centennials/west of I15	33	3	30	112	SP CW DF	MX3 9	31	50	41.2	2.2
West Centennials/west of I15	37	0	31	176	SAF LI DF	MX3 9	10	27	19.5	2.0
South Bitterroot Mtn. Range	46	8	32	162	SP DF LI	MX3 9	29	41	32.4	2.1
South Bitterroot Mtn. Range	52	0	35	689	SP LI DF	MX3 9	100	100	100.0	0.0
South Bitterroot Mtn. Range	54	0	25	154	SP LI DF	MX3 9	86	96	90.9	1.3
South Bitterroot Mtn. Range	56	0	25	715	SAF DF SP LI	MX3 9	98	100	99.5	0.3
Lemhi	60	0	24	356	DF SP LI	MX3 9	31	60	47.1	2.9
Lemhi	61	1	27	564	SP DF LI	MX3 9	91	98	94.3	0.7
Lemhi	62	0	30	320	SP LI DF	MX3 9	100	100	100.0	0.0
East Centennials	67	0	41	136	SAF DF AS	MX3 9	25	55	40.0	3.3
East Centennials	71	0	41	98	DF SAF	MX3 9	17	41	27.4	1.9
East Centennials	73	0	41	1,338	AS SAF DF LP	MX3 9	100	100	100.0	0.0
East Centennials	74	0	40	380	SAF LP DF SP	MX3 9	98	100	99.7	0.2
East Centennials	81	0	24	792	SP DF SAF LP	MX3 9	100	100	100.0	0.0
East Centennials	87	0	40	223	SAF DF LP	MX3 9	91	98	94.5	0.7
East Centennials	88	0	28	190	SAF SP DF LP	MX3 9	65	79	74.0	1.5
East Centennials	89	0	36	129	SAF DF	MX3 9	12	34	21.2	2.5
East Centennials	93	0	29	221	SAF DF LI	MX3 9	51	77	62.9	2.4
Island Park	100	0	17	533	SAF LP DF	MX3 9	98	100	99.1	0.3
Palisades	113	0	29	846	SAF DF SP LP	MX3 9	96	100	99.5	0.4
Palisades	117	0	25	299	AS SAF DF	MX3 9	89	98	94.5	1.1
Palisades	119	0	38	705	SAF DF SP	MX3 9	98	100	99.7	0.2
Palisades	121	0	16	446	SAF LP DF SP	MX3 9	93	100	96.6	0.8
Palisades	126	0	30	210	AS SAF DF LP SP	MX3 9	72	87	81.4	1.7
Big Holes	130	0	27	155	LP DF SAF SP	MX3 9	20	37	26.9	2.1
Big Holes	131	1	29	205	SAF DF	MX3 9	29	46	38.3	1.9
Big Holes	133	0	22	366	DF SAF	MX3 9	31	46	39.8	1.8
Palisades	139	0	27	193	AS SP SAF DF	MX3 9	44	62	50.2	1.8
Palisades	148	0	31	1,309	AS SAF SP LP DF	MX3 9	65	77	71.4	1.5
Big Holes	155	0	22	280	SAF LP LI DF SP	MX3 9	36	55	43.1	1.9
West Centennials/west of I15	162	0	19	624	SAF LP DF	MX3 9	98	100	98.6	0.5
Island Park	166	0	10	582	LP SAF LI	MX3 9	96	100	98.8	0.4
East Centennials	188	0	24	1,571	SAF LP SP	MX3 9	82	94	89.7	1.3
Island Park	193	0	20	1,541	LP SAF LI DF	MX3 9	70	87	76.2	1.7
East Centennials	221	0	39	1,028	SAF LP DF SP LI	MX3 9	96	100	99.1	0.4
M.A. 12 & 13 & part of 14	245	0	11	1,230	SAF LP SP WB	MX3 9	39	62	50.2	2.1
Big Holes	332	0	17	132	SAF LP DF	MX3 9	0	3	1.0	0.5
West Slope	339	0	24	808	LP SAF DF SP	MX3 9	15	29	21.2	1.7
West Slope	344	0	28	975	SAF SP LP WB	MX3 9	20	36	28.3	1.4
West Slope	346	0	39	526	SAF AS DF WB	MX3 9	1	15	7.1	1.4
West Slope	348	0	26	885	DF SAF SP LP	MX3 9	8	32	19.0	2.6
M.A. 12 & 13 & part of 14	350	0	23	651	SP LP DF SAF	MX3 9	20	36	30.3	1.7
Big Holes	353	0	33	602	AS DF SP LP SAF	MX3 9	1	22	10.7	2.1
Big Holes	355	0	18	245	LP SAF DF AS	MX3 9	0	6	3.1	0.7
East Centennials	361	0	33	251	SAF LI AS	MX3 9	1	6	4.3	0.6
Big Holes	373	0	37	277	SAF LP DF SP	MX3 9	0	5	1.6	0.5
Palisades	383	0	34	198	DF AS SAF	MX3 9	0	5	1.7	0.6
Palisades	455	0	32	172	DF SAF AS	MX3 9	0	8	2.1	0.9
Caribou	522	0	26	126	SAF DF	MX3 9	0	6	1.7	0.8

Caribou	529	0	15	470	SAF LP AS	MX3	9		17	43	24.5	2.7
Caribou	531	0	27	169	SAF LP DF	MX3	9		0	3	0.7	0.4
Caribou	533	0	13	1,096	SAF DF SP LP	MX3	9		13	44	25.0	2.8
Caribou	535	0	18	169	DF SAF LP	MX3	9		0	1	0.7	0.3
Caribou	536	0	27	257	DF SAF	MX3	9		0	6	1.0	0.7
Caribou	537	0	21	377	SAF DF SP	MX3	9		0	8	4.1	0.9
Caribou	540	0	23	302	AS DF SAF LP SP	MX3	9		0	10	3.3	1.1
Caribou	543	0	29	225	DF SAF SP	MX3	9		1	27	8.4	2.6
Caribou	545	0	25	202	SAF DF SP	MX3	9		1	6	4.0	0.6
Caribou	546	0	36	402	SAF DF AS	MX3	9		1	8	5.3	0.8
Caribou	547	0	30	312	SAF DF LI	MX3	9		0	5	1.6	0.5
East Centennials	602	0	17	1,563	SAF WB LP SP	MX3	9		13	25	19.8	1.4
East Centennials	605	0	30	521	DF LP SAF	MX3	9		1	17	8.6	1.6
East Centennials	606	0	22	278	SAF WB DF	MX3	9		0	5	1.4	0.6
East Centennials	611	0	38	220	SAF WB DF	MX3	9		0	1	1.4	0.7
East Centennials	616	0	29	121	SAF DF	MX3	9		0	6	1.6	0.7
Island Park	674	0	20	704	AS DF SAF LP	MX3	9		13	32	21.6	2.1
								AVERAGE	41.5	52.3	46.6	
M.A. 12 & 13 & part of 14	254	0	18	114	AS SAF LP	SF	6		0	1	0.7	0.4
								AVERAGE	0.0	1.0	0.7	
Palisades	4	0	28	615	SAF SP LI	SF	9		86	93	88.6	0.7
Middle Centennials	12	0	39	624	SAF SP LP	SF	9		96	100	98.8	0.4
West Centennials/west of I15	39	0	41	489	SAF SP DF	SF	9		60	81	72.1	2.0
Palisades	122	0	35	464	SAF SP DF	SF	9		65	82	76.9	1.6
Palisades	127	0	33	101	SAF SP LP	SF	9		13	34	22.2	2.4
West Slope	137	0	26	917	SAF LP	SF	9		96	100	99.1	0.5
West Slope	143	0	37	350	SAF SP DF	SF	9		89	98	94.7	1.0
West Slope	144	0	18	97	SAF AS	SF	9		15	34	22.6	2.1
Palisades	149	0	33	653	SAF SP LP DF	SF	9		94	100	97.2	0.6
Palisades	150	0	33	1,000	SP SAF LP	SF	9		100	100	100.0	0.0
Big Holes	154	0	23	1,196	AS SAF DF SP	SF	9		50	62	55.0	1.3
Big Holes	156	0	23	637	SAF SP DF	SF	9		93	100	97.1	0.8
East Centennials	157	0	12	1,115	SAF LP SP	SF	9		67	77	72.6	1.2
Island Park	190	0	19	2,012	SAF WB LP	SF	9		100	100	100.0	0.0
West Slope	343	0	32	556	SAF LI DF SP	SF	9		3	20	12.4	2.1
East Centennials	360	0	32	413	SAF SP DF	SF	9		5	24	14.3	2.0
Palisades	367	0	41	161	SAF SP	SF	9		0	1	0.2	0.2
West Slope	371	0	40	171	SAF SP	SF	9		0	5	1.7	0.6
Palisades	372	0	36	163	SAF SP	SF	9		0	3	0.5	0.4
Caribou	504	0	26	1,045	AS SAF SP DF	SF	9		22	39	30.7	2.1
Caribou	512	0	35	549	AS SP	SF	9		1	24	17.2	2.3
								AVERAGE	50.2	60.8	55.9	

ATTACHMENT C

Vegetation Data and Hiding Cover Analysis for each Principle Watershed

Hiding cover analysis for each of the principle watersheds.

Table explanation:

Column 1 — Principle watershed number (refer to Figure 3 in the text).

Column 2 — Vegetation description; this is a complete listing of all of the vegetation categories (or strata) in the Forest's G1S vegetation database.

Column 3 — Vegetation code for each of the vegetation categories in column

Columns 4&5&6 — Shows acres for each of the vegetation categories (or strata) as computed from the Forest's GIS vegetation database.

Column 7 — Shows the percent of the watershed comprised by each of the vegetation categories.

Column 8 — The hiding cover value for each of the vegetation categories, as determined from the analysis of the 400+ forest inventory plots (see Attachment A and text).

Column 9 — This is column 8 X column 6. (On the average, no vegetation type on the Targhee consistently and fully meets the definition of hiding cover. Vegetation that does not fully meet the definition of hiding cover still provides cover for elk. it was agreed that vegetation which provides partial cover for elk should be accounted for according to the amount of hiding cover value it contributes. For example: 1,000 acres of mature spruce/fir that averages 60 percent hiding cover would be accounted as 600 acres of hiding cover (1,000 acres X .60 = 600 acres).

Column 10 — Shows the percent of the watershed comprised by hiding cover; this is column 9 divided by the total National Forest acres in the watershed.

TABLE 11

1	2	3	4	5	6	7	8	9	10
Wtrshed No.	Vegetation Description	Veg. Code	024 Acres	023 Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
023/024	Aspen non-stocked	AS5	13.0	0.0	13.0	0.0	0.00	0.0	0.0
023/024	Aspen seedling	AS6	290.0	0.0	290.0	0.7	0.00	0.0	0.0
023/024	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
023/024	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
023/024	Aspen mature	AS9	1,120.0	778.0	1,898.0	4.3	0.10	189.8	0.4
023/024	First entry Douglas-fir	1DF9	3.0	0.0	3.0	0.0	0.00	0.0	0.0
023/024	Douglas-fir non-stocked	DF5	255.0	60.0	315.0	0.7	0.00	0.0	0.0
023/024	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
023/024	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
023/024	Douglas-fir pole	DF8	0.0	55.0	55.0	0.1	0.40	22.0	0.0
023/024	Douglas-fir mature	DF9	529.0	617.0	1,146.0	2.6	0.30	343.8	0.8
023/024	Grass	GR	1.0	95.0	96.0	0.2	0.00	0.0	0.0
023/024	Grass/brush	GRB	247.0	13.0	260.0	0.6	0.00	0.0	0.0
023/024	Grass/forb	GRF	0.0	333.0	333.0	0.8	0.00	0.0	0.0
023/024	Grass/sage	GRS	22.0	278.0	300.0	0.7	0.00	0.0	0.0
023/024	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
023/024	Lodgepole non-stocked	LP5	2,364.0	957.0	3,321.0	7.5	0.00	0.0	0.0
023/024	Lodgepole seedling	LP6	157.0	450.0	607.0	1.4	0.00	0.0	0.0
023/024	Lodgepole sapling	LP7	642.0	205.0	847.0	1.9	0.60	508.2	1.2
023/024	Lodgepole pole	LP8	0.0	291.0	291.0	0.7	0.40	116.4	0.3
023/024	Lodgepole mature	LP9	3,517.0	8,466.0	11,983.0	27.2	0.40	4,793.2	10.9
023/024	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
023/024	Mountain Brush	MB	717.0	2,678.0	3,395.0	7.7	0.00	0.0	0.0
023/024	Mixed con. non-stocked	MX35	114.0	280.0	394.0	0.9	0.00	0.0	0.0
023/024	Mixed con. seedling	MX36	0.0	164.0	164.0	0.4	0.00	0.0	0.0
023/024	Mixed con. sapling	MX37	0.0	16.0	16.0	0.0	0.60	9.6	0.0
023/024	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
023/024	Mixed con. mature	MX39	681.0	3,483.0	4,164.0	9.5	0.30	1,249.2	2.8
023/024	First entry mixed con.	1MX9	177.0	0.0	177.0	0.4	0.00	0.0	0.0
023/024	Mixed con. non-stocked	MX5	368.0	0.0	368.0	0.8	0.00	0.0	0.0
023/024	Mixed con. seedling	MX6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
023/024	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
023/024	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
023/024	Mixed con. mature	MX9	4,096.0	3,693.0	7,789.0	17.7	0.30	2,336.7	5.3
023/024	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
023/024	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
023/024	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
023/024	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
023/024	Non-commercial MX	NMX	306.0	733.0	1,039.0	2.4	0.30	311.7	0.7
023/024	Non-commercial SF	NSF	0.0	755.0	755.0	1.7	0.30	226.5	0.5
023/024	Private/other agency	NUS	157.0	323.0	480.0	1.1	0.00	0.0	0.0
023/024	Rock	R	1.0	28.0	29.0	0.1	0.00	0.0	0.0
023/024	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
023/024	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
023/024	Spruce/Fir sapling	SF7	2.0	0.0	2.0	0.0	0.60	1.2	0.0
023/024	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
023/024	Spruce/Fir mature	SF9	54.0	124.0	178.0	0.4	0.60	106.8	0.2
023/024	Tall sage/grass	TSG	1,534.0	1,884.0	3,418.0	7.8	0.00	0.0	0.0
023/024	Tall sage/mtn. brush	TSM	0.0	384.0	384.0	0.9	0.00	0.0	0.0
023/024	Undefined/unknown	UD	0.0	0.0	0.0	0.0	0.00	0.0	0.0
023/024	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
023/024	Water	WA	0.0	0.0	0.0	0.0	0.00	0.0	0.0
023/024	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
023/024	Total (includes NUS acres)		17,367.0	27,143.0	44,510.0				
023/024	Nat'l Forest Acres		17,210.0	26,820.0	44,030.0	100.0		10,215.1	23.2
023/024	Nat'l Forest Square Miles		26.9	41.9	68.8				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
030A	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
030A	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
030A	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
030A	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
030A	Aspen mature	AS9			14.0	0.0	0.10	1.4	0.0
030A	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
030A	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
030A	Douglas-fir seedling	DF6			519.0	1.2	0.00	0.0	0.0
030A	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
030A	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
030A	Douglas-fir mature	DF9			7,470.0	17.5	0.30	2,241.0	5.3

030A	Grass	GR			774.0	1.8	0.00	0.0	0.0
030A	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0
030A	Grass/forb	GRF			2,788.0	6.5	0.00	0.0	0.0
030A	Grass/sage	GRS			1,124.0	2.6	0.00	0.0	0.0
030A	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
030A	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
030A	Lodgepole seedling	LP6			0.0	0.0	0.00	0.0	0.0
030A	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
030A	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
030A	Lodgepole mature	LP9			0.0	0.0	0.40	0.0	0.0
030A	Meadow	M			0.0	0.0	0.00	0.0	0.0
030A	Mountain Brush	MB			1,215.0	2.9	0.00	0.0	0.0
030A	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
030A	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
030A	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
030A	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
030A	Mixed con. mature	MX39			0.0	0.0	0.30	0.0	0.0
030A	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
030A	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
030A	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
030A	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
030A	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
030A	Mixed con. mature	MX9			287.0	0.7	0.30	86.1	0.2
030A	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
030A	Non-commercial D.Fir	NDF			9,357.0	22.0	0.30	2,807.1	6.6
030A	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
030A	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
030A	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
030A	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
030A	Private/other agency	NUS			426.0	1.0	0.00	0.0	0.0
030A	Rock	R			7,187.0	16.9	0.00	0.0	0.0
030A	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
030A	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
030A	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
030A	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
030A	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
030A	Tall sage/grass	TSG			11,788.0	27.7	0.00	0.0	0.0
030A	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
030A	Undefined/unknown	UD			13.0	0.0	0.00	0.0	0.0
030A	Willow	W			0.0	0.0	0.00	0.0	0.0
030A	Water	WA			91.0	0.2	0.00	0.0	0.0
030A	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
030A	Total (includes NUS acres)		NA	NA	43,053.0				
030A	Nat'l Forest Acres		ERR	ERR	42,627.0	100.0		5,135.6	12.0
030A	Nat'l Forest Square Miles		ERR	ERR	66.6				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
031A	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
031A	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
031A	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
031A	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
031A	Aspen mature	AS9			2.0	0.0	0.10	0.2	0.0
031A	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
031A	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
031A	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
031A	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
031A	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
031A	Douglas-fir mature	DF9			12,378.0	25.5	0.30	3,713.4	7.7
031A	Grass	GR			19.0	0.0	0.00	0.0	0.0
031A	Grass/brush	GRB			598.0	1.2	0.00	0.0	0.0
031A	Grass/forb	GRF			2,771.0	5.7	0.00	0.0	0.0
031A	Grass/sage	GRS			2,724.0	5.6	0.00	0.0	0.0
031A	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
031A	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
031A	Lodgepole seedling	LP6			64.0	0.1	0.00	0.0	0.0
031A	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
031A	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
031A	Lodgepole mature	LP9			0.0	0.0	0.40	0.0	0.0
031A	Meadow	M			1,176.0	2.4	0.00	0.0	0.0
031A	Mountain Brush	MB			99.0	0.2	0.00	0.0	0.0
031A	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
031A	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
031A	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0

031A	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
031A	Mixed con. mature	MX39			0.0	0.0	0.30	0.0	0.0
031A	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
031A	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
031A	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
031A	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
031A	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
031A	Mixed con. mature	MX9			57.0	0.1	0.30	17.1	0.0
031A	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
031A	Non-commercial D.Fir	NDF			5,713.0	11.8	0.30	1,713.9	3.5
031A	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
031A	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
031A	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
031A	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
031A	Private/other agency	NUS			14.0	0.0	0.00	0.0	0.0
031A	Rock	R			5,605.0	11.5	0.00	0.0	0.0
031A	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
031A	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
031A	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
031A	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
031A	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
031A	Tall sage/grass	TSG			17,195.0	35.4	0.00	0.0	0.0
031A	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
031A	Undefined/unknown	UD			6.0	0.0	0.00	0.0	0.0
031A	Willow	W			0.0	0.0	0.00	0.0	0.0
031A	Water	WA			123.0	0.3	0.00	0.0	0.0
031A	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
031A	Total (includes NUS acres)		NA	NA	48,544.0				
031A	Nat'l Forest Acres		ERR	ERR	48,530.0	100.0		5,444.6	11.2
031A	Nat'l Forest Square Miles		ERR	ERR	75.8				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
025	Aspen non-stocked	AS5			519.0	0.8	0.00	0.0	0.0
025	Aspen seedling	AS6			12.0	0.0	0.00	0.0	0.0
025	Aspen sapling	AS7			23.0	0.0	0.60	13.8	0.0
025	Aspen pole	AS8			76.0	0.1	0.15	11.4	0.0
025	Aspen mature	AS9			750.0	1.1	0.10	75.0	0.1
025	First entry Douglas-fir	1DF9			9,909.0	15.1	0.00	0.0	0.0
025	Douglas-fir non-stocked	DF5			239.0	0.4	0.00	0.0	0.0
025	Douglas-fir seedling	DF6			525.0	0.8	0.00	0.0	0.0
025	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
025	Douglas-fir pole	DF8			7.0	0.0	0.40	2.8	0.0
025	Douglas-fir mature	DF9			30,722.0	46.7	0.30	9,216.6	14.0
025	Grass	GR			941.0	1.4	0.00	0.0	0.0
025	Grass/brush	GRB			398.0	0.6	0.00	0.0	0.0
025	Grass/forb	GRF			820.0	1.2	0.00	0.0	0.0
025	Grass/sage	GRS			0.0	0.0	0.00	0.0	0.0
025	Limber Pine mature	LM9			114.0	0.2	0.60	68.4	0.1
025	Lodgepole non-stocked	LP5			15.0	0.0	0.00	0.0	0.0
025	Lodgepole seedling	LP6			916.0	1.4	0.00	0.0	0.0
025	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
025	Lodgepole pole	LP8			290.0	0.4	0.40	116.0	0.2
025	Lodgepole mature	LP9			779.0	1.2	0.40	311.6	0.5
025	Meadow	M			0.0	0.0	0.00	0.0	0.0
025	Mountain Brush	MB			117.0	0.2	0.00	0.0	0.0
025	Mixed con. non-stocked	MX35			81.0	0.1	0.00	0.0	0.0
025	Mixed con. seedling	MX36			430.0	0.7	0.00	0.0	0.0
025	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
025	Mixed con. pole	MX38			14.0	0.0	0.40	5.6	0.0
025	Mixed con. mature	MX39			5,396.0	8.2	0.30	1,618.8	2.5
025	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
025	Mixed con. non-stocked	MX5			1.0	0.0	0.00	0.0	0.0
025	Mixed con. seedling	MX6			196.0	0.3	0.00	0.0	0.0
025	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
025	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
025	Mixed con. mature	MX9			582.0	0.9	0.30	174.6	0.3
025	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
025	Non-commercial D.Fir	NDF			3,846.0	5.9	0.30	1,153.8	1.8
025	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
025	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
025	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
025	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
025	Private/other agency	NUS			2,033.0	3.1	0.00	0.0	0.0

025	Rock	R			400.0	0.6	0.00	0.0	0.0
025	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
025	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
025	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
025	Spruce/Fir Pole	SF8			36.0	0.1	0.60	21.6	0.0
025	Spruce/Fir mature	SF9			939.0	1.4	0.60	563.4	0.9
025	Tall sage/grass	TSG			6,087.0	9.3	0.00	0.0	0.0
025	Tall sage/mtn. brush	TSM			39.0	0.1	0.00	0.0	0.0
025	Undefined/unknown	UD			6.0	0.0	0.00	0.0	0.0
025	Willow	W			228.0	0.3	0.00	0.0	0.0
025	Water	WA			10.0	0.0	0.00	0.0	0.0
025	Whitebark Pine mature	WB9			253.0	0.4	0.60	151.8	0.2
025	Total (includes NUS acres)		NA	NA	67,749.0				
025	Nat'l Forest Acres		ERR	ERR	65,716.0	100.0		13,505.2	20.6
025	Nat'l Forest Square Miles		ERR	ERR	102.7				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
026A	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
026A	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
026A	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
026A	Aspen pole	AS8			27.0	0.1	0.15	4.1	0.0
026A	Aspen mature	AS9			1,853.0	4.5	0.10	185.3	0.4
026A	First entry Douglas-fir	1DF9			2,792.0	6.8	0.00	0.0	0.0
026A	Douglas-fir non-stocked	DF5			50.0	0.1	0.00	0.0	0.0
026A	Douglas-fir seedling	DF6			12.0	0.0	0.00	0.0	0.0
026A	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
026A	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
026A	Douglas-fir mature	DF9			12,508.0	30.3	0.30	3,752.4	9.1
026A	Grass	GR			2,299.0	5.6	0.00	0.0	0.0
026A	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0
026A	Grass/forb	GRF			3.0	0.0	0.00	0.0	0.0
026A	Grass/sage	GRS			254.0	0.6	0.00	0.0	0.0
026A	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
026A	Lodgepole non-stocked	LP5			234.0	0.6	0.00	0.0	0.0
026A	Lodgepole seedling	LP6			91.0	0.2	0.00	0.0	0.0
026A	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
026A	Lodgepole pole	LP8			104.0	0.3	0.40	41.6	0.1
026A	Lodgepole mature	LP9			1,127.0	2.7	0.40	450.8	1.1
026A	Meadow	M			0.0	0.0	0.00	0.0	0.0
026A	Mountain Brush	MB			777.0	1.9	0.00	0.0	0.0
026A	Mixed con. non-stocked	MX35			19.0	0.0	0.00	0.0	0.0
026A	Mixed con. seedling	MX36			10.0	0.0	0.00	0.0	0.0
026A	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
026A	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
026A	Mixed con. mature	MX39			1,047.0	2.5	0.30	314.1	0.8
026A	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
026A	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
026A	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
026A	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
026A	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
026A	Mixed con. mature	MX9			0.0	0.0	0.30	0.0	0.0
026A	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
026A	Non-commercial D.Fir	NDF			68.0	0.2	0.30	20.4	0.0
026A	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
026A	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
026A	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
026A	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
026A	Private/other agency	NUS			3,015.0	7.3	0.00	0.0	0.0
026A	Rock	R			91.0	0.2	0.00	0.0	0.0
026A	Spruce/Fir non-stocked	SF5			10.0	0.0	0.00	0.0	0.0
026A	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
026A	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
026A	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
026A	Spruce/Fir mature	SF9			218.0	0.5	0.60	130.8	0.3
026A	Tall sage/grass	TSG			17,610.0	42.7	0.00	0.0	0.0
026A	Tall sage/mtn. brush	TSM			10.0	0.0	0.00	0.0	0.0
026A	Undefined/unknown	UD			57.0	0.1	0.00	0.0	0.0
026A	Willow	W			0.0	0.0	0.00	0.0	0.0
026A	Water	WA			16.0	0.0	0.00	0.0	0.0
026A	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
026A	Total (includes NUS acres)		NA	NA	44,302.0				
026A	Nat'l Forest Acres		ERR	ERR	41,287.0	100.0		4,899.4	11.9

026A	Nat'l Forest Square Miles	ERR	ERR	64.5	

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
026B	Aspen non-stocked	AS5			185.0	0.5	0.00	0.0	0.0
026B	Aspen seedling	AS6			47.0	0.1	0.00	0.0	0.0
026B	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
026B	Aspen pole	AS8			235.0	0.6	0.15	35.3	0.1
026B	Aspen mature	AS9			1,156.0	3.0	0.10	115.6	0.3
026B	First entry Douglas-fir	1DF9			3,672.0	9.4	0.00	0.0	0.0
026B	Douglas-fir non-stocked	DF5			24.0	0.1	0.00	0.0	0.0
026B	Douglas-fir seedling	DF6			231.0	0.6	0.00	0.0	0.0
026B	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
026B	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
026B	Douglas-fir mature	DF9			12,960.0	33.1	0.30	3,888.0	9.9
026B	Grass	GR			442.0	1.1	0.00	0.0	0.0
026B	Grass/brush	GRB			895.0	2.3	0.00	0.0	0.0
026B	Grass/forb	GRF			40.0	0.1	0.00	0.0	0.0
026B	Grass/sage	GRS			1,131.0	2.9	0.00	0.0	0.0
026B	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
026B	Lodgepole non-stocked	LP5			178.0	0.5	0.00	0.0	0.0
026B	Lodgepole seedling	LP6			99.0	0.3	0.00	0.0	0.0
026B	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
026B	Lodgepole pole	LP8			24.0	0.1	0.40	9.6	0.0
026B	Lodgepole mature	LP9			546.0	1.4	0.40	218.4	0.6
026B	Meadow	M			0.0	0.0	0.00	0.0	0.0
026B	Mountain Brush	MB			171.0	0.4	0.00	0.0	0.0
026B	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
026B	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
026B	Mixed con. sapling	MX37			13.0	0.0	0.60	7.8	0.0
026B	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
026B	Mixed con. mature	MX39			1,517.0	3.9	0.30	455.1	1.2
026B	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
026B	Mixed con. non-stocked	MX5			80.0	0.2	0.00	0.0	0.0
026B	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
026B	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
026B	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
026B	Mixed con. mature	MX9			0.0	0.0	0.30	0.0	0.0
026B	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
026B	Non-commercial D.Fir	NDF			1,427.0	3.6	0.30	428.1	1.1
026B	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
026B	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
026B	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
026B	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
026B	Private/other agency	NUS			1,689.0	4.3	0.00	0.0	0.0
026B	Rock	R			221.0	0.6	0.00	0.0	0.0
026B	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
026B	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
026B	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
026B	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
026B	Spruce/Fir mature	SF9			106.0	0.3	0.60	63.6	0.2
026B	Tall sage/grass	TSG			13,609.0	34.7	0.00	0.0	0.0
026B	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
026B	Undefined/unknown	UD			16.0	0.0	0.00	0.0	0.0
026B	Willow	W			0.0	0.0	0.00	0.0	0.0
026B	Water	WA			19.0	0.0	0.00	0.0	0.0
026B	Whitebark Pine mature	WB9			140.0	0.4	0.60	84.0	0.2
026B	Total (includes NUS acres)		NA	NA	40,873.0				
026B	Nat'l Forest Acres		ERR	ERR	39,184.0	100.0		5,305.5	13.5
026B	Nat'l Forest Square Miles		ERR	ERR	61.2				

Wtrshed No.	Vegetation Description	Veg. Code	028 Acres	027 Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
027/028	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Aspen seedling	AS6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
027/028	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
027/028	Aspen mature	AS9	227.0	132.0	359.0	0.5	0.10	35.9	0.0
027/028	First entry Douglas-fir	1DF9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Douglas-fir non-stocked	DF5	14.0	0.0	14.0	0.0	0.00	0.0	0.0

027/028	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
027/028	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
027/028	Douglas-fir mature	DF9	3,293.0	14,554.0	17,847.0	23.3	0.30	5,354.1	7.0
027/028	Grass	GR	1,068.0	4,379.0	5,447.0	7.1	0.00	0.0	0.0
027/028	Grass/brush	GRB	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Grass/forb	GRF	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Grass/sage	GRS	32.0	405.0	437.0	0.6	0.00	0.0	0.0
027/028	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
027/028	Lodgepole non-stocked	LP5	134.0	0.0	134.0	0.2	0.00	0.0	0.0
027/028	Lodgepole seedling	LP6	33.0	1,586.0	1,619.0	2.1	0.00	0.0	0.0
027/028	Lodgepole sapling	LP7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
027/028	Lodgepole pole	LP8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
027/028	Lodgepole mature	LP9	286.0	0.0	286.0	0.4	0.40	114.4	0.1
027/028	Meadow	M	4.0	474.0	478.0	0.6	0.00	0.0	0.0
027/028	Mountain Brush	MB	186.0	563.0	749.0	1.0	0.00	0.0	0.0
027/028	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Mixed con. seedling	MX36	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
027/028	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
027/028	Mixed con. mature	MX39	34.0	0.0	34.0	0.0	0.30	10.2	0.0
027/028	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Mixed con. non-stocked	MX5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Mixed con. seedling	MX6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
027/028	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
027/028	Mixed con. mature	MX9	0.0	0.0	0.0	0.0	0.30	0.0	0.0
027/028	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
027/028	Non-commercial D.Fir	NDF	326.0	4,883.0	5,209.0	6.8	0.30	1,562.7	2.0
027/028	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
027/028	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
027/028	Non-commercial MX	NMX	0.0	0.0	0.0	0.0	0.30	0.0	0.0
027/028	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
027/028	Private/other agency	NUS	227.0	1,081.0	1,308.0	1.7	0.00	0.0	0.0
027/028	Rock	R	22.0	1,065.0	1,087.0	1.4	0.00	0.0	0.0
027/028	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
027/028	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
027/028	Spruce/Fir mature	SF9	52.0	0.0	52.0	0.1	0.60	31.2	0.0
027/028	Tall sage/grass	TSG	16,146.0	25,990.0	42,136.0	54.9	0.00	0.0	0.0
027/028	Tall sage/mtn. brush	TSM	670.0	0.0	670.0	0.9	0.00	0.0	0.0
027/028	Undefined/unknown	UD	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
027/028	Water	WA	2.0	179.0	181.0	0.2	0.00	0.0	0.0
027/028	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
027/028	Total (includes NUS acres)		22,756.0	55,291.0	78,047.0				
027/028	Nat'l Forest Acres		22,529.0	54,210.0	76,739.0	100.0		7,108.5	9.3
027/028	Nat'l Forest Square Miles		35.2	84.7	119.9				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
029	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
029	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
029	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
029	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
029	Aspen mature	AS9			40.0	0.1	0.10	4.0	0.0
029	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
029	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
029	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
029	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
029	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
029	Douglas-fir mature	DF9			13,767.0	19.1	0.30	4,130.1	5.7
029	Grass	GR			701.0	1.0	0.00	0.0	0.0
029	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0
029	Grass/forb	GRF			51.0	0.1	0.00	0.0	0.0
029	Grass/sage	GRS			1,979.0	2.7	0.00	0.0	0.0
029	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
029	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
029	Lodgepole seedling	LP6			2,629.0	3.6	0.00	0.0	0.0
029	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
029	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
029	Lodgepole mature	LP9			0.0	0.0	0.40	0.0	0.0
029	Meadow	M			890.0	1.2	0.00	0.0	0.0

029	Mountain Brush	MB			272.0	0.4	0.00	0.0	0.0
029	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
029	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
029	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
029	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
029	Mixed con. mature	MX39			0.0	0.0	0.30	0.0	0.0
029	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
029	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
029	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
029	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
029	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
029	Mixed con. mature	MX9			0.0	0.0	0.30	0.0	0.0
029	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
029	Non-commercial D.Fir	NDF			1,569.0	2.2	0.30	470.7	0.7
029	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
029	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
029	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
029	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
029	Private/other agency	NUS			348.0	0.5	0.00	0.0	0.0
029	Rock	R			1,185.0	1.6	0.00	0.0	0.0
029	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
029	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
029	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
029	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
029	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
029	Tall sage/grass	TSG			49,172.0	68.0	0.00	0.0	0.0
029	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
029	Undefined/unknown	UD			3.0	0.0	0.00	0.0	0.0
029	Willow	W			0.0	0.0	0.00	0.0	0.0
029	Water	WA			1.0	0.0	0.00	0.0	0.0
029	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
029	Total (includes NUS acres)		NA	NA	72,607.0				
029	Nat'l Forest Acres		ERR	ERR	72,259.0	100.0		4,604.8	6.4
029	Nat'l Forest Square Miles		ERR	ERR	112.9				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
030B	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
030B	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
030B	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
030B	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
030B	Aspen mature	AS9			147.0	0.3	0.10	14.7	0.0
030B	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
030B	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
030B	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
030B	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
030B	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
030B	Douglas-fir mature	DF9			9,392.0	19.6	0.30	2,817.6	5.9
030B	Grass	GR			25.0	0.1	0.00	0.0	0.0
030B	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0
030B	Grass/forb	GRF			138.0	0.3	0.00	0.0	0.0
030B	Grass/sage	GRS			1,350.0	2.8	0.00	0.0	0.0
030B	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
030B	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
030B	Lodgepole seedling	LP6			5,368.0	11.2	0.00	0.0	0.0
030B	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
030B	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
030B	Lodgepole mature	LP9			0.0	0.0	0.40	0.0	0.0
030B	Meadow	M			147.0	0.3	0.00	0.0	0.0
030B	Mountain Brush	MB			1,284.0	2.7	0.00	0.0	0.0
030B	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
030B	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
030B	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
030B	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
030B	Mixed con. mature	MX39			0.0	0.0	0.30	0.0	0.0
030B	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
030B	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
030B	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
030B	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
030B	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
030B	Mixed con. mature	MX9			0.0	0.0	0.30	0.0	0.0
030B	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
030B	Non-commercial D.Fir	NDF			8,128.0	16.9	0.30	2,438.4	5.1
030B	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0

030B	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
030B	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
030B	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
030B	Private/other agency	NUS			796.0	1.7	0.00	0.0	0.0
030B	Rock	R			2,343.0	4.9	0.00	0.0	0.0
030B	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
030B	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
030B	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
030B	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
030B	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
030B	Tall sage/grass	TSG			19,677.0	41.0	0.00	0.0	0.0
030B	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
030B	Undefined/unknown	UD			12.0	0.0	0.00	0.0	0.0
030B	Willow	W			0.0	0.0	0.00	0.0	0.0
030B	Water	WA			2.0	0.0	0.00	0.0	0.0
030B	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
030B	Total (includes NUS acres)		NA	NA	48,809.0				
030B	Nat'l Forest Acres		ERR	ERR	48,013.0	100.0		5,270.7	11.0
030B	Nat'l Forest Square Miles		ERR	ERR	75.0				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
031B	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
031B	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
031B	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
031B	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
031B	Aspen mature	AS9			0.0	0.0	0.10	0.0	0.0
031B	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
031B	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
031B	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
031B	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
031B	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
031B	Douglas-fir mature	DF9			5,472.0	38.1	0.30	1,641.6	11.4
031B	Grass	GR			39.0	0.3	0.00	0.0	0.0
031B	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0
031B	Grass/forb	GRF			75.0	0.5	0.00	0.0	0.0
031B	Grass/sage	GRS			385.0	2.7	0.00	0.0	0.0
031B	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
031B	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
031B	Lodgepole seedling	LP6			68.0	0.5	0.00	0.0	0.0
031B	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
031B	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
031B	Lodgepole mature	LP9			0.0	0.0	0.40	0.0	0.0
031B	Meadow	M			288.0	2.0	0.00	0.0	0.0
031B	Mountain Brush	MB			0.0	0.0	0.00	0.0	0.0
031B	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
031B	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
031B	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
031B	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
031B	Mixed con. mature	MX39			0.0	0.0	0.30	0.0	0.0
031B	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
031B	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
031B	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
031B	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
031B	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
031B	Mixed con. mature	MX9			0.0	0.0	0.30	0.0	0.0
031B	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
031B	Non-commercial D.Fir	NDF			270.0	1.9	0.30	81.0	0.6
031B	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
031B	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
031B	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
031B	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
031B	Private/other agency	NUS			441.0	3.1	0.00	0.0	0.0
031B	Rock	R			156.0	1.1	0.00	0.0	0.0
031B	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
031B	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
031B	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
031B	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
031B	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
031B	Tall sage/grass	TSG			7,600.0	52.9	0.00	0.0	0.0
031B	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
031B	Undefined/unknown	UD			6.0	0.0	0.00	0.0	0.0
031B	Willow	W			0.0	0.0	0.00	0.0	0.0
031B	Water	WA			10.0	0.1	0.00	0.0	0.0

031B	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
031B	Total (includes NUS acres)		NA	NA	14,810.0				
031B	Nat'l Forest Acres		ERR	ERR	14,369.0	100.0		1,722.6	12.0
031B	Nat'l Forest Square Miles		ERR	ERR	22.5				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
002	Aspen non-stocked	AS5	0.0	0.0	0.00	0.0	0.0
002	Aspen seedling	AS6	0.0	0.0	0.00	0.0	0.0
002	Aspen sapling	AS7	0.0	0.0	0.60	0.0	0.0
002	Aspen pole	AS8	0.0	0.0	0.15	0.0	0.0
002	Aspen mature	AS9	2,254.0	27.8	0.10	225.4	2.8
002	First entry Douglas-fir	1DF9	0.0	0.0	0.00	0.0	0.0
002	Douglas-fir non-stocked	DF5	0.0	0.0	0.00	0.0	0.0
002	Douglas-fir seedling	DF6	0.0	0.0	0.00	0.0	0.0
002	Douglas-fir sapling	DF7	0.0	0.0	0.60	0.0	0.0
002	Douglas-fir pole	DF8	0.0	0.0	0.40	0.0	0.0
002	Douglas-fir mature	DF9	610.0	7.5	0.30	183.0	2.3
002	Grass	GR	0.0	0.0	0.00	0.0	0.0
002	Grass/brush	GRB	40.0	0.5	0.00	0.0	0.0
002	Grass/forb	GRF	944.0	11.6	0.00	0.0	0.0
002	Grass/sage	GRS	0.0	0.0	0.00	0.0	0.0
002	Limber Pine mature	LM9	0.0	0.0	0.60	0.0	0.0
002	Lodgepole non-stocked	LP5	0.0	0.0	0.00	0.0	0.0
002	Lodgepole seedling	LP6	0.0	0.0	0.00	0.0	0.0
002	Lodgepole sapling	LP7	0.0	0.0	0.60	0.0	0.0
002	Lodgepole pole	LP8	0.0	0.0	0.40	0.0	0.0
002	Lodgepole mature	LP9	20.0	0.2	0.40	8.0	0.1
002	Meadow	M	0.0	0.0	0.00	0.0	0.0
002	Mountain Brush	MB	216.0	2.7	0.00	0.0	0.0
002	Mixed con. non-stocked	MX35	0.0	0.0	0.00	0.0	0.0
002	Mixed con. seedling	MX36	0.0	0.0	0.00	0.0	0.0
002	Mixed con. sapling	MX37	0.0	0.0	0.60	0.0	0.0
002	Mixed con. pole	MX38	0.0	0.0	0.40	0.0	0.0
002	Mixed con. mature	MX39	0.0	0.0	0.30	0.0	0.0
002	First entry mixed con.	1MX9	0.0	0.0	0.00	0.0	0.0
002	Mixed con. non-stocked	MX5	0.0	0.0	0.00	0.0	0.0
002	Mixed con. seedling	MX6	0.0	0.0	0.00	0.0	0.0
002	Mixed con. sapling	MX7	0.0	0.0	0.60	0.0	0.0
002	Mixed con. pole	MX8	0.0	0.0	0.40	0.0	0.0
002	Mixed con. mature	MX9	2,608.0	32.1	0.30	782.4	9.6
002	Non-commercial Aspen	NAS	0.0	0.0	0.10	0.0	0.0
002	Non-commercial D.Fir	NDF	0.0	0.0	0.30	0.0	0.0
002	Non-commercial LP	NLP	0.0	0.0	0.40	0.0	0.0
002	Non-commercial MX3	NMX3	0.0	0.0	0.30	0.0	0.0
002	Non-commercial MX	NMX	1,235.0	15.2	0.30	370.5	4.6
002	Non-commercial SF	NSF	0.0	0.0	0.30	0.0	0.0
002	Private/other agency	NUS	433.0	5.3	0.00	0.0	0.0
002	Rock	R	64.0	0.8	0.00	0.0	0.0
002	Spruce/Fir non-stocked	SF5	0.0	0.0	0.00	0.0	0.0
002	Spruce/Fir seedling	SF6	0.0	0.0	0.00	0.0	0.0
002	Spruce/Fir sapling	SF7	0.0	0.0	0.60	0.0	0.0
002	Spruce/Fir Pole	SF8	0.0	0.0	0.60	0.0	0.0
002	Spruce/Fir mature	SF9	0.0	0.0	0.60	0.0	0.0
002	Tall sage/grass	TSG	73.0	0.9	0.00	0.0	0.0
002	Tall sage/mtn. brush	TSM	0.0	0.0	0.00	0.0	0.0
002	Undefined/unknown	UD	48.0	0.6	0.00	0.0	0.0
002	Willow	W	0.0	0.0	0.00	0.0	0.0
002	Water	WA	0.0	0.0	0.00	0.0	0.0
002	Whitebark Pine mature	WB9	0.0	0.0	0.60	0.0	0.0
002	Total (includes NUS acres)		NA	NA	8,545.0				
002	Nat'l Forest Acres		ERR	ERR	8,112.0	100.0		1,569.3	19.3
002	Nat'l Forest Square Miles		ERR	ERR	12.7				

Wtrshed No.	Vegetation Description	Veg. Code	Wyoming Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
002	Aspen non-stocked	AS5	0.0	0.0	0.00	0.0	0.0
002	Aspen seedling	AS6	0.0	0.0	0.00	0.0	0.0
002	Aspen sapling	AS7	0.0	0.0	0.60	0.0	0.0

002	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
002	Aspen mature	AS9			4,190.0	16.5	0.10	419.0	1.6
002	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
002	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
002	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
002	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
002	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
002	Douglas-fir mature	DF9			4,017.0	15.8	0.30	1,205.1	4.7
002	Grass	GR			0.0	0.0	0.00	0.0	0.0
002	Grass/brush	GRB			395.0	1.6	0.00	0.0	0.0
002	Grass/forb	GRF			6,976.0	27.5	0.00	0.0	0.0
002	Grass/sage	GRS			7.0	0.0	0.00	0.0	0.0
002	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
002	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
002	Lodgepole seedling	LP6			0.0	0.0	0.00	0.0	0.0
002	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
002	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
002	Lodgepole mature	LP9			384.0	1.5	0.40	153.6	0.6
002	Meadow	M			0.0	0.0	0.00	0.0	0.0
002	Mountain Brush	MB			648.0	2.5	0.00	0.0	0.0
002	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
002	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
002	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
002	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
002	Mixed con. mature	MX39			0.0	0.0	0.30	0.0	0.0
002	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
002	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
002	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
002	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
002	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
002	Mixed con. mature	MX9			4,130.0	16.3	0.30	1,239.0	4.9
002	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
002	Non-commercial D.Fir	NDF			159.0	0.6	0.30	47.7	0.2
002	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
002	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
002	Non-commercial MX	NMX			2,930.0	11.5	0.30	879.0	3.5
002	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
002	Private/other agency	NUS			1,327.0	5.2	0.00	0.0	0.0
002	Rock	R			1,248.0	4.9	0.00	0.0	0.0
002	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
002	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
002	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
002	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
002	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
002	Tall sage/grass	TSG			251.0	1.0	0.00	0.0	0.0
002	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
002	Undefined/unknown	UD			23.0	0.1	0.00	0.0	0.0
002	Willow	W			0.0	0.0	0.00	0.0	0.0
002	Water	WA			54.0	0.2	0.00	0.0	0.0
002	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
002	Total (includes NUS acres)		NA	NA	26,739.0				
002	Nat'l Forest Acres		ERR	ERR	25,412.0	100.0		3,943.4	15.5
002	Nat'l Forest Square Miles		ERR	ERR	39.7				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
002	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Aspen seedling	AS6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
002	Aspen mature	AS9	2,254.0	4,190.0	6,444.0	19.2	0.10	644.4	1.9
002	First entry Douglas-fir	1DF9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
002	Douglas-fir mature	DF9	610.0	4,017.0	4,627.0	13.8	0.30	1,388.1	4.1
002	Grass	GR	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Grass/brush	GRB	40.0	395.0	435.0	1.3	0.00	0.0	0.0
002	Grass/forb	GRF	944.0	6,976.0	7,920.0	23.6	0.00	0.0	0.0
002	Grass/sage	GRS	0.0	7.0	7.0	0.0	0.00	0.0	0.0
002	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Lodgepole seedling	LP6	0.0	0.0	0.0	0.0	0.00	0.0	0.0

002	Lodgepole sapling	LP7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Lodgepole pole	LP8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
002	Lodgepole mature	LP9	20.0	384.0	404.0	1.2	0.40	161.6	0.5
002	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Mountain Brush	MB	216.0	648.0	864.0	2.6	0.00	0.0	0.0
002	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Mixed con. seedling	MX36	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
002	Mixed con. mature	MX39	0.0	0.0	0.0	0.0	0.30	0.0	0.0
002	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Mixed con. non-stocked	MX5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Mixed con. seedling	MX6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
002	Mixed con. mature	MX9	2,608.0	4,130.0	6,738.0	20.1	0.30	2,021.4	6.0
002	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
002	Non-commercial D.Fir	NDF	0.0	159.0	159.0	0.5	0.30	47.7	0.1
002	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
002	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
002	Non-commercial MX	NMX	1,235.0	2,930.0	4,165.0	12.4	0.30	1,249.5	3.7
002	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
002	Private/other agency	NUS	433.0	1,327.0	1,760.0	5.2	0.00	0.0	0.0
002	Rock	R	64.0	1,248.0	1,312.0	3.9	0.00	0.0	0.0
002	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Tall sage/grass	TSG	73.0	251.0	324.0	1.0	0.00	0.0	0.0
002	Tall sage/mtn. brush	TSM	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Undefined/unknown	UD	48.0	23.0	71.0	0.2	0.00	0.0	0.0
002	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
002	Water	WA	0.0	54.0	54.0	0.2	0.00	0.0	0.0
002	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
002	Total (includes NUS acres)		8,545.0	26,739.0	35,284.0				
002	Nat'l Forest Acres		8,112.0	25,412.0	33,524.0	100.0		5,512.7	16.4
002	Nat'l Forest Square Miles		12.7	39.7	52.4				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
003	Aspen non-stocked	AS5	0.0	0.0	0.00	0.0	0.0
003	Aspen seedling	AS6	0.0	0.0	0.00	0.0	0.0
003	Aspen sapling	AS7	0.0	0.0	0.60	0.0	0.0
003	Aspen pole	AS8	0.0	0.0	0.15	0.0	0.0
003	Aspen mature	AS9	4,431.0	21.5	0.10	443.1	2.2
003	First entry Douglas-fir	1DF9	0.0	0.0	0.00	0.0	0.0
003	Douglas-fir non-stocked	DF5	0.0	0.0	0.00	0.0	0.0
003	Douglas-fir seedling	DF6	0.0	0.0	0.00	0.0	0.0
003	Douglas-fir sapling	DF7	0.0	0.0	0.60	0.0	0.0
003	Douglas-fir pole	DF8	0.0	0.0	0.40	0.0	0.0
003	Douglas-fir mature	DF9	216.0	1.0	0.30	64.8	0.3
003	Grass	GR	5.0	0.0	0.00	0.0	0.0
003	Grass/brush	GRB	577.0	2.8	0.00	0.0	0.0
003	Grass/forb	GRF	5,302.0	25.7	0.00	0.0	0.0
003	Grass/sage	GRS	2.0	0.0	0.00	0.0	0.0
003	Limber Pine mature	LM9	0.0	0.0	0.60	0.0	0.0
003	Lodgepole non-stocked	LP5	0.0	0.0	0.00	0.0	0.0
003	Lodgepole seedling	LP6	0.0	0.0	0.00	0.0	0.0
003	Lodgepole sapling	LP7	0.0	0.0	0.60	0.0	0.0
003	Lodgepole pole	LP8	0.0	0.0	0.40	0.0	0.0
003	Lodgepole mature	LP9	540.0	2.6	0.40	216.0	1.0
003	Meadow	M	0.0	0.0	0.00	0.0	0.0
003	Mountain Brush	MB	881.0	4.3	0.00	0.0	0.0
003	Mixed con. non-stocked	MX35	0.0	0.0	0.00	0.0	0.0
003	Mixed con. seedling	MX36	0.0	0.0	0.00	0.0	0.0
003	Mixed con. sapling	MX37	0.0	0.0	0.60	0.0	0.0
003	Mixed con. pole	MX38	0.0	0.0	0.40	0.0	0.0
003	Mixed con. mature	MX39	0.0	0.0	0.30	0.0	0.0
003	First entry mixed con.	1MX9	0.0	0.0	0.00	0.0	0.0
003	Mixed con. non-stocked	MX5	0.0	0.0	0.00	0.0	0.0
003	Mixed con. seedling	MX6	0.0	0.0	0.00	0.0	0.0
003	Mixed con. sapling	MX7	0.0	0.0	0.60	0.0	0.0
003	Mixed con. pole	MX8	0.0	0.0	0.40	0.0	0.0

003	Mixed con. mature	MX9			4,570.0	22.2	0.30	1,371.0	6.7
003	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
003	Non-commercial D.Fir	NDF			254.0	1.2	0.30	76.2	0.4
003	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
003	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
003	Non-commercial MX	NMX			2,809.0	13.6	0.30	842.7	4.1
003	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
003	Private/other agency	NUS			1,470.0	7.1	0.00	0.0	0.0
003	Rock	R			919.0	4.5	0.00	0.0	0.0
003	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
003	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
003	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
003	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
003	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
003	Tall sage/grass	TSG			6.0	0.0	0.00	0.0	0.0
003	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
003	Undefined/unknown	UD			75.0	0.4	0.00	0.0	0.0
003	Willow	W			0.0	0.0	0.00	0.0	0.0
003	Water	WA			6.0	0.0	0.00	0.0	0.0
003	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
003	Total (includes NUS acres)		NA	NA	22,063.0				
003	Nat'l Forest Acres		ERR	ERR	20,593.0	100.0		3,013.8	14.6
003	Nat'l Forest Square Miles		ERR	ERR	32.2				

Wtrshed No.	Vegetation Description	Veg. Code	Wyoming Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
003	Aspen non-stocked	AS5	0.0	0.0	0.00	0.0	0.0
003	Aspen seedling	AS6	0.0	0.0	0.00	0.0	0.0
003	Aspen sapling	AS7	0.0	0.0	0.60	0.0	0.0
003	Aspen pole	AS8	0.0	0.0	0.15	0.0	0.0
003	Aspen mature	AS9	2,164.0	8.8	0.10	216.4	0.9
003	First entry Douglas-fir	1DF9	0.0	0.0	0.00	0.0	0.0
003	Douglas-fir non-stocked	DF5	0.0	0.0	0.00	0.0	0.0
003	Douglas-fir seedling	DF6	0.0	0.0	0.00	0.0	0.0
003	Douglas-fir sapling	DF7	0.0	0.0	0.60	0.0	0.0
003	Douglas-fir pole	DF8	0.0	0.0	0.40	0.0	0.0
003	Douglas-fir mature	DF9	6,856.0	27.9	0.30	2,056.8	8.4
003	Grass	GR	0.0	0.0	0.00	0.0	0.0
003	Grass/brush	GRB	39.0	0.2	0.00	0.0	0.0
003	Grass/forb	GRF	6,983.0	28.5	0.00	0.0	0.0
003	Grass/sage	GRS	0.0	0.0	0.00	0.0	0.0
003	Limber Pine mature	LM9	0.0	0.0	0.60	0.0	0.0
003	Lodgepole non-stocked	LP5	0.0	0.0	0.00	0.0	0.0
003	Lodgepole seedling	LP6	0.0	0.0	0.00	0.0	0.0
003	Lodgepole sapling	LP7	0.0	0.0	0.60	0.0	0.0
003	Lodgepole pole	LP8	0.0	0.0	0.40	0.0	0.0
003	Lodgepole mature	LP9	685.0	2.8	0.40	274.0	1.1
003	Meadow	M	0.0	0.0	0.00	0.0	0.0
003	Mountain Brush	MB	1,497.0	6.1	0.00	0.0	0.0
003	Mixed con. non-stocked	MX35	0.0	0.0	0.00	0.0	0.0
003	Mixed con. seedling	MX36	325.0	1.3	0.00	0.0	0.0
003	Mixed con. sapling	MX37	0.0	0.0	0.60	0.0	0.0
003	Mixed con. pole	MX38	0.0	0.0	0.40	0.0	0.0
003	Mixed con. mature	MX39	40.0	0.2	0.30	12.0	0.0
003	First entry mixed con.	1MX9	0.0	0.0	0.00	0.0	0.0
003	Mixed con. non-stocked	MX5	0.0	0.0	0.00	0.0	0.0
003	Mixed con. seedling	MX6	0.0	0.0	0.00	0.0	0.0
003	Mixed con. sapling	MX7	0.0	0.0	0.60	0.0	0.0
003	Mixed con. pole	MX8	0.0	0.0	0.40	0.0	0.0
003	Mixed con. mature	MX9	1,815.0	7.4	0.30	544.5	2.2
003	Non-commercial Aspen	NAS	0.0	0.0	0.10	0.0	0.0
003	Non-commercial D.Fir	NDF	685.0	2.8	0.30	205.5	0.8
003	Non-commercial LP	NLP	0.0	0.0	0.40	0.0	0.0
003	Non-commercial MX3	NMX3	0.0	0.0	0.30	0.0	0.0
003	Non-commercial MX	NMX	2,812.0	11.5	0.30	843.6	3.4
003	Non-commercial SF	NSF	0.0	0.0	0.30	0.0	0.0
003	Private/other agency	NUS	0.0	0.0	0.00	0.0	0.0
003	Rock	R	554.0	2.3	0.00	0.0	0.0
003	Spruce/Fir non-stocked	SF5	4.0	0.0	0.00	0.0	0.0
003	Spruce/Fir seedling	SF6	41.0	0.2	0.00	0.0	0.0
003	Spruce/Fir sapling	SF7	0.0	0.0	0.60	0.0	0.0
003	Spruce/Fir Pole	SF8	0.0	0.0	0.60	0.0	0.0
003	Spruce/Fir mature	SF9	0.0	0.0	0.60	0.0	0.0
003	Tall sage/grass	TSG	1.0	0.0	0.00	0.0	0.0

003	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
003	Undefined/unknown	UD			33.0	0.1	0.00	0.0	0.0
003	Willow	W			0.0	0.0	0.00	0.0	0.0
003	Water	WA			10.0	0.0	0.00	0.0	0.0
003	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
003	Total (includes NUS acres)		NA	NA	24,544.0				
003	Nat'l Forest Acres		ERR	ERR	24,544.0	100.0		4,152.8	16.9
003	Nat'l Forest Square Miles		ERR	ERR	38.4				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
003	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Aspen seedling	AS6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
003	Aspen mature	AS9	4,431.0	2,164.0	6,595.0	14.6	0.10	659.5	1.5
003	First entry Douglas-fir	1DF9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
003	Douglas-fir mature	DF9	216.0	6,856.0	7,072.0	15.7	0.30	2,121.6	4.7
003	Grass	GR	5.0	0.0	5.0	0.0	0.00	0.0	0.0
003	Grass/brush	GRB	577.0	39.0	616.0	1.4	0.00	0.0	0.0
003	Grass/forb	GRF	5,302.0	6,983.0	12,285.0	27.2	0.00	0.0	0.0
003	Grass/sage	GRS	2.0	0.0	2.0	0.0	0.00	0.0	0.0
003	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Lodgepole seedling	LP6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Lodgepole sapling	LP7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Lodgepole pole	LP8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
003	Lodgepole mature	LP9	540.0	685.0	1,225.0	2.7	0.40	490.0	1.1
003	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Mountain Brush	MB	881.0	1,497.0	2,378.0	5.3	0.00	0.0	0.0
003	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Mixed con. seedling	MX36	0.0	325.0	325.0	0.7	0.00	0.0	0.0
003	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
003	Mixed con. mature	MX39	0.0	40.0	40.0	0.1	0.30	12.0	0.0
003	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Mixed con. non-stocked	MX5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Mixed con. seedling	MX6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
003	Mixed con. mature	MX9	4,570.0	1,815.0	6,385.0	14.1	0.30	1,915.5	4.2
003	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
003	Non-commercial D.Fir	NDF	254.0	685.0	939.0	2.1	0.30	281.7	0.6
003	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
003	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
003	Non-commercial MX	NMX	2,809.0	2,812.0	5,621.0	12.5	0.30	1,686.3	3.7
003	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
003	Private/other agency	NUS	1,470.0	0.0	1,470.0	3.3	0.00	0.0	0.0
003	Rock	R	919.0	554.0	1,473.0	3.3	0.00	0.0	0.0
003	Spruce/Fir non-stocked	SF5	0.0	4.0	4.0	0.0	0.00	0.0	0.0
003	Spruce/Fir seedling	SF6	0.0	41.0	41.0	0.1	0.00	0.0	0.0
003	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Tall sage/grass	TSG	6.0	1.0	7.0	0.0	0.00	0.0	0.0
003	Tall sage/mtn. brush	TSM	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Undefined/unknown	UD	75.0	33.0	108.0	0.2	0.00	0.0	0.0
003	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
003	Water	WA	6.0	10.0	16.0	0.0	0.00	0.0	0.0
003	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
003	Total (includes NUS acres)		22,063.0	24,544.0	46,607.0				
003	Nat'l Forest Acres		20,593.0	24,544.0	45,137.0	100.0		7,166.6	15.9
003	Nat'l Forest Square Miles		32.2	38.4	70.5				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover

005	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
005	Douglas-fir mature	DF9			3,786.0	13.9	0.30	1,135.8	4.2
005	Grass	GR			55.0	0.2	0.00	0.0	0.0
005	Grass/brush	GRB			167.0	0.6	0.00	0.0	0.0
005	Grass/forb	GRF			838.0	3.1	0.00	0.0	0.0

004	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Aspen seedling	AS6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
004	Aspen mature	AS9	3,696.0	7.0	3,703.0	7.4	0.10	370.3	0.7
004	First entry Douglas-fir	1DF9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
004	Douglas-fir mature	DF9	7,170.0	568.0	7,738.0	15.5	0.30	2,321.4	4.7
004	Grass	GR	170.0	0.0	170.0	0.3	0.00	0.0	0.0
004	Grass/brush	GRB	844.0	1.0	845.0	1.7	0.00	0.0	0.0
004	Grass/forb	GRF	8,949.0	380.0	9,329.0	18.7	0.00	0.0	0.0
004	Grass/sage	GRS	50.0	0.0	50.0	0.1	0.00	0.0	0.0
004	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Lodgepole seedling	LP6	35.0	0.0	35.0	0.1	0.00	0.0	0.0
004	Lodgepole sapling	LP7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Lodgepole pole	LP8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
004	Lodgepole mature	LP9	855.0	0.0	855.0	1.7	0.40	342.0	0.7
004	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Mountain Brush	MB	8,631.0	387.0	9,018.0	18.1	0.00	0.0	0.0
004	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Mixed con. seedling	MX36	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
004	Mixed con. mature	MX39	0.0	0.0	0.0	0.0	0.30	0.0	0.0
004	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Mixed con. non-stocked	MX5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Mixed con. seedling	MX6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
004	Mixed con. mature	MX9	9,980.0	264.0	10,244.0	20.5	0.30	3,073.2	6.2
004	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
004	Non-commercial D.Fir	NDF	1,402.0	229.0	1,631.0	3.3	0.30	489.3	1.0
004	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
004	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
004	Non-commercial MX	NMX	3,766.0	333.0	4,099.0	8.2	0.30	1,229.7	2.5
004	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
004	Private/other agency	NUS	1,194.0	0.0	1,194.0	2.4	0.00	0.0	0.0
004	Rock	R	1,341.0	5.0	1,346.0	2.7	0.00	0.0	0.0
004	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Tall sage/grass	TSG	446.0	0.0	446.0	0.9	0.00	0.0	0.0
004	Tall sage/mtn. brush	TSM	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Undefined/unknown	UD	119.0	2.0	121.0	0.2	0.00	0.0	0.0
004	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
004	Water	WA	277.0	2.0	279.0	0.6	0.00	0.0	0.0
004	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
004	Total (includes NUS acres)		48,925.0	2,178.0	51,103.0				
004	Nat'l Forest Acres		47,731.0	2,178.0	49,909.0	100.0		7,825.9	15.7
004	Nat'l Forest Square Miles		74.6	3.4	78.0				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
005	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
005	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
005	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
005	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
005	Aspen mature	AS9			2,637.0	9.7	0.10	263.7	1.0
005	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
005	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
005	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
005	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
005	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
005	Douglas-fir mature	DF9			3,786.0	13.9	0.30	1,135.8	4.2
005	Grass	GR			55.0	0.2	0.00	0.0	0.0
005	Grass/brush	GRB			167.0	0.6	0.00	0.0	0.0
005	Grass/forb	GRF			838.0	3.1	0.00	0.0	0.0

005	Grass/sage	GRS			483.0	1.8	0.00	0.0	0.0
005	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
005	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
005	Lodgepole seedling	LP6			800.0	2.9	0.00	0.0	0.0
005	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
005	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
005	Lodgepole mature	LP9			360.0	1.3	0.40	144.0	0.5
005	Meadow	M			0.0	0.0	0.00	0.0	0.0
005	Mountain Brush	MB			4,455.0	16.3	0.00	0.0	0.0
005	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
005	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
005	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
005	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
005	Mixed con. mature	MX39			0.0	0.0	0.30	0.0	0.0
005	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
005	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
005	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
005	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
005	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
005	Mixed con. mature	MX9			8,780.0	32.2	0.30	2,634.0	9.7
005	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
005	Non-commercial D.Fir	NDF			90.0	0.3	0.30	27.0	0.1
005	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
005	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
005	Non-commercial MX	NMX			2,402.0	8.8	0.30	720.6	2.6
005	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
005	Private/other agency	NUS			6.0	0.0	0.00	0.0	0.0
005	Rock	R			130.0	0.5	0.00	0.0	0.0
005	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
005	Spruce/Fir seedling	SF6			1.0	0.0	0.00	0.0	0.0
005	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
005	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
005	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
005	Tall sage/grass	TSG			2,154.0	7.9	0.00	0.0	0.0
005	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
005	Undefined/unknown	UD			105.0	0.4	0.00	0.0	0.0
005	Willow	W			0.0	0.0	0.00	0.0	0.0
005	Water	WA			18.0	0.1	0.00	0.0	0.0
005	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
005	Total (includes NUS acres)		NA	NA	27,267.0				
005	Nat'l Forest Acres		ERR	ERR	27,261.0	100.0		4,925.1	18.1
005	Nat'l Forest Square Miles		ERR	ERR	42.6				

Wtrshed No.	Vegetation Description	Veg. Code	D4 Acres	D5 Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
006	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
006	Aspen seedling	AS6	0.0	20.0	20.0	0.0	0.00	0.0	0.0
006	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
006	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
006	Aspen mature	AS9	2,333.0	2,118.0	4,451.0	10.0	0.10	445.1	1.0
006	First entry Douglas-fir	1DF9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
006	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
006	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
006	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
006	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
006	Douglas-fir mature	DF9	166.0	84.0	250.0	0.6	0.30	75.0	0.2
006	Grass	GR	184.0	60.0	244.0	0.5	0.00	0.0	0.0
006	Grass/brush	GRB	18.0	11.0	29.0	0.1	0.00	0.0	0.0
006	Grass/forb	GRF	558.0	709.0	1,267.0	2.8	0.00	0.0	0.0
006	Grass/sage	GRS	487.0	387.0	874.0	2.0	0.00	0.0	0.0
006	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
006	Lodgepole non-stocked	LP5	63.0	0.0	63.0	0.1	0.00	0.0	0.0
006	Lodgepole seedling	LP6	42.0	0.0	42.0	0.1	0.00	0.0	0.0
006	Lodgepole sapling	LP7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
006	Lodgepole pole	LP8	0.0	126.0	126.0	0.3	0.40	50.4	0.1
006	Lodgepole mature	LP9	1,026.0	1,478.0	2,504.0	5.6	0.40	1,001.6	2.2
006	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
006	Mountain Brush	MB	6,572.0	5,015.0	11,587.0	25.9	0.00	0.0	0.0
006	Mixed con. non-stocked	MX35	13.0	0.0	13.0	0.0	0.00	0.0	0.0
006	Mixed con. seedling	MX36	27.0	0.0	27.0	0.1	0.00	0.0	0.0
006	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
006	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
006	Mixed con. mature	MX39	1,183.0	913.0	2,096.0	4.7	0.30	628.8	1.4
006	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0

006	Mixed con. non-stocked	MX5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
006	Mixed con. seedling	MX6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
006	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
006	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
006	Mixed con. mature	MX9	8,637.0	2,897.0	11,534.0	25.8	0.30	3,460.2	7.7
006	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
006	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
006	Non-commercial LP	NLP	0.0	16.0	16.0	0.0	0.40	6.4	0.0
006	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
006	Non-commercial MX	NMX	3,916.0	918.0	4,834.0	10.8	0.30	1,450.2	3.2
006	Non-commercial SF	NSF	0.0	33.0	33.0	0.1	0.30	9.9	0.0
006	Private/other agency	NUS	172.0	0.0	172.0	0.4	0.00	0.0	0.0
006	Rock	R	44.0	7.0	51.0	0.1	0.00	0.0	0.0
006	Spruce/Fir non-stocked	SF5	63.0	0.0	63.0	0.1	0.00	0.0	0.0
006	Spruce/Fir seedling	SF6	18.0	0.0	18.0	0.0	0.00	0.0	0.0
006	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
006	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
006	Spruce/Fir mature	SF9	106.0	297.0	403.0	0.9	0.60	241.8	0.5
006	Tall sage/grass	TSG	2,491.0	1,067.0	3,558.0	8.0	0.00	0.0	0.0
006	Tall sage/mtn. brush	TSM	3.0	593.0	596.0	1.3	0.00	0.0	0.0
006	Undefined/unknown	UD	0.0	2.0	2.0	0.0	0.00	0.0	0.0
006	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
006	Water	WA	0.0	2.0	2.0	0.0	0.00	0.0	0.0
006	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
006	Total (includes NUS acres)		28,122.0	16,753.0	44,875.0				
006	Nat'l Forest Acres		27,950.0	16,753.0	44,703.0	100.0		7,369.4	16.5
006	Nat'l Forest Square Miles		43.7	26.2	69.8				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
007/033	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
007/033	Aspen seedling	AS6			105.0	0.2	0.00	0.0	0.0
007/033	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
007/033	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
007/033	Aspen mature	AS9			5,658.0	13.4	0.10	565.8	1.3
007/033	First entry Douglas-fir	1DF9			472.0	1.1	0.00	0.0	0.0
007/033	Douglas-fir non-stocked	DF5			133.0	0.3	0.00	0.0	0.0
007/033	Douglas-fir seedling	DF6			15.0	0.0	0.00	0.0	0.0
007/033	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
007/033	Douglas-fir pole	DF8			13.0	0.0	0.40	5.2	0.0
007/033	Douglas-fir mature	DF9			1,206.0	2.9	0.30	361.8	0.9
007/033	Grass	GR			58.0	0.1	0.00	0.0	0.0
007/033	Grass/brush	GRB			823.0	2.0	0.00	0.0	0.0
007/033	Grass/forb	GRF			520.0	1.2	0.00	0.0	0.0
007/033	Grass/sage	GRS			322.0	0.8	0.00	0.0	0.0
007/033	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
007/033	Lodgepole non-stocked	LP5			507.0	1.2	0.00	0.0	0.0
007/033	Lodgepole seedling	LP6			44.0	0.1	0.00	0.0	0.0
007/033	Lodgepole sapling	LP7			357.0	0.8	0.60	214.2	0.5
007/033	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
007/033	Lodgepole mature	LP9			3,058.0	7.3	0.40	1,223.2	2.9
007/033	Meadow	M			0.0	0.0	0.00	0.0	0.0
007/033	Mountain Brush	MB			11,327.0	26.9	0.00	0.0	0.0
007/033	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
007/033	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
007/033	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
007/033	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
007/033	Mixed con. mature	MX39			187.0	0.4	0.30	56.1	0.1
007/033	First entry mixed con.	1MX9			3.0	0.0	0.00	0.0	0.0
007/033	Mixed con. non-stocked	MX5			64.0	0.2	0.00	0.0	0.0
007/033	Mixed con. seedling	MX6			28.0	0.1	0.00	0.0	0.0
007/033	Mixed con. sapling	MX7			87.0	0.2	0.60	52.2	0.1
007/033	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
007/033	Mixed con. mature	MX9			9,761.0	23.1	0.30	2,928.3	6.9
007/033	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
007/033	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
007/033	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
007/033	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
007/033	Non-commercial MX	NMX			2,508.0	5.9	0.30	752.4	1.8
007/033	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
007/033	Private/other agency	NUS			1,038.0	2.5	0.00	0.0	0.0
007/033	Rock	R			134.0	0.3	0.00	0.0	0.0
007/033	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
007/033	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0

007/033	Spruce/Fir sapling	SF7			1.0	0.0	0.60	0.6	0.0
007/033	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
007/033	Spruce/Fir mature	SF9			2.0	0.0	0.60	1.2	0.0
007/033	Tall sage/grass	TSG			4,412.0	10.5	0.00	0.0	0.0
007/033	Tall sage/mtn. brush	TSM			123.0	0.3	0.00	0.0	0.0
007/033	Undefined/unknown	UD			104.0	0.2	0.00	0.0	0.0
007/033	Willow	W			0.0	0.0	0.00	0.0	0.0
007/033	Water	WA			136.0	0.3	0.00	0.0	0.0
007/033	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
007/033	Total (includes NUS acres)		NA	NA	43,206.0				
007/033	Nat'l Forest Acres		ERR	ERR	42,168.0	100.0		6,161.0	14.6
007/033	Nat'l Forest Square Miles		ERR	ERR	65.9				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
035	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Aspen seedling	AS6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
035	Aspen mature	AS9	954.0	0.0	954.0	10.6	0.10	95.4	1.1
035	First entry Douglas-fir	1DF9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
035	Douglas-fir mature	DF9	396.0	0.0	396.0	4.4	0.30	118.8	1.3
035	Grass	GR	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Grass/brush	GRB	40.0	0.0	40.0	0.4	0.00	0.0	0.0
035	Grass/forb	GRF	599.0	0.0	599.0	6.6	0.00	0.0	0.0
035	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Lodgepole seedling	LP6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Lodgepole sapling	LP7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Lodgepole pole	LP8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
035	Lodgepole mature	LP9	115.0	0.0	115.0	1.3	0.40	46.0	0.5
035	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Mountain Brush	MB	274.0	0.0	274.0	3.0	0.00	0.0	0.0
035	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Mixed con. seedling	MX36	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
035	Mixed con. mature	MX39	1,030.0	0.0	1,030.0	11.4	0.30	309.0	3.4
035	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Mixed con. non-stocked	MX5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Mixed con. seedling	MX6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
035	Mixed con. mature	MX9	1,774.0	0.0	1,774.0	19.7	0.30	532.2	5.9
035	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
035	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
035	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
035	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
035	Non-commercial MX	NMX	480.0	0.0	480.0	5.3	0.30	144.0	1.6
035	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
035	Private/other agency	NUS	928.0	1,456.0	2,384.0	26.4	0.00	0.0	0.0
035	Rock	R	69.0	0.0	69.0	0.8	0.00	0.0	0.0
035	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Tall sage/grass	TSG	54.0	0.0	54.0	0.6	0.00	0.0	0.0
035	Tall sage/mtn. brush	TSM	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Undefined/unknown	UD	2,631.0	600.0	3,231.0	35.8	0.00	0.0	0.0
035	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Water	WA	0.0	0.0	0.0	0.0	0.00	0.0	0.0
035	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
035	Total (includes NUS acres)		9,344.0	2,056.0	11,400.0				
035	Nat'l Forest Acres		8,416.0	600.0	9,016.0	100.0		1,245.4	13.8
035	Nat'l Forest Square Miles		13.2	0.9	14.1				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
036	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
036	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
036	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
036	Aspen pole	AS8			5.0	0.0	0.15	0.8	0.0
036	Aspen mature	AS9			1,915.0	11.5	0.10	191.5	1.1
036	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
036	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
036	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
036	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
036	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
036	Douglas-fir mature	DF9			1,185.0	7.1	0.30	355.5	2.1
036	Grass	GR			0.0	0.0	0.00	0.0	0.0
036	Grass/brush	GRB			16.0	0.1	0.00	0.0	0.0
036	Grass/forb	GRF			1,817.0	10.9	0.00	0.0	0.0
036	Grass/sage	GRS			0.0	0.0	0.00	0.0	0.0
036	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
036	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
036	Lodgepole seedling	LP6			94.0	0.6	0.00	0.0	0.0
036	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
036	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
036	Lodgepole mature	LP9			238.0	1.4	0.40	95.2	0.6
036	Meadow	M			0.0	0.0	0.00	0.0	0.0
036	Mountain Brush	MB			1,294.0	7.8	0.00	0.0	0.0
036	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
036	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
036	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
036	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
036	Mixed con. mature	MX39			3,465.0	20.8	0.30	1,039.5	6.2
036	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
036	Mixed con. non-stocked	MX5			99.0	0.6	0.00	0.0	0.0
036	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
036	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
036	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
036	Mixed con. mature	MX9			3,932.0	23.6	0.30	1,179.6	7.1
036	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
036	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
036	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
036	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
036	Non-commercial MX	NMX			1,745.0	10.5	0.30	523.5	3.1
036	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
036	Private/other agency	NUS			932.0	5.6	0.00	0.0	0.0
036	Rock	R			105.0	0.6	0.00	0.0	0.0
036	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
036	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
036	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
036	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
036	Spruce/Fir mature	SF9			155.0	0.9	0.60	93.0	0.6
036	Tall sage/grass	TSG			400.0	2.4	0.00	0.0	0.0
036	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
036	Undefined/unknown	UD			208.0	1.2	0.00	0.0	0.0
036	Willow	W			0.0	0.0	0.00	0.0	0.0
036	Water	WA			0.0	0.0	0.00	0.0	0.0
036	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
036	Total (includes NUS acres)		NA	NA	17,605.0				
036	Nat'l Forest Acres		ERR	ERR	16,673.0	100.0		3,478.6	20.9
036	Nat'l Forest Square Miles		ERR	ERR	26.1				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
037	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
037	Aspen seedling	AS6			5.0	0.0	0.00	0.0	0.0
037	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
037	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
037	Aspen mature	AS9			11,047.0	16.9	0.10	1,104.7	1.7
037	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
037	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
037	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
037	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
037	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0

037	Douglas-fir mature	DF9			3,662.0	5.6	0.30	1,098.6	1.7
037	Grass	GR			399.0	0.6	0.00	0.0	0.0
037	Grass/brush	GRB			2,267.0	3.5	0.00	0.0	0.0
037	Grass/forb	GRF			3,926.0	6.0	0.00	0.0	0.0
037	Grass/sage	GRS			4,478.0	6.9	0.00	0.0	0.0
037	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
037	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
037	Lodgepole seedling	LP6			0.0	0.0	0.00	0.0	0.0
037	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
037	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
037	Lodgepole mature	LP9			2,427.0	3.7	0.40	970.8	1.5
037	Meadow	M			0.0	0.0	0.00	0.0	0.0
037	Mountain Brush	MB			4,358.0	6.7	0.00	0.0	0.0
037	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
037	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
037	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
037	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
037	Mixed con. mature	MX39			1,391.0	2.1	0.30	417.3	0.6
037	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
037	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
037	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
037	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
037	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
037	Mixed con. mature	MX9			17,978.0	27.6	0.30	5,393.4	8.3
037	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
037	Non-commercial D.Fir	NDF			4.0	0.0	0.30	1.2	0.0
037	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
037	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
037	Non-commercial MX	NMX			6,469.0	9.9	0.30	1,940.7	3.0
037	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
037	Private/other agency	NUS			57.0	0.1	0.00	0.0	0.0
037	Rock	R			860.0	1.3	0.00	0.0	0.0
037	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
037	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
037	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
037	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
037	Spruce/Fir mature	SF9			72.0	0.1	0.60	43.2	0.1
037	Tall sage/grass	TSG			5,813.0	8.9	0.00	0.0	0.0
037	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
037	Undefined/unknown	UD			82.0	0.1	0.00	0.0	0.0
037	Willow	W			0.0	0.0	0.00	0.0	0.0
037	Water	WA			17.0	0.0	0.00	0.0	0.0
037	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
037	Total (includes NUS acres)		NA	NA	65,312.0				
037	Nat'l Forest Acres		ERR	ERR	65,255.0	100.0		10,969.9	16.8
037	Nat'l Forest Square Miles		ERR	ERR	102.0				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
038	Aspen non-stocked	AS5			47.0	0.1	0.00	0.0	0.0
038	Aspen seedling	AS6			62.0	0.1	0.00	0.0	0.0
038	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
038	Aspen pole	AS8			439.0	0.6	0.15	65.9	0.1
038	Aspen mature	AS9			14,973.0	19.9	0.10	1,497.3	2.0
038	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
038	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
038	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
038	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
038	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
038	Douglas-fir mature	DF9			7,883.0	10.5	0.30	2,364.9	3.1
038	Grass	GR			438.0	0.6	0.00	0.0	0.0
038	Grass/brush	GRB			952.0	1.3	0.00	0.0	0.0
038	Grass/forb	GRF			1,130.0	1.5	0.00	0.0	0.0
038	Grass/sage	GRS			4,082.0	5.4	0.00	0.0	0.0
038	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
038	Lodgepole non-stocked	LP5			29.0	0.0	0.00	0.0	0.0
038	Lodgepole seedling	LP6			46.0	0.1	0.00	0.0	0.0
038	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
038	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
038	Lodgepole mature	LP9			608.0	0.8	0.40	243.2	0.3
038	Meadow	M			0.0	0.0	0.00	0.0	0.0
038	Mountain Brush	MB			5,392.0	7.2	0.00	0.0	0.0
038	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
038	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0

038	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
038	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
038	Mixed con. mature	MX39			317.0	0.4	0.30	95.1	0.1
038	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
038	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
038	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
038	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
038	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
038	Mixed con. mature	MX9			14,528.0	19.3	0.30	4,358.4	5.8
038	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
038	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
038	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
038	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
038	Non-commercial MX	NMX			2,319.0	3.1	0.30	695.7	0.9
038	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
038	Private/other agency	NUS			3,993.0	5.3	0.00	0.0	0.0
038	Rock	R			278.0	0.4	0.00	0.0	0.0
038	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
038	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
038	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
038	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
038	Spruce/Fir mature	SF9			62.0	0.1	0.60	37.2	0.0
038	Tall sage/grass	TSG			21,443.0	28.5	0.00	0.0	0.0
038	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
038	Undefined/unknown	UD			10.0	0.0	0.00	0.0	0.0
038	Willow	W			0.0	0.0	0.00	0.0	0.0
038	Water	WA			308.0	0.4	0.00	0.0	0.0
038	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
038	Total (includes NUS acres)		NA	NA	79,339.0				
038	Nat'l Forest Acres		ERR	ERR	75,346.0	100.0		9,357.7	12.4
038	Nat'l Forest Square Miles		ERR	ERR	117.7				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
039	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
039	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
039	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
039	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
039	Aspen mature	AS9			4,267.0	27.8	0.10	426.7	2.8
039	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
039	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
039	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
039	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
039	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
039	Douglas-fir mature	DF9			120.0	0.8	0.30	36.0	0.2
039	Grass	GR			11.0	0.1	0.00	0.0	0.0
039	Grass/brush	GRB			109.0	0.7	0.00	0.0	0.0
039	Grass/forb	GRF			0.0	0.0	0.00	0.0	0.0
039	Grass/sage	GRS			37.0	0.2	0.00	0.0	0.0
039	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
039	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
039	Lodgepole seedling	LP6			0.0	0.0	0.00	0.0	0.0
039	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
039	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
039	Lodgepole mature	LP9			0.0	0.0	0.40	0.0	0.0
039	Meadow	M			0.0	0.0	0.00	0.0	0.0
039	Mountain Brush	MB			622.0	4.1	0.00	0.0	0.0
039	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
039	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
039	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
039	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
039	Mixed con. mature	MX39			281.0	1.8	0.30	84.3	0.5
039	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
039	Mixed con. non-stocked	MX5			345.0	2.2	0.00	0.0	0.0
039	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
039	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
039	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
039	Mixed con. mature	MX9			4,643.0	30.3	0.30	1,392.9	9.1
039	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
039	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
039	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
039	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
039	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
039	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0

039	Private/other agency	NUS			79.0	0.5	0.00	0.0	0.0
039	Rock	R			0.0	0.0	0.00	0.0	0.0
039	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
039	Spruce/Fir seedling	SF6			134.0	0.9	0.00	0.0	0.0
039	Spruce/Fir sapling	SF7			25.0	0.2	0.60	15.0	0.1
039	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
039	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
039	Tall sage/grass	TSG			4,688.0	30.6	0.00	0.0	0.0
039	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
039	Undefined/unknown	UD			34.0	0.2	0.00	0.0	0.0
039	Willow	W			0.0	0.0	0.00	0.0	0.0
039	Water	WA			20.0	0.1	0.00	0.0	0.0
039	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
039	Total (includes NUS acres)		NA	NA	15,415.0				
039	Nat'l Forest Acres		ERR	ERR	15,336.0	100.0		1,954.9	12.7
039	Nat'l Forest Square Miles		ERR	ERR	24.0				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
040	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
040	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
040	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
040	Aspen pole	AS8			36.0	0.2	0.15	5.4	0.0
040	Aspen mature	AS9			3,343.0	18.7	0.10	334.3	1.9
040	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
040	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
040	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
040	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
040	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
040	Douglas-fir mature	DF9			270.0	1.5	0.30	81.0	0.5
040	Grass	GR			0.0	0.0	0.00	0.0	0.0
040	Grass/brush	GRB			106.0	0.6	0.00	0.0	0.0
040	Grass/forb	GRF			0.0	0.0	0.00	0.0	0.0
040	Grass/sage	GRS			260.0	1.5	0.00	0.0	0.0
040	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
040	Lodgepole non-stocked	LP5			214.0	1.2	0.00	0.0	0.0
040	Lodgepole seedling	LP6			0.0	0.0	0.00	0.0	0.0
040	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
040	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
040	Lodgepole mature	LP9			897.0	5.0	0.40	358.8	2.0
040	Meadow	M			0.0	0.0	0.00	0.0	0.0
040	Mountain Brush	MB			269.0	1.5	0.00	0.0	0.0
040	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
040	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
040	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
040	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
040	Mixed con. mature	MX39			1,372.0	7.7	0.30	411.6	2.3
040	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
040	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
040	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
040	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
040	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
040	Mixed con. mature	MX9			2,725.0	15.3	0.30	817.5	4.6
040	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
040	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
040	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
040	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
040	Non-commercial MX	NMX			147.0	0.8	0.30	44.1	0.2
040	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
040	Private/other agency	NUS			964.0	5.4	0.00	0.0	0.0
040	Rock	R			0.0	0.0	0.00	0.0	0.0
040	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
040	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
040	Spruce/Fir sapling	SF7			188.0	1.1	0.60	112.8	0.6
040	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
040	Spruce/Fir mature	SF9			154.0	0.9	0.60	92.4	0.5
040	Tall sage/grass	TSG			7,849.0	43.9	0.00	0.0	0.0
040	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
040	Undefined/unknown	UD			29.0	0.2	0.00	0.0	0.0
040	Willow	W			0.0	0.0	0.00	0.0	0.0
040	Water	WA			0.0	0.0	0.00	0.0	0.0
040	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
040	Total (includes NUS acres)		NA	NA	18,823.0				

040	Nat'l Forest Acres		ERR	ERR	17,859.0	100.0		2,257.9	12.6
040	Nat'l Forest Square Miles		ERR	ERR	27.9				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
017	Aspen non-stocked	AS5	0.0	0.0	0.00	0.0	0.0
017	Aspen seedling	AS6	0.0	0.0	0.00	0.0	0.0
017	Aspen sapling	AS7	0.0	0.0	0.60	0.0	0.0
017	Aspen pole	AS8	0.0	0.0	0.15	0.0	0.0
017	Aspen mature	AS9	909.0	13.8	0.10	90.9	1.4
017	First entry Douglas-fir	1DF9	0.0	0.0	0.00	0.0	0.0
017	Douglas-fir non-stocked	DF5	0.0	0.0	0.00	0.0	0.0
017	Douglas-fir seedling	DF6	0.0	0.0	0.00	0.0	0.0
017	Douglas-fir sapling	DF7	0.0	0.0	0.60	0.0	0.0
017	Douglas-fir pole	DF8	0.0	0.0	0.40	0.0	0.0
017	Douglas-fir mature	DF9	0.0	0.0	0.30	0.0	0.0
017	Grass	GR	8.0	0.1	0.00	0.0	0.0
017	Grass/brush	GRB	182.0	2.8	0.00	0.0	0.0
017	Grass/forb	GRF	406.0	6.2	0.00	0.0	0.0
017	Grass/sage	GRS	0.0	0.0	0.00	0.0	0.0
017	Limber Pine mature	LM9	0.0	0.0	0.60	0.0	0.0
017	Lodgepole non-stocked	LP5	0.0	0.0	0.00	0.0	0.0
017	Lodgepole seedling	LP6	0.0	0.0	0.00	0.0	0.0
017	Lodgepole sapling	LP7	0.0	0.0	0.60	0.0	0.0
017	Lodgepole pole	LP8	0.0	0.0	0.40	0.0	0.0
017	Lodgepole mature	LP9	106.0	1.6	0.40	42.4	0.6
017	Meadow	M	0.0	0.0	0.00	0.0	0.0
017	Mountain Brush	MB	84.0	1.3	0.00	0.0	0.0
017	Mixed con. non-stocked	MX35	0.0	0.0	0.00	0.0	0.0
017	Mixed con. seedling	MX36	0.0	0.0	0.00	0.0	0.0
017	Mixed con. sapling	MX37	0.0	0.0	0.60	0.0	0.0
017	Mixed con. pole	MX38	0.0	0.0	0.40	0.0	0.0
017	Mixed con. mature	MX39	0.0	0.0	0.30	0.0	0.0
017	First entry mixed con.	1MX9	0.0	0.0	0.00	0.0	0.0
017	Mixed con. non-stocked	MX5	0.0	0.0	0.00	0.0	0.0
017	Mixed con. seedling	MX6	0.0	0.0	0.00	0.0	0.0
017	Mixed con. sapling	MX7	0.0	0.0	0.60	0.0	0.0
017	Mixed con. pole	MX8	0.0	0.0	0.40	0.0	0.0
017	Mixed con. mature	MX9	4,115.0	62.3	0.30	1,234.5	18.7
017	Non-commercial Aspen	NAS	0.0	0.0	0.10	0.0	0.0
017	Non-commercial D.Fir	NDF	0.0	0.0	0.30	0.0	0.0
017	Non-commercial LP	NLP	0.0	0.0	0.40	0.0	0.0
017	Non-commercial MX3	NMX3	0.0	0.0	0.30	0.0	0.0
017	Non-commercial MX	NMX	786.0	11.9	0.30	235.8	3.6
017	Non-commercial SF	NSF	0.0	0.0	0.30	0.0	0.0
017	Private/other agency	NUS	246.0	3.7	0.00	0.0	0.0
017	Rock	R	3.0	0.0	0.00	0.0	0.0
017	Spruce/Fir non-stocked	SF5	0.0	0.0	0.00	0.0	0.0
017	Spruce/Fir seedling	SF6	0.0	0.0	0.00	0.0	0.0
017	Spruce/Fir sapling	SF7	0.0	0.0	0.60	0.0	0.0
017	Spruce/Fir Pole	SF8	0.0	0.0	0.60	0.0	0.0
017	Spruce/Fir mature	SF9	0.0	0.0	0.60	0.0	0.0
017	Tall sage/grass	TSG	0.0	0.0	0.00	0.0	0.0
017	Tall sage/mtn. brush	TSM	0.0	0.0	0.00	0.0	0.0
017	Undefined/unknown	UD	2.0	0.0	0.00	0.0	0.0
017	Willow	W	0.0	0.0	0.00	0.0	0.0
017	Water	WA	0.0	0.0	0.00	0.0	0.0
017	Whitebark Pine mature	WB9	0.0	0.0	0.60	0.0	0.0
017	Total (includes NUS acres)		NA	NA	6,847.0				
017	Nat'l Forest Acres		ERR	ERR	6,601.0	100.0		1,603.6	24.3
017	Nat'l Forest Square Miles		ERR	ERR	10.3				

Wtrshed No.	Vegetation Description	Veg. Code	Wyoming Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
017	Aspen non-stocked	AS5	0.0	0.0	0.00	0.0	0.0
017	Aspen seedling	AS6	0.0	0.0	0.00	0.0	0.0
017	Aspen sapling	AS7	0.0	0.0	0.60	0.0	0.0
017	Aspen pole	AS8	0.0	0.0	0.15	0.0	0.0
017	Aspen mature	AS9	1,478.0	4.5	0.10	147.8	0.4
017	First entry Douglas-fir	1DF9	0.0	0.0	0.00	0.0	0.0

017	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
017	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
017	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
017	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
017	Douglas-fir mature	DF9			4,244.0	12.8	0.30	1,273.2	3.9
017	Grass	GR			225.0	0.7	0.00	0.0	0.0
017	Grass/brush	GRB			496.0	1.5	0.00	0.0	0.0
017	Grass/forb	GRF			9,951.0	30.1	0.00	0.0	0.0
017	Grass/sage	GRS			0.0	0.0	0.00	0.0	0.0
017	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
017	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
017	Lodgepole seedling	LP6			0.0	0.0	0.00	0.0	0.0
017	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
017	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
017	Lodgepole mature	LP9			108.0	0.3	0.40	43.2	0.1
017	Meadow	M			0.0	0.0	0.00	0.0	0.0
017	Mountain Brush	MB			875.0	2.6	0.00	0.0	0.0
017	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
017	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
017	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
017	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
017	Mixed con. mature	MX39			138.0	0.4	0.30	41.4	0.1
017	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
017	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
017	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
017	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
017	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
017	Mixed con. mature	MX9			6,819.0	20.6	0.30	2,045.7	6.2
017	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
017	Non-commercial D.Fir	NDF			5,348.0	16.2	0.30	1,604.4	4.9
017	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
017	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
017	Non-commercial MX	NMX			2,057.0	6.2	0.30	617.1	1.9
017	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
017	Private/other agency	NUS			240.0	0.7	0.00	0.0	0.0
017	Rock	R			1,192.0	3.6	0.00	0.0	0.0
017	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
017	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
017	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
017	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
017	Spruce/Fir mature	SF9			92.0	0.3	0.60	55.2	0.2
017	Tall sage/grass	TSG			0.0	0.0	0.00	0.0	0.0
017	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
017	Undefined/unknown	UD			0.0	0.0	0.00	0.0	0.0
017	Willow	W			0.0	0.0	0.00	0.0	0.0
017	Water	WA			40.0	0.1	0.00	0.0	0.0
017	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
017	Total (includes NUS acres)		NA	NA	33,303.0				
017	Nat'l Forest Acres		ERR	ERR	33,063.0	100.0		5,828.0	17.6
017	Nat'l Forest Square Miles		ERR	ERR	51.7				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
017	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Aspen seedling	AS6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
017	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
017	Aspen mature	AS9	909.0	1,478.0	2,387.0	6.0	0.10	238.7	0.6
017	First entry Douglas-fir	1DF9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
017	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
017	Douglas-fir mature	DF9	0.0	4,244.0	4,244.0	10.7	0.30	1,273.2	3.2
017	Grass	GR	8.0	225.0	233.0	0.6	0.00	0.0	0.0
017	Grass/brush	GRB	182.0	496.0	678.0	1.7	0.00	0.0	0.0
017	Grass/forb	GRF	406.0	9,951.0	10,357.0	26.1	0.00	0.0	0.0
017	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
017	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Lodgepole seedling	LP6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Lodgepole sapling	LP7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
017	Lodgepole pole	LP8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
017	Lodgepole mature	LP9	106.0	108.0	214.0	0.5	0.40	85.6	0.2

017	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Mountain Brush	MB	84.0	875.0	959.0	2.4	0.00	0.0	0.0
017	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Mixed con. seedling	MX36	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
017	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
017	Mixed con. mature	MX39	0.0	138.0	138.0	0.3	0.30	41.4	0.1
017	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Mixed con. non-stocked	MX5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Mixed con. seedling	MX6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
017	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
017	Mixed con. mature	MX9	4,115.0	6,819.0	10,934.0	27.6	0.30	3,280.2	8.3
017	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
017	Non-commercial D.Fir	NDF	0.0	5,348.0	5,348.0	13.5	0.30	1,604.4	4.0
017	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
017	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
017	Non-commercial MX	NMX	786.0	2,057.0	2,843.0	7.2	0.30	852.9	2.2
017	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
017	Private/other agency	NUS	246.0	240.0	486.0	1.2	0.00	0.0	0.0
017	Rock	R	3.0	1,192.0	1,195.0	3.0	0.00	0.0	0.0
017	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
017	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
017	Spruce/Fir mature	SF9	0.0	92.0	92.0	0.2	0.60	55.2	0.1
017	Tall sage/grass	TSG	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Tall sage/mtn. brush	TSM	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Undefined/unknown	UD	2.0	0.0	2.0	0.0	0.00	0.0	0.0
017	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
017	Water	WA	0.0	40.0	40.0	0.1	0.00	0.0	0.0
017	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
017	Total (includes NUS acres)		6,847.0	33,303.0	40,150.0				
017	Nat'l Forest Acres		6,601.0	33,063.0	39,664.0	100.0		7,431.6	18.7
017	Nat'l Forest Square Miles		10.3	51.7	62.0				

Wtrshed No.	Vegetation Description	Veg. Code	D5 Idaho Acres	D3 Idaho Acres	Total ID Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
021	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Aspen seedling	AS6	40.0	0.0	40.0	0.2	0.00	0.0	0.0
021	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
021	Aspen mature	AS9	25.0	114.0	139.0	0.8	0.10	13.9	0.1
021	First entry Douglas-fir	1DF9	91.0	0.0	91.0	0.5	0.00	0.0	0.0
021	Douglas-fir non-stocked	DF5	12.0	0.0	12.0	0.1	0.00	0.0	0.0
021	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
021	Douglas-fir mature	DF9	870.0	220.0	1,090.0	6.2	0.30	327.0	1.9
021	Grass	GR	11.0	6.0	17.0	0.1	0.00	0.0	0.0
021	Grass/brush	GRB	440.0	35.0	475.0	2.7	0.00	0.0	0.0
021	Grass/forb	GRF	253.0	24.0	277.0	1.6	0.00	0.0	0.0
021	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Lodgepole non-stocked	LP5	608.0	59.0	667.0	3.8	0.00	0.0	0.0
021	Lodgepole seedling	LP6	2,665.0	687.0	3,352.0	19.1	0.00	0.0	0.0
021	Lodgepole sapling	LP7	1,096.0	279.0	1,375.0	7.8	0.60	825.0	4.7
021	Lodgepole pole	LP8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
021	Lodgepole mature	LP9	2,206.0	1,790.0	3,996.0	22.7	0.40	1,598.4	9.1
021	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Mountain Brush	MB	442.0	207.0	649.0	3.7	0.00	0.0	0.0
021	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Mixed con. seedling	MX36	64.0	0.0	64.0	0.4	0.00	0.0	0.0
021	Mixed con. sapling	MX37	215.0	0.0	215.0	1.2	0.60	129.0	0.7
021	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
021	Mixed con. mature	MX39	810.0	71.0	881.0	5.0	0.30	264.3	1.5
021	First entry mixed con.	1MX9	37.0	0.0	37.0	0.2	0.00	0.0	0.0
021	Mixed con. non-stocked	MX5	67.0	2.0	69.0	0.4	0.00	0.0	0.0
021	Mixed con. seedling	MX6	210.0	0.0	210.0	1.2	0.00	0.0	0.0
021	Mixed con. sapling	MX7	69.0	0.0	69.0	0.4	0.60	41.4	0.2
021	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
021	Mixed con. mature	MX9	2,420.0	400.0	2,820.0	16.0	0.30	846.0	4.8
021	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
021	Non-commercial D.Fir	NDF	422.0	0.0	422.0	2.4	0.30	126.6	0.7

021	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
021	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
021	Non-commercial MX	NMX	444.0	38.0	482.0	2.7	0.30	144.6	0.8
021	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
021	Private/other agency	NUS	43.0	1.0	44.0	0.3	0.00	0.0	0.0
021	Rock	R	33.0	22.0	55.0	0.3	0.00	0.0	0.0
021	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Tall sage/grass	TSG	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Tall sage/mtn. brush	TSM	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Undefined/unknown	UD	0.0	13.0	13.0	0.1	0.00	0.0	0.0
021	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Water	WA	63.0	0.0	63.0	0.4	0.00	0.0	0.0
021	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Total (includes NUS acres)		13,656.0	3,968.0	17,624.0				
021	Nat'l Forest Acres		13,613.0	3,967.0	17,580.0	100.0		4,316.2	24.6
021	Nat'l Forest Square Miles		21.3	6.2	27.5				

Wtrshed No.	Vegetation Description	Veg. Code	D5 Wyo. Acres	D3 Wyo. Acres	Total Wyo Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
021	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Aspen seedling	AS6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
021	Aspen mature	AS9	586.0	379.0	965.0	1.7	0.10	96.5	0.2
021	First entry Douglas-fir	1DF9	30.0	0.0	30.0	0.1	0.00	0.0	0.0
021	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
021	Douglas-fir mature	DF9	3,163.0	3,201.0	6,364.0	10.9	0.30	1,909.2	3.3
021	Grass	GR	34.0	0.0	34.0	0.1	0.00	0.0	0.0
021	Grass/brush	GRB	734.0	121.0	855.0	1.5	0.00	0.0	0.0
021	Grass/forb	GRF	3,353.0	2,984.0	6,337.0	10.9	0.00	0.0	0.0
021	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Lodgepole non-stocked	LP5	873.0	0.0	873.0	1.5	0.00	0.0	0.0
021	Lodgepole seedling	LP6	3,388.0	231.0	3,619.0	6.2	0.00	0.0	0.0
021	Lodgepole sapling	LP7	183.0	12.0	195.0	0.3	0.60	117.0	0.2
021	Lodgepole pole	LP8	2,176.0	0.0	2,176.0	3.7	0.40	870.4	1.5
021	Lodgepole mature	LP9	10,716.0	4,763.0	15,479.0	26.6	0.40	6,191.6	10.7
021	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Mountain Brush	MB	510.0	462.0	972.0	1.7	0.00	0.0	0.0
021	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Mixed con. seedling	MX36	788.0	0.0	788.0	1.4	0.00	0.0	0.0
021	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Mixed con. pole	MX38	122.0	0.0	122.0	0.2	0.40	48.8	0.1
021	Mixed con. mature	MX39	5,684.0	3,034.0	8,718.0	15.0	0.30	2,615.4	4.5
021	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Mixed con. non-stocked	MX5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Mixed con. seedling	MX6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
021	Mixed con. mature	MX9	3,340.0	0.0	3,340.0	5.7	0.30	1,002.0	1.7
021	Non-commercial Aspen	NAS	380.0	0.0	380.0	0.7	0.10	38.0	0.1
021	Non-commercial D.Fir	NDF	417.0	258.0	675.0	1.2	0.30	202.5	0.3
021	Non-commercial LP	NLP	281.0	0.0	281.0	0.5	0.40	112.4	0.2
021	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
021	Non-commercial MX	NMX	1,228.0	715.0	1,943.0	3.3	0.30	582.9	1.0
021	Non-commercial SF	NSF	28.0	0.0	28.0	0.0	0.30	8.4	0.0
021	Private/other agency	NUS	3.0	0.0	3.0	0.0	0.00	0.0	0.0
021	Rock	R	1,994.0	1,010.0	3,004.0	5.2	0.00	0.0	0.0
021	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Spruce/Fir mature	SF9	676.0	0.0	676.0	1.2	0.60	405.6	0.7
021	Tall sage/grass	TSG	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Tall sage/mtn. brush	TSM	113.0	0.0	113.0	0.2	0.00	0.0	0.0
021	Undefined/unknown	UD	0.0	6.0	6.0	0.0	0.00	0.0	0.0
021	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0

021	Water	WA	141.0	5.0	146.0	0.3	0.00	0.0	0.0
021	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Total (includes NUS acres)		40,941.0	17,181.0	58,122.0				
021	Nat'l Forest Acres		40,938.0	17,181.0	58,119.0	100.0		14,200.7	24.4
021	Nat'l Forest Square Miles		64.0	26.8	90.8				

Wtrshed No.	Vegetation Description	Veg. Code	Total ID Acres	Total Wyo Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
021	Aspen non-stocked	AS5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Aspen seedling	AS6	40.0	0.0	40.0	0.1	0.00	0.0	0.0
021	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
021	Aspen mature	AS9	139.0	965.0	1,104.0	1.5	0.10	110.4	0.1
021	First entry Douglas-fir	1DF9	91.0	30.0	121.0	0.2	0.00	0.0	0.0
021	Douglas-fir non-stocked	DF5	12.0	0.0	12.0	0.0	0.00	0.0	0.0
021	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
021	Douglas-fir mature	DF9	1,090.0	6,364.0	7,454.0	9.8	0.30	2,236.2	3.0
021	Grass	GR	17.0	34.0	51.0	0.1	0.00	0.0	0.0
021	Grass/brush	GRB	475.0	855.0	1,330.0	1.8	0.00	0.0	0.0
021	Grass/forb	GRF	277.0	6,337.0	6,614.0	8.7	0.00	0.0	0.0
021	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Lodgepole non-stocked	LP5	667.0	873.0	1,540.0	2.0	0.00	0.0	0.0
021	Lodgepole seedling	LP6	3,352.0	3,619.0	6,971.0	9.2	0.00	0.0	0.0
021	Lodgepole sapling	LP7	1,375.0	195.0	1,570.0	2.1	0.60	942.0	1.2
021	Lodgepole pole	LP8	0.0	2,176.0	2,176.0	2.9	0.40	870.4	1.1
021	Lodgepole mature	LP9	3,996.0	15,479.0	19,475.0	25.7	0.40	7,790.0	10.3
021	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Mountain Brush	MB	649.0	972.0	1,621.0	2.1	0.00	0.0	0.0
021	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Mixed con. seedling	MX36	64.0	788.0	852.0	1.1	0.00	0.0	0.0
021	Mixed con. sapling	MX37	215.0	0.0	215.0	0.3	0.60	129.0	0.2
021	Mixed con. pole	MX38	0.0	122.0	122.0	0.2	0.40	48.8	0.1
021	Mixed con. mature	MX39	881.0	8,718.0	9,599.0	12.7	0.30	2,879.7	3.8
021	First entry mixed con.	1MX9	37.0	0.0	37.0	0.0	0.00	0.0	0.0
021	Mixed con. non-stocked	MX5	69.0	0.0	69.0	0.1	0.00	0.0	0.0
021	Mixed con. seedling	MX6	210.0	0.0	210.0	0.3	0.00	0.0	0.0
021	Mixed con. sapling	MX7	69.0	0.0	69.0	0.1	0.60	41.4	0.1
021	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
021	Mixed con. mature	MX9	2,820.0	3,340.0	6,160.0	8.1	0.30	1,848.0	2.4
021	Non-commercial Aspen	NAS	0.0	380.0	380.0	0.5	0.10	38.0	0.1
021	Non-commercial D.Fir	NDF	422.0	675.0	1,097.0	1.4	0.30	329.1	0.4
021	Non-commercial LP	NLP	0.0	281.0	281.0	0.4	0.40	112.4	0.1
021	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
021	Non-commercial MX	NMX	482.0	1,943.0	2,425.0	3.2	0.30	727.5	1.0
021	Non-commercial SF	NSF	0.0	28.0	28.0	0.0	0.30	8.4	0.0
021	Private/other agency	NUS	44.0	3.0	47.0	0.1	0.00	0.0	0.0
021	Rock	R	55.0	3,004.0	3,059.0	4.0	0.00	0.0	0.0
021	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Spruce/Fir mature	SF9	0.0	676.0	676.0	0.9	0.60	405.6	0.5
021	Tall sage/grass	TSG	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Tall sage/mtn. brush	TSM	0.0	113.0	113.0	0.1	0.00	0.0	0.0
021	Undefined/unknown	UD	13.0	6.0	19.0	0.0	0.00	0.0	0.0
021	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
021	Water	WA	63.0	146.0	209.0	0.3	0.00	0.0	0.0
021	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
021	Total (includes NUS acres)		17,624.0	58,122.0	75,746.0				
021	Nat'l Forest Acres		17,580.0	58,119.0	75,699.0	100.0		18,516.9	24.5
021	Nat'l Forest Square Miles		27.5	90.8	118.3				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
022	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
022	Aspen seedling	AS6			165.0	0.4	0.00	0.0	0.0

022	Aspen sapling	AS7			40.0	0.1	0.60	24.0	0.1
022	Aspen pole	AS8			7.0	0.0	0.15	1.1	0.0
022	Aspen mature	AS9			4,648.0	11.3	0.10	464.8	1.1
022	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
022	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
022	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
022	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
022	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
022	Douglas-fir mature	DF9			1,183.0	2.9	0.30	354.9	0.9
022	Grass	GR			28.0	0.1	0.00	0.0	0.0
022	Grass/brush	GRB			110.0	0.3	0.00	0.0	0.0
022	Grass/forb	GRF			719.0	1.8	0.00	0.0	0.0
022	Grass/sage	GRS			1,081.0	2.6	0.00	0.0	0.0
022	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
022	Lodgepole non-stocked	LP5			706.0	1.7	0.00	0.0	0.0
022	Lodgepole seedling	LP6			82.0	0.2	0.00	0.0	0.0
022	Lodgepole sapling	LP7			58.0	0.1	0.60	34.8	0.1
022	Lodgepole pole	LP8			416.0	1.0	0.40	166.4	0.4
022	Lodgepole mature	LP9			5,680.0	13.8	0.40	2,272.0	5.5
022	Meadow	M			0.0	0.0	0.00	0.0	0.0
022	Mountain Brush	MB			4,344.0	10.6	0.00	0.0	0.0
022	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
022	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
022	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
022	Mixed con. pole	MX38			11.0	0.0	0.40	4.4	0.0
022	Mixed con. mature	MX39			5,693.0	13.9	0.30	1,707.9	4.2
022	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
022	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
022	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
022	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
022	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
022	Mixed con. mature	MX9			10,091.0	24.6	0.30	3,027.3	7.4
022	Non-commercial Aspen	NAS			13.0	0.0	0.10	1.3	0.0
022	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
022	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
022	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
022	Non-commercial MX	NMX			1,974.0	4.8	0.30	592.2	1.4
022	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
022	Private/other agency	NUS			1,632.0	4.0	0.00	0.0	0.0
022	Rock	R			8.0	0.0	0.00	0.0	0.0
022	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
022	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
022	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
022	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
022	Spruce/Fir mature	SF9			157.0	0.4	0.60	94.2	0.2
022	Tall sage/grass	TSG			2,840.0	6.9	0.00	0.0	0.0
022	Tall sage/mtn. brush	TSM			983.0	2.4	0.00	0.0	0.0
022	Undefined/unknown	UD			1.0	0.0	0.00	0.0	0.0
022	Willow	W			0.0	0.0	0.00	0.0	0.0
022	Water	WA			0.0	0.0	0.00	0.0	0.0
022	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
022	Total (includes NUS acres)		NA	NA	42,670.0				
022	Nat'l Forest Acres		ERR	ERR	41,038.0	100.0		8,745.3	21.3
022	Nat'l Forest Square Miles		ERR	ERR	64.1				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
018	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
018	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
018	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
018	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
018	Aspen mature	AS9			1,923.0	8.2	0.10	192.3	0.8
018	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
018	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
018	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
018	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
018	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
018	Douglas-fir mature	DF9			1,784.0	7.6	0.30	535.2	2.3
018	Grass	GR			49.0	0.2	0.00	0.0	0.0
018	Grass/brush	GRB			1,184.0	5.0	0.00	0.0	0.0
018	Grass/forb	GRF			7,815.0	33.2	0.00	0.0	0.0
018	Grass/sage	GRS			0.0	0.0	0.00	0.0	0.0
018	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
018	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0

018	Lodgepole seedling	LP6			0.0	0.0	0.00	0.0	0.0
018	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
018	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
018	Lodgepole mature	LP9			341.0	1.5	0.40	136.4	0.6
018	Meadow	M			0.0	0.0	0.00	0.0	0.0
018	Mountain Brush	MB			306.0	1.3	0.00	0.0	0.0
018	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
018	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
018	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
018	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
018	Mixed con. mature	MX39			451.0	1.9	0.30	135.3	0.6
018	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
018	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
018	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
018	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
018	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
018	Mixed con. mature	MX9			4,018.0	17.1	0.30	1,205.4	5.1
018	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
018	Non-commercial D.Fir	NDF			1,851.0	7.9	0.30	555.3	2.4
018	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
018	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
018	Non-commercial MX	NMX			285.0	1.2	0.30	85.5	0.4
018	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
018	Private/other agency	NUS			164.0	0.7	0.00	0.0	0.0
018	Rock	R			3,406.0	14.5	0.00	0.0	0.0
018	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
018	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
018	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
018	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
018	Spruce/Fir mature	SF9			94.0	0.4	0.60	56.4	0.2
018	Tall sage/grass	TSG			0.0	0.0	0.00	0.0	0.0
018	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
018	Undefined/unknown	UD			0.0	0.0	0.00	0.0	0.0
018	Willow	W			0.0	0.0	0.00	0.0	0.0
018	Water	WA			8.0	0.0	0.00	0.0	0.0
018	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
018	Total (includes NUS acres)		NA	NA	23,679.0				
018	Nat'l Forest Acres		ERR	ERR	23,515.0	100.0		2,901.8	12.3
018	Nat'l Forest Square Miles		ERR	ERR	36.7				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
019	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
019	Aspen seedling	AS6			0.0	0.0	0.00	0.0	0.0
019	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
019	Aspen pole	AS8			59.0	0.2	0.15	8.9	0.0
019	Aspen mature	AS9			2,689.0	8.3	0.10	268.9	0.8
019	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
019	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
019	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
019	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
019	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
019	Douglas-fir mature	DF9			2,732.0	8.4	0.30	819.6	2.5
019	Grass	GR			325.0	1.0	0.00	0.0	0.0
019	Grass/brush	GRB			964.0	3.0	0.00	0.0	0.0
019	Grass/forb	GRF			11,522.0	35.4	0.00	0.0	0.0
019	Grass/sage	GRS			0.0	0.0	0.00	0.0	0.0
019	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
019	Lodgepole non-stocked	LP5			0.0	0.0	0.00	0.0	0.0
019	Lodgepole seedling	LP6			0.0	0.0	0.00	0.0	0.0
019	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
019	Lodgepole pole	LP8			0.0	0.0	0.40	0.0	0.0
019	Lodgepole mature	LP9			1,172.0	3.6	0.40	468.8	1.4
019	Meadow	M			0.0	0.0	0.00	0.0	0.0
019	Mountain Brush	MB			774.0	2.4	0.00	0.0	0.0
019	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
019	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
019	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
019	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
019	Mixed con. mature	MX39			2,033.0	6.2	0.30	609.9	1.9
019	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
019	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
019	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
019	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0

019	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
019	Mixed con. mature	MX9			1,924.0	5.9	0.30	577.2	1.8
019	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
019	Non-commercial D.Fir	NDF			1,519.0	4.7	0.30	455.7	1.4
019	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
019	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
019	Non-commercial MX	NMX			625.0	1.9	0.30	187.5	0.6
019	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
019	Private/other agency	NUS			624.0	1.9	0.00	0.0	0.0
019	Rock	R			4,574.0	14.1	0.00	0.0	0.0
019	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
019	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
019	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
019	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
019	Spruce/Fir mature	SF9			1,367.0	4.2	0.60	820.2	2.5
019	Tall sage/grass	TSG			0.0	0.0	0.00	0.0	0.0
019	Tall sage/mtn. brush	TSM			58.0	0.2	0.00	0.0	0.0
019	Undefined/unknown	UD			0.0	0.0	0.00	0.0	0.0
019	Willow	W			0.0	0.0	0.00	0.0	0.0
019	Water	WA			171.0	0.5	0.00	0.0	0.0
019	Whitebark Pine mature	WB9			40.0	0.1	0.60	24.0	0.1
019	Total (includes NUS acres)		NA	NA	33,172.0				
019	Nat'l Forest Acres		ERR	ERR	32,548.0	100.0		4,240.6	13.0
019	Nat'l Forest Square Miles		ERR	ERR	50.9				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
020	Aspen non-stocked	AS5			52.0	0.2	0.00	0.0	0.0
020	Aspen seedling	AS6			21.0	0.1	0.00	0.0	0.0
020	Aspen sapling	AS7			508.0	1.7	0.60	304.8	1.0
020	Aspen pole	AS8			152.0	0.5	0.15	22.8	0.1
020	Aspen mature	AS9			1,194.0	4.1	0.10	119.4	0.4
020	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
020	Douglas-fir non-stocked	DF5			108.0	0.4	0.00	0.0	0.0
020	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
020	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
020	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
020	Douglas-fir mature	DF9			2,981.0	10.2	0.30	894.3	3.1
020	Grass	GR			509.0	1.7	0.00	0.0	0.0
020	Grass/brush	GRB			1,036.0	3.5	0.00	0.0	0.0
020	Grass/forb	GRF			8,700.0	29.7	0.00	0.0	0.0
020	Grass/sage	GRS			0.0	0.0	0.00	0.0	0.0
020	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
020	Lodgepole non-stocked	LP5			411.0	1.4	0.00	0.0	0.0
020	Lodgepole seedling	LP6			723.0	2.5	0.00	0.0	0.0
020	Lodgepole sapling	LP7			0.0	0.0	0.60	0.0	0.0
020	Lodgepole pole	LP8			113.0	0.4	0.40	45.2	0.2
020	Lodgepole mature	LP9			3,018.0	10.3	0.40	1,207.2	4.1
020	Meadow	M			0.0	0.0	0.00	0.0	0.0
020	Mountain Brush	MB			955.0	3.3	0.00	0.0	0.0
020	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
020	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
020	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
020	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
020	Mixed con. mature	MX39			2,140.0	7.3	0.30	642.0	2.2
020	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
020	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
020	Mixed con. seedling	MX6			0.0	0.0	0.00	0.0	0.0
020	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
020	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
020	Mixed con. mature	MX9			1,794.0	6.1	0.30	538.2	1.8
020	Non-commercial Aspen	NAS			8.0	0.0	0.10	0.8	0.0
020	Non-commercial D.Fir	NDF			41.0	0.1	0.30	12.3	0.0
020	Non-commercial LP	NLP			169.0	0.6	0.40	67.6	0.2
020	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
020	Non-commercial MX	NMX			1,996.0	6.8	0.30	598.8	2.0
020	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
020	Private/other agency	NUS			41.0	0.1	0.00	0.0	0.0
020	Rock	R			1,979.0	6.8	0.00	0.0	0.0
020	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
020	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
020	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
020	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
020	Spruce/Fir mature	SF9			234.0	0.8	0.60	140.4	0.5

020	Tall sage/grass	TSG			0.0	0.0	0.00	0.0	0.0
020	Tall sage/mtn. brush	TSM			139.0	0.5	0.00	0.0	0.0
020	Undefined/unknown	UD			0.0	0.0	0.00	0.0	0.0
020	Willow	W			0.0	0.0	0.00	0.0	0.0
020	Water	WA			303.0	1.0	0.00	0.0	0.0
020	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
020	Total (includes NUS acres)		NA	NA	29,325.0				
020	Nat'l Forest Acres		ERR	ERR	29,284.0	100.0		4,593.8	15.7
020	Nat'l Forest Square Miles		ERR	ERR	45.8				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
008	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
008	Aspen seedling	AS6			83.0	0.1	0.00	0.0	0.0
008	Aspen sapling	AS7			41.0	0.0	0.60	24.6	0.0
008	Aspen pole	AS8			29.0	0.0	0.15	4.4	0.0
008	Aspen mature	AS9			2,273.0	1.9	0.10	227.3	0.2
008	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
008	Douglas-fir non-stocked	DF5			11.0	0.0	0.00	0.0	0.0
008	Douglas-fir seedling	DF6			112.0	0.1	0.00	0.0	0.0
008	Douglas-fir sapling	DF7			35.0	0.0	0.60	21.0	0.0
008	Douglas-fir pole	DF8			13.0	0.0	0.40	5.2	0.0
008	Douglas-fir mature	DF9			5,540.0	4.7	0.30	1,662.0	1.4
008	Grass	GR			645.0	0.5	0.00	0.0	0.0
008	Grass/brush	GRB			500.0	0.4	0.00	0.0	0.0
008	Grass/forb	GRF			3,310.0	2.8	0.00	0.0	0.0
008	Grass/sage	GRS			26.0	0.0	0.00	0.0	0.0
008	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
008	Lodgepole non-stocked	LP5			3,873.0	3.3	0.00	0.0	0.0
008	Lodgepole seedling	LP6			11,474.0	9.7	0.00	0.0	0.0
008	Lodgepole sapling	LP7			7,362.0	6.2	0.60	4,417.2	3.7
008	Lodgepole pole	LP8			8,092.0	6.8	0.40	3,236.8	2.7
008	Lodgepole mature	LP9			28,166.0	23.8	0.40	11,266.4	9.5
008	Meadow	M			0.0	0.0	0.00	0.0	0.0
008	Mountain Brush	MB			53.0	0.0	0.00	0.0	0.0
008	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
008	Mixed con. seedling	MX36			608.0	0.5	0.00	0.0	0.0
008	Mixed con. sapling	MX37			158.0	0.1	0.60	94.8	0.1
008	Mixed con. pole	MX38			138.0	0.1	0.40	55.2	0.0
008	Mixed con. mature	MX39			7,770.0	6.6	0.30	2,331.0	2.0
008	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
008	Mixed con. non-stocked	MX5			28.0	0.0	0.00	0.0	0.0
008	Mixed con. seedling	MX6			98.0	0.1	0.00	0.0	0.0
008	Mixed con. sapling	MX7			45.0	0.0	0.60	27.0	0.0
008	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
008	Mixed con. mature	MX9			21,004.0	17.7	0.30	6,301.2	5.3
008	Non-commercial Aspen	NAS			698.0	0.6	0.10	69.8	0.1
008	Non-commercial D.Fir	NDF			418.0	0.4	0.30	125.4	0.1
008	Non-commercial LP	NLP			33.0	0.0	0.40	13.2	0.0
008	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
008	Non-commercial MX	NMX			3,010.0	2.5	0.30	903.0	0.8
008	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
008	Private/other agency	NUS			34,908.0	29.5	0.00	0.0	0.0
008	Rock	R			1,217.0	1.0	0.00	0.0	0.0
008	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
008	Spruce/Fir seedling	SF6			1.0	0.0	0.00	0.0	0.0
008	Spruce/Fir sapling	SF7			62.0	0.1	0.60	37.2	0.0
008	Spruce/Fir Pole	SF8			37.0	0.0	0.60	22.2	0.0
008	Spruce/Fir mature	SF9			1,238.0	1.0	0.60	742.8	0.6
008	Tall sage/grass	TSG			8,937.0	7.6	0.00	0.0	0.0
008	Tall sage/mtn. brush	TSM			12.0	0.0	0.00	0.0	0.0
008	Undefined/unknown	UD			5.0	0.0	0.00	0.0	0.0
008	Willow	W			0.0	0.0	0.00	0.0	0.0
008	Water	WA			1,164.0	1.0	0.00	0.0	0.0
008	Whitebark Pine mature	WB9			25.0	0.0	0.60	15.0	0.0
008	Total (includes NUS acres)		NA	NA	153,252.0				
008	Nat'l Forest Acres		ERR	ERR	118,344.0	100.0		31,602.6	26.7
008	Nat'l Forest Square Miles		ERR	ERR	184.9				

Wtrshed	Vegetation	Veg.			Total	Percent of	Hiding Cover	Hiding Cover	Percent Hiding

No.	Description	Code	Acres	Acres	Acres	Wtrshed	Value	Acres	Cover
009A	Aspen non-stocked	AS5			23.0	0.0	0.00	0.0	0.0
009A	Aspen seedling	AS6			53.0	0.1	0.00	0.0	0.0
009A	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
009A	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
009A	Aspen mature	AS9			912.0	1.5	0.10	91.2	0.1
009A	First entry Douglas-fir	1DF9			365.0	0.6	0.00	0.0	0.0
009A	Douglas-fir non-stocked	DF5			639.0	1.0	0.00	0.0	0.0
009A	Douglas-fir seedling	DF6			229.0	0.4	0.00	0.0	0.0
009A	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
009A	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
009A	Douglas-fir mature	DF9			19,352.0	31.5	0.30	5,805.6	9.4
009A	Grass	GR			68.0	0.1	0.00	0.0	0.0
009A	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0
009A	Grass/forb	GRF			4,088.0	6.6	0.00	0.0	0.0
009A	Grass/sage	GRS			18.0	0.0	0.00	0.0	0.0
009A	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
009A	Lodgepole non-stocked	LP5			280.0	0.5	0.00	0.0	0.0
009A	Lodgepole seedling	LP6			2,837.0	4.6	0.00	0.0	0.0
009A	Lodgepole sapling	LP7			1,197.0	1.9	0.60	718.2	1.2
009A	Lodgepole pole	LP8			94.0	0.2	0.40	37.6	0.1
009A	Lodgepole mature	LP9			4,260.0	6.9	0.40	1,704.0	2.8
009A	Meadow	M			0.0	0.0	0.00	0.0	0.0
009A	Mountain Brush	MB			37.0	0.1	0.00	0.0	0.0
009A	Mixed con. non-stocked	MX35			149.0	0.2	0.00	0.0	0.0
009A	Mixed con. seedling	MX36			276.0	0.4	0.00	0.0	0.0
009A	Mixed con. sapling	MX37			91.0	0.1	0.60	54.6	0.1
009A	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
009A	Mixed con. mature	MX39			7,285.0	11.8	0.30	2,185.5	3.6
009A	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
009A	Mixed con. non-stocked	MX5			132.0	0.2	0.00	0.0	0.0
009A	Mixed con. seedling	MX6			282.0	0.5	0.00	0.0	0.0
009A	Mixed con. sapling	MX7			52.0	0.1	0.60	31.2	0.1
009A	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
009A	Mixed con. mature	MX9			5,446.0	8.9	0.30	1,633.8	2.7
009A	Non-commercial Aspen	NAS			72.0	0.1	0.10	7.2	0.0
009A	Non-commercial D.Fir	NDF			5,375.0	8.7	0.30	1,612.5	2.6
009A	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
009A	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
009A	Non-commercial MX	NMX			1,263.0	2.1	0.30	378.9	0.6
009A	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
009A	Private/other agency	NUS			0.0	0.0	0.00	0.0	0.0
009A	Rock	R			75.0	0.1	0.00	0.0	0.0
009A	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
009A	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
009A	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
009A	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
009A	Spruce/Fir mature	SF9			261.0	0.4	0.60	156.6	0.3
009A	Tall sage/grass	TSG			5,693.0	9.3	0.00	0.0	0.0
009A	Tall sage/mtn. brush	TSM			83.0	0.1	0.00	0.0	0.0
009A	Undefined/unknown	UD			7.0	0.0	0.00	0.0	0.0
009A	Willow	W			0.0	0.0	0.00	0.0	0.0
009A	Water	WA			513.0	0.8	0.00	0.0	0.0
009A	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
009A	Total (includes NUS acres)		NA	NA	61,507.0				
009A	Nat'l Forest Acres		ERR	ERR	61,507.0	100.0		14,416.9	23.4
009A	Nat'l Forest Square Miles		ERR	ERR	96.1				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
009B	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
009B	Aspen seedling	AS6			63.0	0.2	0.00	0.0	0.0
009B	Aspen sapling	AS7			29.0	0.1	0.60	17.4	0.0
009B	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
009B	Aspen mature	AS9			299.0	0.7	0.10	29.9	0.1
009B	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
009B	Douglas-fir non-stocked	DF5			5.0	0.0	0.00	0.0	0.0
009B	Douglas-fir seedling	DF6			38.0	0.1	0.00	0.0	0.0
009B	Douglas-fir sapling	DF7			68.0	0.2	0.60	40.8	0.1
009B	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
009B	Douglas-fir mature	DF9			2,199.0	5.5	0.30	659.7	1.6
009B	Grass	GR			1,343.0	3.3	0.00	0.0	0.0
009B	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0

009B	Grass/forb	GRF			0.0	0.0	0.00	0.0	0.0
009B	Grass/sage	GRS			23.0	0.1	0.00	0.0	0.0
009B	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
009B	Lodgepole non-stocked	LP5			1,502.0	3.7	0.00	0.0	0.0
009B	Lodgepole seedling	LP6			4,300.0	10.7	0.00	0.0	0.0
009B	Lodgepole sapling	LP7			2,562.0	6.4	0.60	1,537.2	3.8
009B	Lodgepole pole	LP8			2,977.0	7.4	0.40	1,190.8	3.0
009B	Lodgepole mature	LP9			11,879.0	29.5	0.40	4,751.6	11.8
009B	Meadow	M			0.0	0.0	0.00	0.0	0.0
009B	Mountain Brush	MB			29.0	0.1	0.00	0.0	0.0
009B	Mixed con. non-stocked	MX35			20.0	0.0	0.00	0.0	0.0
009B	Mixed con. seedling	MX36			137.0	0.3	0.00	0.0	0.0
009B	Mixed con. sapling	MX37			115.0	0.3	0.60	69.0	0.2
009B	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
009B	Mixed con. mature	MX39			500.0	1.2	0.30	150.0	0.4
009B	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
009B	Mixed con. non-stocked	MX5			39.0	0.1	0.00	0.0	0.0
009B	Mixed con. seedling	MX6			559.0	1.4	0.00	0.0	0.0
009B	Mixed con. sapling	MX7			199.0	0.5	0.60	119.4	0.3
009B	Mixed con. pole	MX8			24.0	0.1	0.40	9.6	0.0
009B	Mixed con. mature	MX9			5,503.0	13.7	0.30	1,650.9	4.1
009B	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
009B	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
009B	Non-commercial LP	NLP			710.0	1.8	0.40	284.0	0.7
009B	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
009B	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
009B	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
009B	Private/other agency	NUS			0.0	0.0	0.00	0.0	0.0
009B	Rock	R			144.0	0.4	0.00	0.0	0.0
009B	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
009B	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
009B	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
009B	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
009B	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
009B	Tall sage/grass	TSG			3,186.0	7.9	0.00	0.0	0.0
009B	Tall sage/mtn. brush	TSM			27.0	0.1	0.00	0.0	0.0
009B	Undefined/unknown	UD			5.0	0.0	0.00	0.0	0.0
009B	Willow	W			0.0	0.0	0.00	0.0	0.0
009B	Water	WA			1,783.0	4.4	0.00	0.0	0.0
009B	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
009B	Total (includes NUS acres)		NA	NA	40,267.0				
009B	Nat'l Forest Acres		ERR	ERR	40,267.0	100.0		10,510.3	26.1
009B	Nat'l Forest Square Miles		ERR	ERR	62.9				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
010	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
010	Aspen seedling	AS6			31.0	0.1	0.00	0.0	0.0
010	Aspen sapling	AS7			0.0	0.0	0.60	0.0	0.0
010	Aspen pole	AS8			0.0	0.0	0.15	0.0	0.0
010	Aspen mature	AS9			3.0	0.0	0.10	0.3	0.0
010	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
010	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
010	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
010	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
010	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
010	Douglas-fir mature	DF9			56.0	0.1	0.30	16.8	0.0
010	Grass	GR			0.0	0.0	0.00	0.0	0.0
010	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0
010	Grass/forb	GRF			0.0	0.0	0.00	0.0	0.0
010	Grass/sage	GRS			0.0	0.0	0.00	0.0	0.0
010	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
010	Lodgepole non-stocked	LP5			3,777.0	8.6	0.00	0.0	0.0
010	Lodgepole seedling	LP6			13,084.0	29.8	0.00	0.0	0.0
010	Lodgepole sapling	LP7			6,589.0	15.0	0.60	3,953.4	9.0
010	Lodgepole pole	LP8			5,371.0	12.2	0.40	2,148.4	4.9
010	Lodgepole mature	LP9			11,515.0	26.2	0.40	4,606.0	10.5
010	Meadow	M			0.0	0.0	0.00	0.0	0.0
010	Mountain Brush	MB			15.0	0.0	0.00	0.0	0.0
010	Mixed con. non-stocked	MX35			19.0	0.0	0.00	0.0	0.0
010	Mixed con. seedling	MX36			69.0	0.2	0.00	0.0	0.0
010	Mixed con. sapling	MX37			23.0	0.1	0.60	13.8	0.0
010	Mixed con. pole	MX38			90.0	0.2	0.40	36.0	0.1
010	Mixed con. mature	MX39			542.0	1.2	0.30	162.6	0.4

010	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
010	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
010	Mixed con. seedling	MX6			32.0	0.1	0.00	0.0	0.0
010	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
010	Mixed con. pole	MX8			3.0	0.0	0.40	1.2	0.0
010	Mixed con. mature	MX9			2,112.0	4.8	0.30	633.6	1.4
010	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
010	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
010	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
010	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
010	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
010	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
010	Private/other agency	NUS			289.0	0.7	0.00	0.0	0.0
010	Rock	R			42.0	0.1	0.00	0.0	0.0
010	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
010	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
010	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
010	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
010	Spruce/Fir mature	SF9			13.0	0.0	0.60	7.8	0.0
010	Tall sage/grass	TSG			0.0	0.0	0.00	0.0	0.0
010	Tall sage/mtn. brush	TSM			0.0	0.0	0.00	0.0	0.0
010	Undefined/unknown	UD			1.0	0.0	0.00	0.0	0.0
010	Willow	W			0.0	0.0	0.00	0.0	0.0
010	Water	WA			519.0	1.2	0.00	0.0	0.0
010	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
010	Total (includes NUS acres)		NA	NA	44,195.0				
010	Nat'l Forest Acres		ERR	ERR	43,906.0	100.0		11,579.9	26.4
010	Nat'l Forest Square Miles		ERR	ERR	68.6				

Wtrshed No.	Vegetation Description	Veg. Code	D-2 Acres	D-3 Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
011	Aspen non-stocked	AS5	100.0	0.0	100.0	0.1	0.00	0.0	0.0
011	Aspen seedling	AS6	71.0	334.0	405.0	0.3	0.00	0.0	0.0
011	Aspen sapling	AS7	0.0	74.0	74.0	0.1	0.60	44.4	0.0
011	Aspen pole	AS8	240.0	0.0	240.0	0.2	0.15	36.0	0.0
011	Aspen mature	AS9	381.0	142.0	523.0	0.4	0.10	52.3	0.0
011	First entry Douglas-fir	1DF9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Douglas-fir non-stocked	DF5	14.0	0.0	14.0	0.0	0.00	0.0	0.0
011	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
011	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
011	Douglas-fir mature	DF9	810.0	4,166.0	4,976.0	4.2	0.30	1,492.8	1.3
011	Grass	GR	1,818.0	770.0	2,588.0	2.2	0.00	0.0	0.0
011	Grass/brush	GRB	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Grass/forb	GRF	187.0	71.0	258.0	0.2	0.00	0.0	0.0
011	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
011	Lodgepole non-stocked	LP5	1,715.0	8,407.0	10,122.0	8.5	0.00	0.0	0.0
011	Lodgepole seedling	LP6	5,666.0	20,139.0	25,805.0	21.8	0.00	0.0	0.0
011	Lodgepole sapling	LP7	1,316.0	8,556.0	9,872.0	8.3	0.60	5,923.2	5.0
011	Lodgepole pole	LP8	2,122.0	668.0	2,790.0	2.4	0.40	1,116.0	0.9
011	Lodgepole mature	LP9	13,350.0	28,389.0	41,739.0	35.2	0.40	16,695.6	14.1
011	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Mountain Brush	MB	56.0	226.0	282.0	0.2	0.00	0.0	0.0
011	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Mixed con. seedling	MX36	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
011	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
011	Mixed con. mature	MX39	29.0	292.0	321.0	0.3	0.30	96.3	0.1
011	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Mixed con. non-stocked	MX5	0.0	78.0	78.0	0.1	0.00	0.0	0.0
011	Mixed con. seedling	MX6	361.0	468.0	829.0	0.7	0.00	0.0	0.0
011	Mixed con. sapling	MX7	185.0	561.0	746.0	0.6	0.60	447.6	0.4
011	Mixed con. pole	MX8	0.0	16.0	16.0	0.0	0.40	6.4	0.0
011	Mixed con. mature	MX9	2,214.0	7,691.0	9,905.0	8.4	0.30	2,971.5	2.5
011	Non-commercial Aspen	NAS	35.0	0.0	35.0	0.0	0.10	3.5	0.0
011	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
011	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
011	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
011	Non-commercial MX	NMX	0.0	0.0	0.0	0.0	0.30	0.0	0.0
011	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
011	Private/other agency	NUS	923.0	19.0	942.0	0.8	0.00	0.0	0.0
011	Rock	R	174.0	109.0	283.0	0.2	0.00	0.0	0.0
011	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0

011	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
011	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
011	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
011	Tall sage/grass	TSG	1,911.0	2,880.0	4,791.0	4.0	0.00	0.0	0.0
011	Tall sage/mtn. brush	TSM	2.0	37.0	39.0	0.0	0.00	0.0	0.0
011	Undefined/unknown	UD	0.0	29.0	29.0	0.0	0.00	0.0	0.0
011	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
011	Water	WA	1,078.0	627.0	1,705.0	1.4	0.00	0.0	0.0
011	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
011	Total (includes NUS acres)		34,758.0	84,749.0	119,507.0				
011	Nat'l Forest Acres		33,835.0	84,730.0	118,565.0	100.0		28,885.6	24.4
011	Nat'l Forest Square Miles		52.9	132.4	185.3				

Wtrshed No.	Vegetation Description	Veg. Code	D-2 Acres	D-3 Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
012	Aspen non-stocked	AS5	0.0	29.0	29.0	0.0	0.00	0.0	0.0
012	Aspen seedling	AS6	0.0	863.0	863.0	1.0	0.00	0.0	0.0
012	Aspen sapling	AS7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
012	Aspen pole	AS8	5.0	0.0	5.0	0.0	0.15	0.8	0.0
012	Aspen mature	AS9	0.0	832.0	832.0	1.0	0.10	83.2	0.1
012	First entry Douglas-fir	1DF9	0.0	27.0	27.0	0.0	0.00	0.0	0.0
012	Douglas-fir non-stocked	DF5	0.0	118.0	118.0	0.1	0.00	0.0	0.0
012	Douglas-fir seedling	DF6	0.0	36.0	36.0	0.0	0.00	0.0	0.0
012	Douglas-fir sapling	DF7	0.0	12.0	12.0	0.0	0.60	7.2	0.0
012	Douglas-fir pole	DF8	0.0	53.0	53.0	0.1	0.40	21.2	0.0
012	Douglas-fir mature	DF9	49.0	3,654.0	3,703.0	4.4	0.30	1,110.9	1.3
012	Grass	GR	2.0	46.0	48.0	0.1	0.00	0.0	0.0
012	Grass/brush	GRB	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Grass/forb	GRF	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
012	Lodgepole non-stocked	LP5	915.0	6,300.0	7,215.0	8.6	0.00	0.0	0.0
012	Lodgepole seedling	LP6	1,727.0	14,752.0	16,479.0	19.7	0.00	0.0	0.0
012	Lodgepole sapling	LP7	862.0	5,154.0	6,016.0	7.2	0.60	3,609.6	4.3
012	Lodgepole pole	LP8	610.0	3,498.0	4,108.0	4.9	0.40	1,643.2	2.0
012	Lodgepole mature	LP9	2,296.0	30,216.0	32,512.0	38.8	0.40	13,004.8	15.5
012	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Mountain Brush	MB	0.0	314.0	314.0	0.4	0.00	0.0	0.0
012	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Mixed con. seedling	MX36	20.0	0.0	20.0	0.0	0.00	0.0	0.0
012	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
012	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
012	Mixed con. mature	MX39	118.0	72.0	190.0	0.2	0.30	57.0	0.1
012	First entry mixed con.	1MX9	0.0	21.0	21.0	0.0	0.00	0.0	0.0
012	Mixed con. non-stocked	MX5	0.0	53.0	53.0	0.1	0.00	0.0	0.0
012	Mixed con. seedling	MX6	40.0	169.0	209.0	0.2	0.00	0.0	0.0
012	Mixed con. sapling	MX7	54.0	45.0	99.0	0.1	0.60	59.4	0.1
012	Mixed con. pole	MX8	0.0	27.0	27.0	0.0	0.40	10.8	0.0
012	Mixed con. mature	MX9	874.0	9,345.0	10,219.0	12.2	0.30	3,065.7	3.7
012	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
012	Non-commercial D.Fir	NDF	0.0	70.0	70.0	0.1	0.30	21.0	0.0
012	Non-commercial LP	NLP	0.0	54.0	54.0	0.1	0.40	21.6	0.0
012	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
012	Non-commercial MX	NMX	0.0	0.0	0.0	0.0	0.30	0.0	0.0
012	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
012	Private/other agency	NUS	3,159.0	348.0	3,507.0	4.2	0.00	0.0	0.0
012	Rock	R	2.0	69.0	71.0	0.1	0.00	0.0	0.0
012	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
012	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
012	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
012	Tall sage/grass	TSG	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Tall sage/mtn. brush	TSM	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Undefined/unknown	UD	0.0	20.0	20.0	0.0	0.00	0.0	0.0
012	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
012	Water	WA	11.0	306.0	317.0	0.4	0.00	0.0	0.0
012	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
012	Total (includes NUS acres)		10,744.0	76,503.0	87,247.0				
012	Nat'l Forest Acres		7,585.0	76,155.0	83,740.0	100.0		22,716.4	27.1
012	Nat'l Forest Square Miles		11.9	119.0	130.8				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
013	Aspen non-stocked	AS5	39.0	0.0	39.0	0.1	0.00	0.0	0.0
013	Aspen seedling	AS6	419.0	0.0	419.0	0.9	0.00	0.0	0.0
013	Aspen sapling	AS7	275.0	0.0	275.0	0.6	0.60	165.0	0.4
013	Aspen pole	AS8	19.0	0.0	19.0	0.0	0.15	2.9	0.0
013	Aspen mature	AS9	1,040.0	0.0	1,040.0	2.2	0.10	104.0	0.2
013	First entry Douglas-fir	1DF9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Douglas-fir non-stocked	DF5	146.0	0.0	146.0	0.3	0.00	0.0	0.0
013	Douglas-fir seedling	DF6	2.0	0.0	2.0	0.0	0.00	0.0	0.0
013	Douglas-fir sapling	DF7	21.0	0.0	21.0	0.0	0.60	12.6	0.0
013	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
013	Douglas-fir mature	DF9	1,776.0	12.0	1,788.0	3.8	0.30	536.4	1.1
013	Grass	GR	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Grass/brush	GRB	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Grass/forb	GRF	8.0	0.0	8.0	0.0	0.00	0.0	0.0
013	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
013	Lodgepole non-stocked	LP5	2,796.0	72.0	2,868.0	6.1	0.00	0.0	0.0
013	Lodgepole seedling	LP6	5,832.0	17.0	5,849.0	12.5	0.00	0.0	0.0
013	Lodgepole sapling	LP7	5,917.0	11.0	5,928.0	12.7	0.60	3,556.8	7.6
013	Lodgepole pole	LP8	453.0	0.0	453.0	1.0	0.40	181.2	0.4
013	Lodgepole mature	LP9	20,196.0	183.0	20,379.0	43.5	0.40	8,151.6	17.4
013	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Mountain Brush	MB	84.0	0.0	84.0	0.2	0.00	0.0	0.0
013	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Mixed con. seedling	MX36	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
013	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
013	Mixed con. mature	MX39	0.0	0.0	0.0	0.0	0.30	0.0	0.0
013	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Mixed con. non-stocked	MX5	341.0	0.0	341.0	0.7	0.00	0.0	0.0
013	Mixed con. seedling	MX6	76.0	0.0	76.0	0.2	0.00	0.0	0.0
013	Mixed con. sapling	MX7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
013	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
013	Mixed con. mature	MX9	6,265.0	3.0	6,268.0	13.4	0.30	1,880.4	4.0
013	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
013	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
013	Non-commercial LP	NLP	2.0	0.0	2.0	0.0	0.40	0.8	0.0
013	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
013	Non-commercial MX	NMX	0.0	0.0	0.0	0.0	0.30	0.0	0.0
013	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
013	Private/other agency	NUS	2.0	0.0	2.0	0.0	0.00	0.0	0.0
013	Rock	R	21.0	0.0	21.0	0.0	0.00	0.0	0.0
013	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
013	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
013	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
013	Tall sage/grass	TSG	2.0	0.0	2.0	0.0	0.00	0.0	0.0
013	Tall sage/mtn. brush	TSM	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Undefined/unknown	UD	524.0	0.0	524.0	1.1	0.00	0.0	0.0
013	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
013	Water	WA	250.0	0.0	250.0	0.5	0.00	0.0	0.0
013	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
013	Total (includes NUS acres)		46,506.0	298.0	46,804.0				
013	Nat'l Forest Acres		46,504.0	298.0	46,802.0	100.0		14,591.6	31.2
013	Nat'l Forest Square Miles		72.7	0.5	73.1				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
014/034	Aspen non-stocked	AS5			0.0	0.0	0.00	0.0	0.0
014/034	Aspen seedling	AS6			199.0	0.6	0.00	0.0	0.0
014/034	Aspen sapling	AS7			177.0	0.6	0.60	106.2	0.3
014/034	Aspen pole	AS8			36.0	0.1	0.15	5.4	0.0
014/034	Aspen mature	AS9			947.0	3.1	0.10	94.7	0.3
014/034	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
014/034	Douglas-fir non-stocked	DF5			231.0	0.8	0.00	0.0	0.0
014/034	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
014/034	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0

014/034	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
014/034	Douglas-fir mature	DF9			15,044.0	48.9	0.30	4,513.2	14.7
014/034	Grass	GR			17.0	0.1	0.00	0.0	0.0
014/034	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0
014/034	Grass/forb	GRF			0.0	0.0	0.00	0.0	0.0
014/034	Grass/sage	GRS			0.0	0.0	0.00	0.0	0.0
014/034	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
014/034	Lodgepole non-stocked	LP5			143.0	0.5	0.00	0.0	0.0
014/034	Lodgepole seedling	LP6			484.0	1.6	0.00	0.0	0.0
014/034	Lodgepole sapling	LP7			2,158.0	7.0	0.60	1,294.8	4.2
014/034	Lodgepole pole	LP8			45.0	0.1	0.40	18.0	0.1
014/034	Lodgepole mature	LP9			3,229.0	10.5	0.40	1,291.6	4.2
014/034	Meadow	M			0.0	0.0	0.00	0.0	0.0
014/034	Mountain Brush	MB			187.0	0.6	0.00	0.0	0.0
014/034	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
014/034	Mixed con. seedling	MX36			0.0	0.0	0.00	0.0	0.0
014/034	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
014/034	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
014/034	Mixed con. mature	MX39			6.0	0.0	0.30	1.8	0.0
014/034	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
014/034	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
014/034	Mixed con. seedling	MX6			123.0	0.4	0.00	0.0	0.0
014/034	Mixed con. sapling	MX7			228.0	0.7	0.60	136.8	0.4
014/034	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
014/034	Mixed con. mature	MX9			7,070.0	23.0	0.30	2,121.0	6.9
014/034	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
014/034	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
014/034	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
014/034	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
014/034	Non-commercial MX	NMX			0.0	0.0	0.30	0.0	0.0
014/034	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
014/034	Private/other agency	NUS			84.0	0.3	0.00	0.0	0.0
014/034	Rock	R			9.0	0.0	0.00	0.0	0.0
014/034	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
014/034	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
014/034	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
014/034	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
014/034	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
014/034	Tall sage/grass	TSG			167.0	0.5	0.00	0.0	0.0
014/034	Tall sage/mtn. brush	TSM			2.0	0.0	0.00	0.0	0.0
014/034	Undefined/unknown	UD			265.0	0.9	0.00	0.0	0.0
014/034	Willow	W			0.0	0.0	0.00	0.0	0.0
014/034	Water	WA			0.0	0.0	0.00	0.0	0.0
014/034	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
014/034	Total (includes NUS acres)		NA	NA	30,851.0				
014/034	Nat'l Forest Acres		ERR	ERR	30,767.0	100.0		9,583.5	31.1
014/034	Nat'l Forest Square Miles		ERR	ERR	48.1				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
015	Aspen non-stocked	AS5	19.0	0.1	0.00	0.0	0.0
015	Aspen seedling	AS6	176.0	1.1	0.00	0.0	0.0
015	Aspen sapling	AS7	0.0	0.0	0.60	0.0	0.0
015	Aspen pole	AS8	0.0	0.0	0.15	0.0	0.0
015	Aspen mature	AS9	683.0	4.2	0.10	68.3	0.4
015	First entry Douglas-fir	1DF9	15.0	0.1	0.00	0.0	0.0
015	Douglas-fir non-stocked	DF5	0.0	0.0	0.00	0.0	0.0
015	Douglas-fir seedling	DF6	0.0	0.0	0.00	0.0	0.0
015	Douglas-fir sapling	DF7	0.0	0.0	0.60	0.0	0.0
015	Douglas-fir pole	DF8	0.0	0.0	0.40	0.0	0.0
015	Douglas-fir mature	DF9	308.0	1.9	0.30	92.4	0.6
015	Grass	GR	0.0	0.0	0.00	0.0	0.0
015	Grass/brush	GRB	27.0	0.2	0.00	0.0	0.0
015	Grass/forb	GRF	206.0	1.3	0.00	0.0	0.0
015	Grass/sage	GRS	0.0	0.0	0.00	0.0	0.0
015	Limber Pine mature	LM9	0.0	0.0	0.60	0.0	0.0
015	Lodgepole non-stocked	LP5	269.0	1.6	0.00	0.0	0.0
015	Lodgepole seedling	LP6	2,126.0	13.0	0.00	0.0	0.0
015	Lodgepole sapling	LP7	1,206.0	7.4	0.60	723.6	4.4
015	Lodgepole pole	LP8	27.0	0.2	0.40	10.8	0.1
015	Lodgepole mature	LP9	6,829.0	41.8	0.40	2,731.6	16.7
015	Meadow	M	0.0	0.0	0.00	0.0	0.0
015	Mountain Brush	MB	92.0	0.6	0.00	0.0	0.0
015	Mixed con. non-stocked	MX35	0.0	0.0	0.00	0.0	0.0

015	Mixed con. seedling	MX36			50.0	0.3	0.00	0.0	0.0
015	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
015	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
015	Mixed con. mature	MX39			32.0	0.2	0.30	9.6	0.1
015	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
015	Mixed con. non-stocked	MX5			188.0	1.1	0.00	0.0	0.0
015	Mixed con. seedling	MX6			103.0	0.6	0.00	0.0	0.0
015	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
015	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
015	Mixed con. mature	MX9			3,304.0	20.2	0.30	991.2	6.1
015	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
015	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
015	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
015	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
015	Non-commercial MX	NMX			7.0	0.0	0.30	2.1	0.0
015	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
015	Private/other agency	NUS			6.0	0.0	0.00	0.0	0.0
015	Rock	R			84.0	0.5	0.00	0.0	0.0
015	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
015	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
015	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
015	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
015	Spruce/Fir mature	SF9			0.0	0.0	0.60	0.0	0.0
015	Tall sage/grass	TSG			201.0	1.2	0.00	0.0	0.0
015	Tall sage/mtn. brush	TSM			294.0	1.8	0.00	0.0	0.0
015	Undefined/unknown	UD			63.0	0.4	0.00	0.0	0.0
015	Willow	W			0.0	0.0	0.00	0.0	0.0
015	Water	WA			44.0	0.3	0.00	0.0	0.0
015	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
015	Total (includes NUS acres)		NA	NA	16,359.0				
015	Nat'l Forest Acres		ERR	ERR	16,353.0	100.0		4,629.6	28.3
015	Nat'l Forest Square Miles		ERR	ERR	25.6				

Wtrshed No.	Vegetation Description	Veg. Code	Wyoming Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
015	Aspen non-stocked	AS5	75.0	0.4	0.00	0.0	0.0
015	Aspen seedling	AS6	227.0	1.1	0.00	0.0	0.0
015	Aspen sapling	AS7	58.0	0.3	0.60	34.8	0.2
015	Aspen pole	AS8	0.0	0.0	0.15	0.0	0.0
015	Aspen mature	AS9	448.0	2.1	0.10	44.8	0.2
015	First entry Douglas-fir	1DF9	0.0	0.0	0.00	0.0	0.0
015	Douglas-fir non-stocked	DF5	244.0	1.2	0.00	0.0	0.0
015	Douglas-fir seedling	DF6	0.0	0.0	0.00	0.0	0.0
015	Douglas-fir sapling	DF7	0.0	0.0	0.60	0.0	0.0
015	Douglas-fir pole	DF8	34.0	0.2	0.40	13.6	0.1
015	Douglas-fir mature	DF9	166.0	0.8	0.30	49.8	0.2
015	Grass	GR	58.0	0.3	0.00	0.0	0.0
015	Grass/brush	GRB	6.0	0.0	0.00	0.0	0.0
015	Grass/forb	GRF	1,308.0	6.2	0.00	0.0	0.0
015	Grass/sage	GRS	0.0	0.0	0.00	0.0	0.0
015	Limber Pine mature	LM9	0.0	0.0	0.60	0.0	0.0
015	Lodgepole non-stocked	LP5	1,520.0	7.2	0.00	0.0	0.0
015	Lodgepole seedling	LP6	1,046.0	5.0	0.00	0.0	0.0
015	Lodgepole sapling	LP7	600.0	2.9	0.60	360.0	1.7
015	Lodgepole pole	LP8	27.0	0.1	0.40	10.8	0.1
015	Lodgepole mature	LP9	7,195.0	34.2	0.40	2,878.0	13.7
015	Meadow	M	0.0	0.0	0.00	0.0	0.0
015	Mountain Brush	MB	697.0	3.3	0.00	0.0	0.0
015	Mixed con. non-stocked	MX35	40.0	0.2	0.00	0.0	0.0
015	Mixed con. seedling	MX36	13.0	0.1	0.00	0.0	0.0
015	Mixed con. sapling	MX37	0.0	0.0	0.60	0.0	0.0
015	Mixed con. pole	MX38	0.0	0.0	0.40	0.0	0.0
015	Mixed con. mature	MX39	1,168.0	5.6	0.30	350.4	1.7
015	First entry mixed con.	1MX9	0.0	0.0	0.00	0.0	0.0
015	Mixed con. non-stocked	MX5	187.0	0.9	0.00	0.0	0.0
015	Mixed con. seedling	MX6	0.0	0.0	0.00	0.0	0.0
015	Mixed con. sapling	MX7	48.0	0.2	0.60	28.8	0.1
015	Mixed con. pole	MX8	0.0	0.0	0.40	0.0	0.0
015	Mixed con. mature	MX9	5,275.0	25.1	0.30	1,582.5	7.5
015	Non-commercial Aspen	NAS	0.0	0.0	0.10	0.0	0.0
015	Non-commercial D.Fir	NDF	0.0	0.0	0.30	0.0	0.0
015	Non-commercial LP	NLP	0.0	0.0	0.40	0.0	0.0
015	Non-commercial MX3	NMX3	0.0	0.0	0.30	0.0	0.0
015	Non-commercial MX	NMX	26.0	0.1	0.30	7.8	0.0

015	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
015	Private/other agency	NUS			20.0	0.1	0.00	0.0	0.0
015	Rock	R			8.0	0.0	0.00	0.0	0.0
015	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
015	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
015	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
015	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
015	Spruce/Fir mature	SF9			60.0	0.3	0.60	36.0	0.2
015	Tall sage/grass	TSG			67.0	0.3	0.00	0.0	0.0
015	Tall sage/mtn. brush	TSM			60.0	0.3	0.00	0.0	0.0
015	Undefined/unknown	UD			36.0	0.2	0.00	0.0	0.0
015	Willow	W			0.0	0.0	0.00	0.0	0.0
015	Water	WA			348.0	1.7	0.00	0.0	0.0
015	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
015	Total (includes NUS acres)		NA	NA	21,065.0				
015	Nat'l Forest Acres		ERR	ERR	21,045.0	100.0		5,397.3	25.6
015	Nat'l Forest Square Miles		ERR	ERR	32.9				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
015	Aspen non-stocked	AS5	19.0	75.0	94.0	0.3	0.00	0.0	0.0
015	Aspen seedling	AS6	176.0	227.0	403.0	1.1	0.00	0.0	0.0
015	Aspen sapling	AS7	0.0	58.0	58.0	0.2	0.60	34.8	0.1
015	Aspen pole	AS8	0.0	0.0	0.0	0.0	0.15	0.0	0.0
015	Aspen mature	AS9	683.0	448.0	1,131.0	3.0	0.10	113.1	0.3
015	First entry Douglas-fir	1DF9	15.0	0.0	15.0	0.0	0.00	0.0	0.0
015	Douglas-fir non-stocked	DF5	0.0	244.0	244.0	0.7	0.00	0.0	0.0
015	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
015	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
015	Douglas-fir pole	DF8	0.0	34.0	34.0	0.1	0.40	13.6	0.0
015	Douglas-fir mature	DF9	308.0	166.0	474.0	1.3	0.30	142.2	0.4
015	Grass	GR	0.0	58.0	58.0	0.2	0.00	0.0	0.0
015	Grass/brush	GRB	27.0	6.0	33.0	0.1	0.00	0.0	0.0
015	Grass/forb	GRF	206.0	1,308.0	1,514.0	4.0	0.00	0.0	0.0
015	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
015	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
015	Lodgepole non-stocked	LP5	269.0	1,520.0	1,789.0	4.8	0.00	0.0	0.0
015	Lodgepole seedling	LP6	2,126.0	1,046.0	3,172.0	8.5	0.00	0.0	0.0
015	Lodgepole sapling	LP7	1,206.0	600.0	1,806.0	4.8	0.60	1,083.6	2.9
015	Lodgepole pole	LP8	27.0	27.0	54.0	0.1	0.40	21.6	0.1
015	Lodgepole mature	LP9	6,829.0	7,195.0	14,024.0	37.5	0.40	5,609.6	15.0
015	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
015	Mountain Brush	MB	92.0	697.0	789.0	2.1	0.00	0.0	0.0
015	Mixed con. non-stocked	MX35	0.0	40.0	40.0	0.1	0.00	0.0	0.0
015	Mixed con. seedling	MX36	50.0	13.0	63.0	0.2	0.00	0.0	0.0
015	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
015	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
015	Mixed con. mature	MX39	32.0	1,168.0	1,200.0	3.2	0.30	360.0	1.0
015	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
015	Mixed con. non-stocked	MX5	188.0	187.0	375.0	1.0	0.00	0.0	0.0
015	Mixed con. seedling	MX6	103.0	0.0	103.0	0.3	0.00	0.0	0.0
015	Mixed con. sapling	MX7	0.0	48.0	48.0	0.1	0.60	28.8	0.1
015	Mixed con. pole	MX8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
015	Mixed con. mature	MX9	3,304.0	5,275.0	8,579.0	22.9	0.30	2,573.7	6.9
015	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
015	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
015	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
015	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
015	Non-commercial MX	NMX	7.0	26.0	33.0	0.1	0.30	9.9	0.0
015	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
015	Private/other agency	NUS	6.0	20.0	26.0	0.1	0.00	0.0	0.0
015	Rock	R	84.0	8.0	92.0	0.2	0.00	0.0	0.0
015	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
015	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
015	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
015	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
015	Spruce/Fir mature	SF9	0.0	60.0	60.0	0.2	0.60	36.0	0.1
015	Tall sage/grass	TSG	201.0	67.0	268.0	0.7	0.00	0.0	0.0
015	Tall sage/mtn. brush	TSM	294.0	60.0	354.0	0.9	0.00	0.0	0.0
015	Undefined/unknown	UD	63.0	36.0	99.0	0.3	0.00	0.0	0.0
015	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
015	Water	WA	44.0	348.0	392.0	1.0	0.00	0.0	0.0
015	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0

015	Total (includes NUS acres)	16,359.0	21,065.0	37,424.0				
015	Nat'l Forest Acres	16,353.0	21,045.0	37,398.0	100.0		10,026.9	26.8
015	Nat'l Forest Square Miles	25.6	32.9	58.4				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
016	Aspen non-stocked	AS5	672.0	4.0	0.00	0.0	0.0
016	Aspen seedling	AS6	63.0	0.4	0.00	0.0	0.0
016	Aspen sapling	AS7	23.0	0.1	0.60	13.8	0.1
016	Aspen pole	AS8	0.0	0.0	0.15	0.0	0.0
016	Aspen mature	AS9	1,642.0	9.8	0.10	164.2	1.0
016	First entry Douglas-fir	1DF9	216.0	1.3	0.00	0.0	0.0
016	Douglas-fir non-stocked	DF5	137.0	0.8	0.00	0.0	0.0
016	Douglas-fir seedling	DF6	0.0	0.0	0.00	0.0	0.0
016	Douglas-fir sapling	DF7	13.0	0.1	0.60	7.8	0.0
016	Douglas-fir pole	DF8	0.0	0.0	0.40	0.0	0.0
016	Douglas-fir mature	DF9	1,443.0	8.6	0.30	432.9	2.6
016	Grass	GR	0.0	0.0	0.00	0.0	0.0
016	Grass/brush	GRB	0.0	0.0	0.00	0.0	0.0
016	Grass/forb	GRF	87.0	0.5	0.00	0.0	0.0
016	Grass/sage	GRS	0.0	0.0	0.00	0.0	0.0
016	Limber Pine mature	LM9	0.0	0.0	0.60	0.0	0.0
016	Lodgepole non-stocked	LP5	440.0	2.6	0.00	0.0	0.0
016	Lodgepole seedling	LP6	463.0	2.8	0.00	0.0	0.0
016	Lodgepole sapling	LP7	1,171.0	7.0	0.60	702.6	4.2
016	Lodgepole pole	LP8	71.0	0.4	0.40	28.4	0.2
016	Lodgepole mature	LP9	5,230.0	31.1	0.40	2,092.0	12.5
016	Meadow	M	0.0	0.0	0.00	0.0	0.0
016	Mountain Brush	MB	0.0	0.0	0.00	0.0	0.0
016	Mixed con. non-stocked	MX35	0.0	0.0	0.00	0.0	0.0
016	Mixed con. seedling	MX36	0.0	0.0	0.00	0.0	0.0
016	Mixed con. sapling	MX37	0.0	0.0	0.60	0.0	0.0
016	Mixed con. pole	MX38	0.0	0.0	0.40	0.0	0.0
016	Mixed con. mature	MX39	398.0	2.4	0.30	119.4	0.7
016	First entry mixed con.	1MX9	0.0	0.0	0.00	0.0	0.0
016	Mixed con. non-stocked	MX5	66.0	0.4	0.00	0.0	0.0
016	Mixed con. seedling	MX6	9.0	0.1	0.00	0.0	0.0
016	Mixed con. sapling	MX7	94.0	0.6	0.60	56.4	0.3
016	Mixed con. pole	MX8	30.0	0.2	0.40	12.0	0.1
016	Mixed con. mature	MX9	3,865.0	23.0	0.30	1,159.5	6.9
016	Non-commercial Aspen	NAS	0.0	0.0	0.10	0.0	0.0
016	Non-commercial D.Fir	NDF	0.0	0.0	0.30	0.0	0.0
016	Non-commercial LP	NLP	0.0	0.0	0.40	0.0	0.0
016	Non-commercial MX3	NMX3	0.0	0.0	0.30	0.0	0.0
016	Non-commercial MX	NMX	0.0	0.0	0.30	0.0	0.0
016	Non-commercial SF	NSF	0.0	0.0	0.30	0.0	0.0
016	Private/other agency	NUS	0.0	0.0	0.00	0.0	0.0
016	Rock	R	16.0	0.1	0.00	0.0	0.0
016	Spruce/Fir non-stocked	SF5	0.0	0.0	0.00	0.0	0.0
016	Spruce/Fir seedling	SF6	0.0	0.0	0.00	0.0	0.0
016	Spruce/Fir sapling	SF7	0.0	0.0	0.60	0.0	0.0
016	Spruce/Fir Pole	SF8	0.0	0.0	0.60	0.0	0.0
016	Spruce/Fir mature	SF9	0.0	0.0	0.60	0.0	0.0
016	Tall sage/grass	TSG	184.0	1.1	0.00	0.0	0.0
016	Tall sage/mtn. brush	TSM	41.0	0.2	0.00	0.0	0.0
016	Undefined/unknown	UD	65.0	0.4	0.00	0.0	0.0
016	Willow	W	0.0	0.0	0.00	0.0	0.0
016	Water	WA	361.0	2.1	0.00	0.0	0.0
016	Whitebark Pine mature	WB9	0.0	0.0	0.60	0.0	0.0
016	Total (includes NUS acres)	NA	NA	16,800.0				
016	Nat'l Forest Acres	ERR	ERR	16,800.0	100.0		4,789.0	28.5
016	Nat'l Forest Square Miles	ERR	ERR	26.3				

Wtrshed No.	Vegetation Description	Veg. Code	Wyoming Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
016	Aspen non-stocked	AS5	0.0	0.0	0.00	0.0	0.0
016	Aspen seedling	AS6	51.0	0.1	0.00	0.0	0.0
016	Aspen sapling	AS7	0.0	0.0	0.60	0.0	0.0
016	Aspen pole	AS8	20.0	0.0	0.15	3.0	0.0
016	Aspen mature	AS9	1,109.0	2.6	0.10	110.9	0.3

016	First entry Douglas-fir	1DF9			0.0	0.0	0.00	0.0	0.0
016	Douglas-fir non-stocked	DF5			0.0	0.0	0.00	0.0	0.0
016	Douglas-fir seedling	DF6			0.0	0.0	0.00	0.0	0.0
016	Douglas-fir sapling	DF7			0.0	0.0	0.60	0.0	0.0
016	Douglas-fir pole	DF8			0.0	0.0	0.40	0.0	0.0
016	Douglas-fir mature	DF9			370.0	0.9	0.30	111.0	0.3
016	Grass	GR			14.0	0.0	0.00	0.0	0.0
016	Grass/brush	GRB			0.0	0.0	0.00	0.0	0.0
016	Grass/forb	GRF			2,782.0	6.6	0.00	0.0	0.0
016	Grass/sage	GRS			0.0	0.0	0.00	0.0	0.0
016	Limber Pine mature	LM9			0.0	0.0	0.60	0.0	0.0
016	Lodgepole non-stocked	LP5			406.0	1.0	0.00	0.0	0.0
016	Lodgepole seedling	LP6			106.0	0.3	0.00	0.0	0.0
016	Lodgepole sapling	LP7			169.0	0.4	0.60	101.4	0.2
016	Lodgepole pole	LP8			35.0	0.1	0.40	14.0	0.0
016	Lodgepole mature	LP9			21,743.0	51.3	0.40	8,697.2	20.5
016	Meadow	M			0.0	0.0	0.00	0.0	0.0
016	Mountain Brush	MB			1,220.0	2.9	0.00	0.0	0.0
016	Mixed con. non-stocked	MX35			0.0	0.0	0.00	0.0	0.0
016	Mixed con. seedling	MX36			21.0	0.0	0.00	0.0	0.0
016	Mixed con. sapling	MX37			0.0	0.0	0.60	0.0	0.0
016	Mixed con. pole	MX38			0.0	0.0	0.40	0.0	0.0
016	Mixed con. mature	MX39			1,661.0	3.9	0.30	498.3	1.2
016	First entry mixed con.	1MX9			0.0	0.0	0.00	0.0	0.0
016	Mixed con. non-stocked	MX5			0.0	0.0	0.00	0.0	0.0
016	Mixed con. seedling	MX6			24.0	0.1	0.00	0.0	0.0
016	Mixed con. sapling	MX7			0.0	0.0	0.60	0.0	0.0
016	Mixed con. pole	MX8			0.0	0.0	0.40	0.0	0.0
016	Mixed con. mature	MX9			10,804.0	25.5	0.30	3,241.2	7.6
016	Non-commercial Aspen	NAS			0.0	0.0	0.10	0.0	0.0
016	Non-commercial D.Fir	NDF			0.0	0.0	0.30	0.0	0.0
016	Non-commercial LP	NLP			0.0	0.0	0.40	0.0	0.0
016	Non-commercial MX3	NMX3			0.0	0.0	0.30	0.0	0.0
016	Non-commercial MX	NMX			106.0	0.3	0.30	31.8	0.1
016	Non-commercial SF	NSF			0.0	0.0	0.30	0.0	0.0
016	Private/other agency	NUS			137.0	0.3	0.00	0.0	0.0
016	Rock	R			14.0	0.0	0.00	0.0	0.0
016	Spruce/Fir non-stocked	SF5			0.0	0.0	0.00	0.0	0.0
016	Spruce/Fir seedling	SF6			0.0	0.0	0.00	0.0	0.0
016	Spruce/Fir sapling	SF7			0.0	0.0	0.60	0.0	0.0
016	Spruce/Fir Pole	SF8			0.0	0.0	0.60	0.0	0.0
016	Spruce/Fir mature	SF9			839.0	2.0	0.60	503.4	1.2
016	Tall sage/grass	TSG			75.0	0.2	0.00	0.0	0.0
016	Tall sage/mtn. brush	TSM			30.0	0.1	0.00	0.0	0.0
016	Undefined/unknown	UD			44.0	0.1	0.00	0.0	0.0
016	Willow	W			0.0	0.0	0.00	0.0	0.0
016	Water	WA			754.0	1.8	0.00	0.0	0.0
016	Whitebark Pine mature	WB9			0.0	0.0	0.60	0.0	0.0
016	Total (includes NUS acres)		NA	NA	42,534.0				
016	Nat'l Forest Acres		ERR	ERR	42,397.0	100.0		13,312.2	31.4
016	Nat'l Forest Square Miles		ERR	ERR	66.2				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Percent of Wtrshed	Hiding Cover Value	Hiding Cover Acres	Percent Hiding Cover
016	Aspen non-stocked	AS5	672.0	0.0	672.0	1.1	0.00	0.0	0.0
016	Aspen seedling	AS6	63.0	51.0	114.0	0.2	0.00	0.0	0.0
016	Aspen sapling	AS7	23.0	0.0	23.0	0.0	0.60	13.8	0.0
016	Aspen pole	AS8	0.0	20.0	20.0	0.0	0.15	3.0	0.0
016	Aspen mature	AS9	1,642.0	1,109.0	2,751.0	4.6	0.10	275.1	0.5
016	First entry Douglas-fir	1DF9	216.0	0.0	216.0	0.4	0.00	0.0	0.0
016	Douglas-fir non-stocked	DF5	137.0	0.0	137.0	0.2	0.00	0.0	0.0
016	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
016	Douglas-fir sapling	DF7	13.0	0.0	13.0	0.0	0.60	7.8	0.0
016	Douglas-fir pole	DF8	0.0	0.0	0.0	0.0	0.40	0.0	0.0
016	Douglas-fir mature	DF9	1,443.0	370.0	1,813.0	3.1	0.30	543.9	0.9
016	Grass	GR	0.0	14.0	14.0	0.0	0.00	0.0	0.0
016	Grass/brush	GRB	0.0	0.0	0.0	0.0	0.00	0.0	0.0
016	Grass/forb	GRF	87.0	2,782.0	2,869.0	4.8	0.00	0.0	0.0
016	Grass/sage	GRS	0.0	0.0	0.0	0.0	0.00	0.0	0.0
016	Limber Pine mature	LM9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
016	Lodgepole non-stocked	LP5	440.0	406.0	846.0	1.4	0.00	0.0	0.0
016	Lodgepole seedling	LP6	463.0	106.0	569.0	1.0	0.00	0.0	0.0
016	Lodgepole sapling	LP7	1,171.0	169.0	1,340.0	2.3	0.60	804.0	1.4
016	Lodgepole pole	LP8	71.0	35.0	106.0	0.2	0.40	42.4	0.1

016	Lodgepole mature	LP9	5,230.0	21,743.0	26,973.0	45.6	0.40	10,789.2	18.2
016	Meadow	M	0.0	0.0	0.0	0.0	0.00	0.0	0.0
016	Mountain Brush	MB	0.0	1,220.0	1,220.0	2.1	0.00	0.0	0.0
016	Mixed con. non-stocked	MX35	0.0	0.0	0.0	0.0	0.00	0.0	0.0
016	Mixed con. seedling	MX36	0.0	21.0	21.0	0.0	0.00	0.0	0.0
016	Mixed con. sapling	MX37	0.0	0.0	0.0	0.0	0.60	0.0	0.0
016	Mixed con. pole	MX38	0.0	0.0	0.0	0.0	0.40	0.0	0.0
016	Mixed con. mature	MX39	398.0	1,661.0	2,059.0	3.5	0.30	617.7	1.0
016	First entry mixed con.	1MX9	0.0	0.0	0.0	0.0	0.00	0.0	0.0
016	Mixed con. non-stocked	MX5	66.0	0.0	66.0	0.1	0.00	0.0	0.0
016	Mixed con. seedling	MX6	9.0	24.0	33.0	0.1	0.00	0.0	0.0
016	Mixed con. sapling	MX7	94.0	0.0	94.0	0.2	0.60	56.4	0.1
016	Mixed con. pole	MX8	30.0	0.0	30.0	0.1	0.40	12.0	0.0
016	Mixed con. mature	MX9	3,865.0	10,804.0	14,669.0	24.8	0.30	4,400.7	7.4
016	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.0	0.10	0.0	0.0
016	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
016	Non-commercial LP	NLP	0.0	0.0	0.0	0.0	0.40	0.0	0.0
016	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.0	0.30	0.0	0.0
016	Non-commercial MX	NMX	0.0	106.0	106.0	0.2	0.30	31.8	0.1
016	Non-commercial SF	NSF	0.0	0.0	0.0	0.0	0.30	0.0	0.0
016	Private/other agency	NUS	0.0	137.0	137.0	0.2	0.00	0.0	0.0
016	Rock	R	16.0	14.0	30.0	0.1	0.00	0.0	0.0
016	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.0	0.00	0.0	0.0
016	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.0	0.00	0.0	0.0
016	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.0	0.60	0.0	0.0
016	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.0	0.60	0.0	0.0
016	Spruce/Fir mature	SF9	0.0	839.0	839.0	1.4	0.60	503.4	0.9
016	Tall sage/grass	TSG	184.0	75.0	259.0	0.4	0.00	0.0	0.0
016	Tall sage/mtn. brush	TSM	41.0	30.0	71.0	0.1	0.00	0.0	0.0
016	Undefined/unknown	UD	65.0	44.0	109.0	0.2	0.00	0.0	0.0
016	Willow	W	0.0	0.0	0.0	0.0	0.00	0.0	0.0
016	Water	WA	361.0	754.0	1,115.0	1.9	0.00	0.0	0.0
016	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.0	0.60	0.0	0.0
016	Total (includes NUS acres)		16,800.0	42,534.0	59,334.0				
016	Nat'l Forest Acres		16,800.0	42,397.0	59,197.0	100.0		18,101.2	30.6
016	Nat'l Forest Square Miles		26.3	66.2	92.5				

ATTACHMENT D

Additional Information about Hiding Cover Relationships

Additional information and discussion on elk hiding cover relationships.

In addition to analyzing hiding cover for the 400+ Forest inventory plots, we used the HIDE2 model to analyze hiding cover relationships for evenaged stands, looking at stand age and/or size class and tree densities (number of trees per acre). Many of the natural and managed timber stands on the Forest are considered evenaged stands, and we wanted to gain some more insight into hiding cover relationships for these types of conditions.

Figure 1 shows hiding cover for sapling size stands at different tree densities. For this analysis, we used an average 2 inch dbh size tree with a 36 inch crown width. Full hiding cover (90%) is achieved at about 225 trees per acre. All of our analysis to date shows that sapling stands provide the best hiding cover.

Figure 2 shows hiding cover for pole size stands at different tree densities. For this analysis, we used an average 5 inch dbh size tree with no crown widths that contribute to elk hiding cover. Most pole stands prune their lower branches off so only the bole of the tree contributes to hiding cover. Full hiding cover (90%) is achieved at tree densities above 1500 trees per acre. However, these tree densities are not physically capable of occurring.

Figure 3 shows hiding cover for mature size stands of trees at different tree densities. For this analysis, we used an average 9 inch dbh size tree with no crown widths that contribute to elk hiding cover. Most mature stands prune their lower branches off so only the bole of the tree contributes to hiding cover. Full hiding cover (90%) is achieved at tree densities above 900 trees per acre. However, these tree densities are not physically capable of occurring.

Figure *4* is similar to Figure 3, but for this analysis we used an average 12 inch dbh tree. Full hiding cover (90%) is achieved at tree densities above 700 trees per acre. However, these tree densities are not physically capable of occurring.

Figure 5 shows the frequency distribution of mature unlogged (natural) lodgepole pine stands according to the number of live mature trees per acre. About 90% of these stands have less than 200 live trees per acre. With the information presented in Figures 3 and 4, it is apparent that these stands do not provide much hiding cover.

Figure 6 is a general illustration of how hiding cover changes within an evenaged stand of trees through time, beginning with the seedling stage and going through the mature stage. The best hiding cover occurs during the sapling stage of a stand.

Other Items of Discussion:

Although field measurements of hiding cover and HIDE2 model measurements of hiding cover were closely correlated, our analysis of hiding cover for the Forest Plan Revision may be an underestimate for the following reasons:

1. We did not include any dead trees in the analysis. Some existing stands have more dead standing trees than live standing trees. For lodgepole pine stands, the dead trees are now falling at very fast rates, and we did not want to include them in hiding cover analysis. In the short term, this underestimates cover values.

2. We did not include other vegetation (such as shrubs) in the cover analysis. Data on shrub densities is not available. In forested habitat types such as pine grass, elk sedge, grouse wartleberry, huckleberry, etc., shrubs are absent or are low growing and probably do not contribute to hiding cover that much. In other forested habitat types which contain a tall shrub component, hiding cover is definitely underestimated.

3. We used the assumption that by the time trees are 4 inches dbh, that all of the lower crowns would be naturally pruned off and only the bole of the tree would contribute to hiding cover. Trees growing in more open stand conditions probably retain lower crowns longer, or may never lose their lower crowns. In these instances, cover is definitely underestimated.

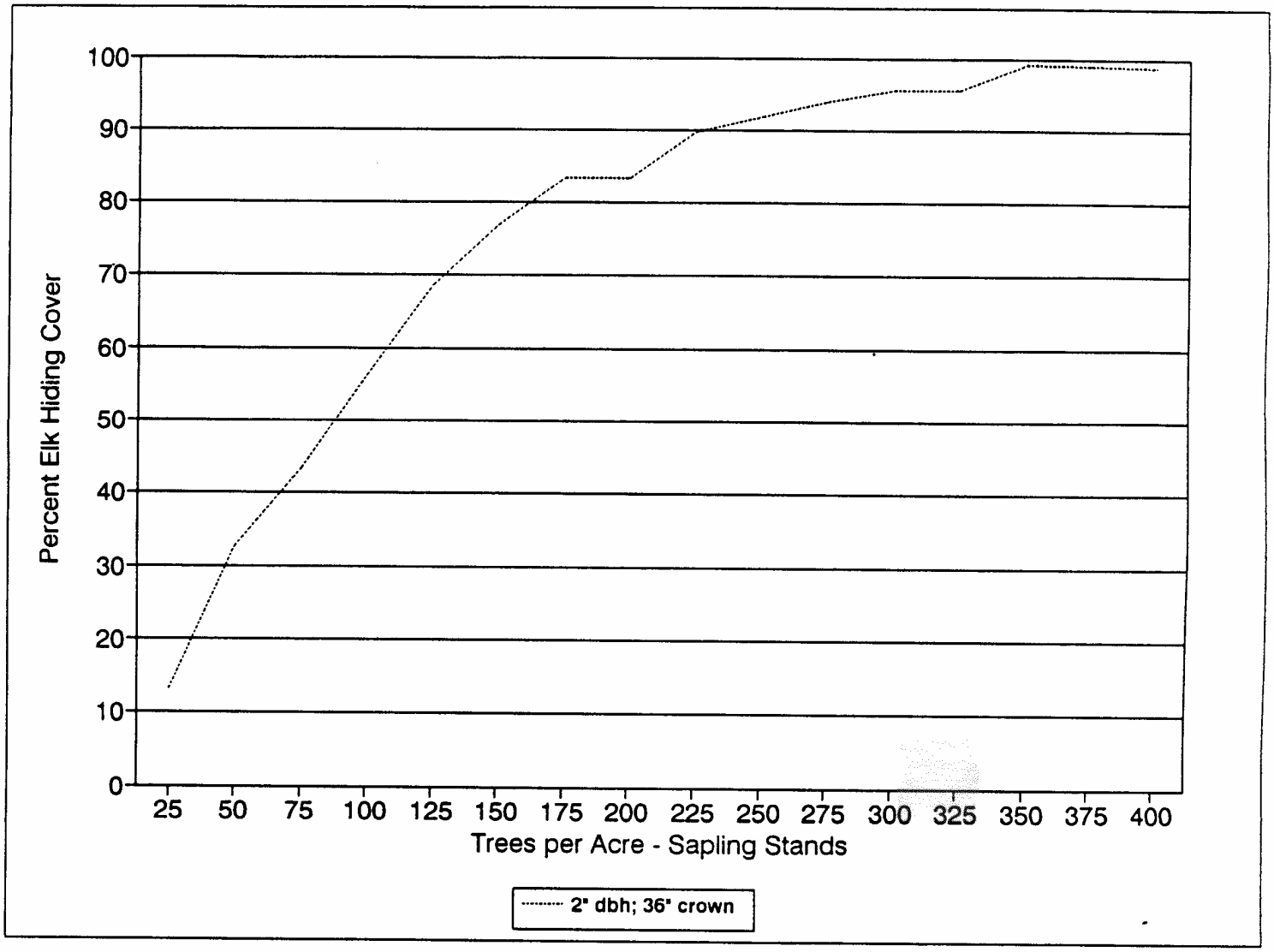

100
90
80
70
60
50
40
30
20
10
0
Percent Elk Hiding Cover
25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400
Trees per Acre - Sapling Stands
2" dbh; 36" crown

FIGURE 1

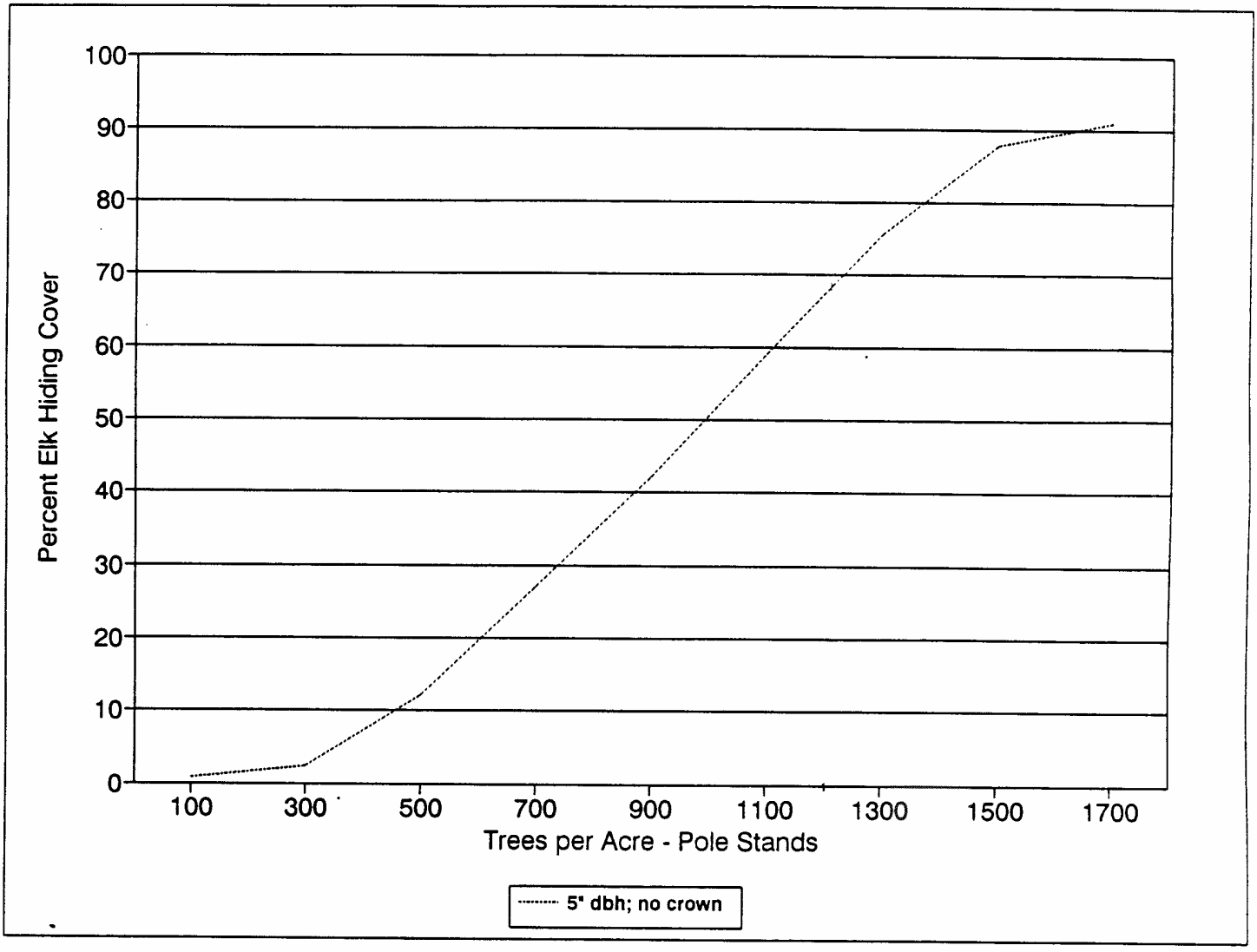

100
90
80
70
60
50
40
30
20
10
0
Percent Elk Hiding Cover
100
300
500
700
900
1100
1300
1500
1700
Trees per Acre - Pole Stands
5" dbh; no crown

FIGURE 2

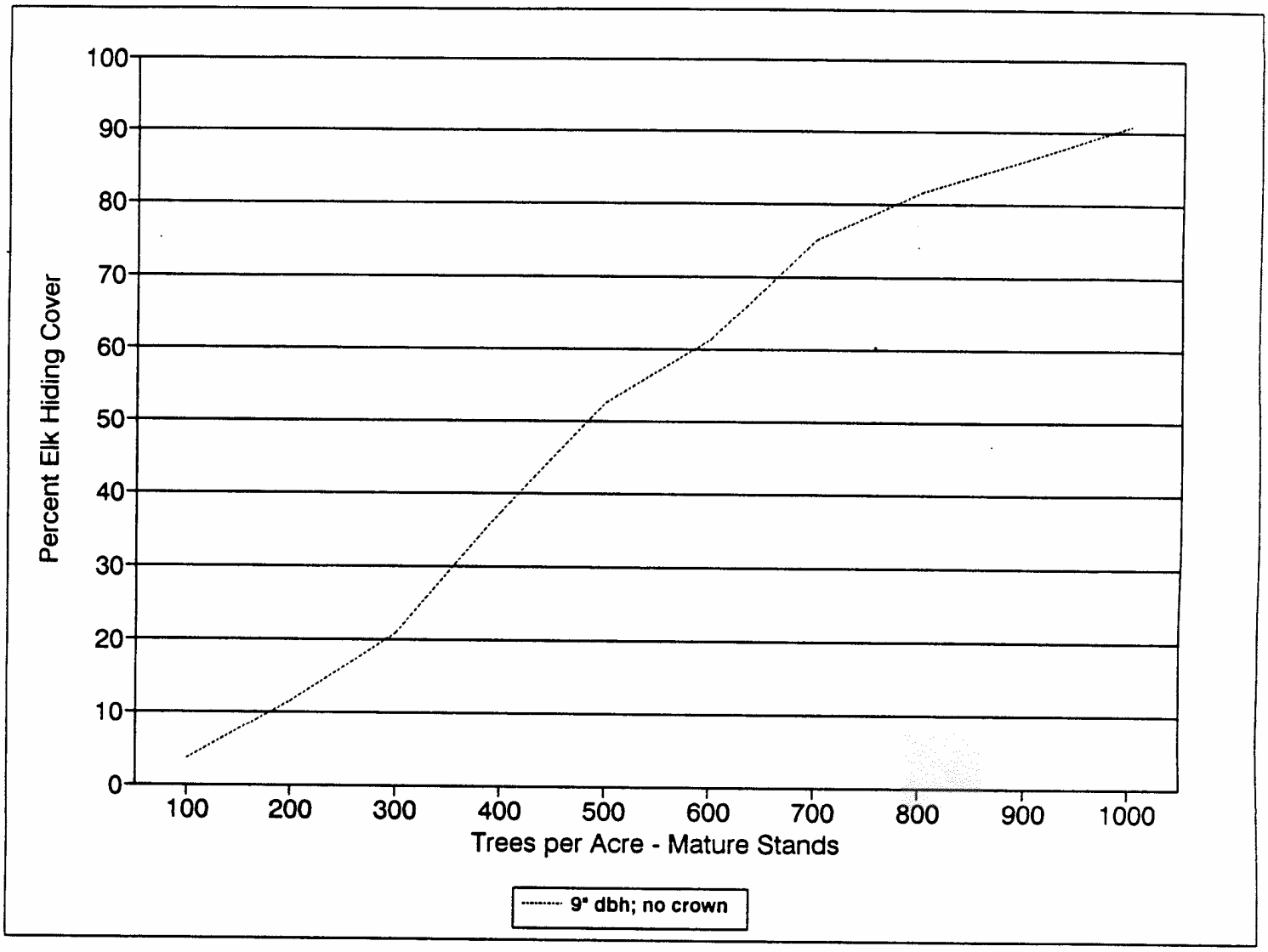

100
90
80
70
60
50
40
30
20
10
0
Percent Elk Hiding Cover
100
200
300
400
500
600
700
800
900
1000
Trees per Acre - Mature Stands
9" dbh; no crown

FIGURE 3

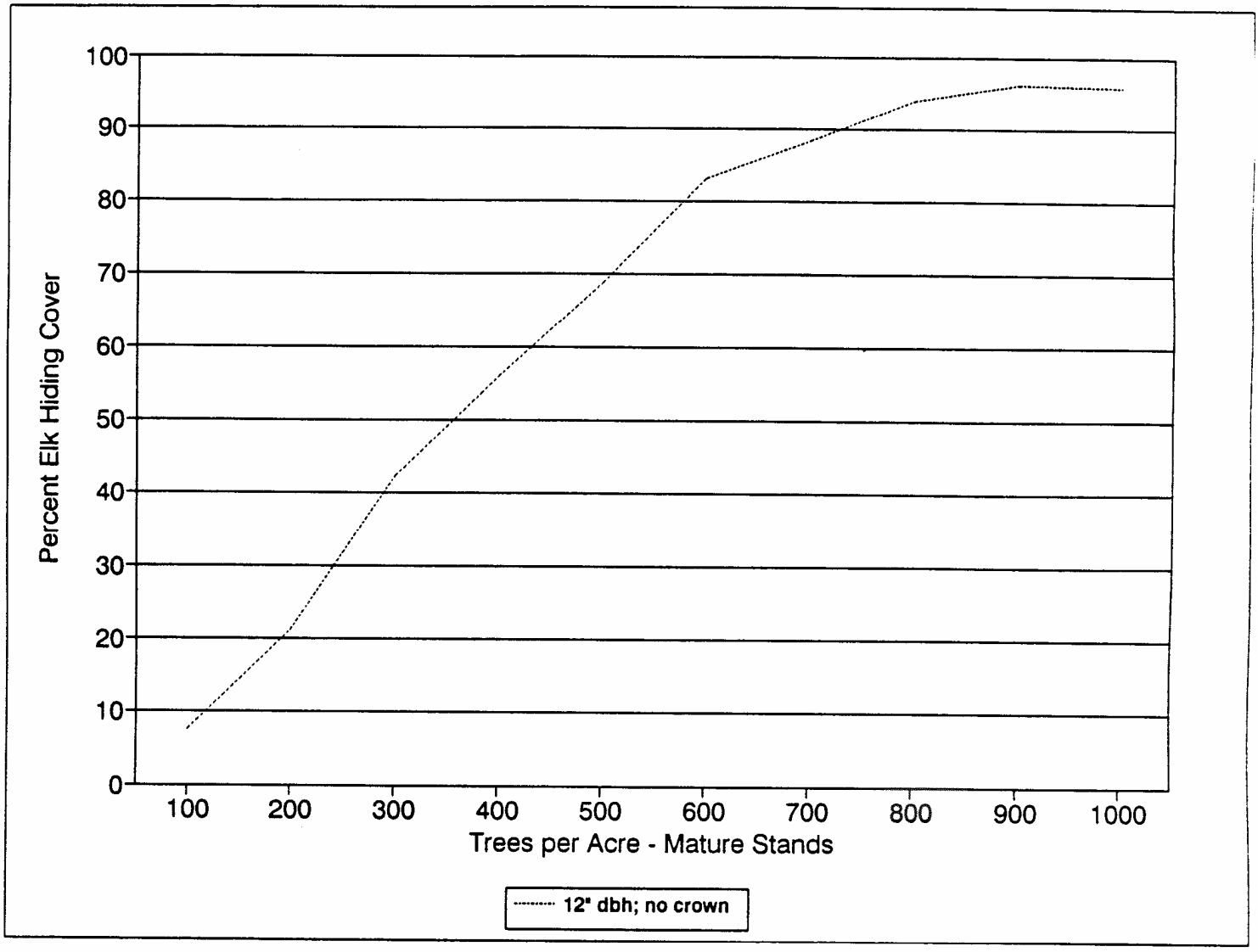

100
90
80
70
60
50
40
30
20
10
0
Percent Elk Hiding Cover
100
200
300
400
500
600
700
800
900
1000
Trees per Acre - Mature Stands
12" dbh; no crown

FIGURE 4

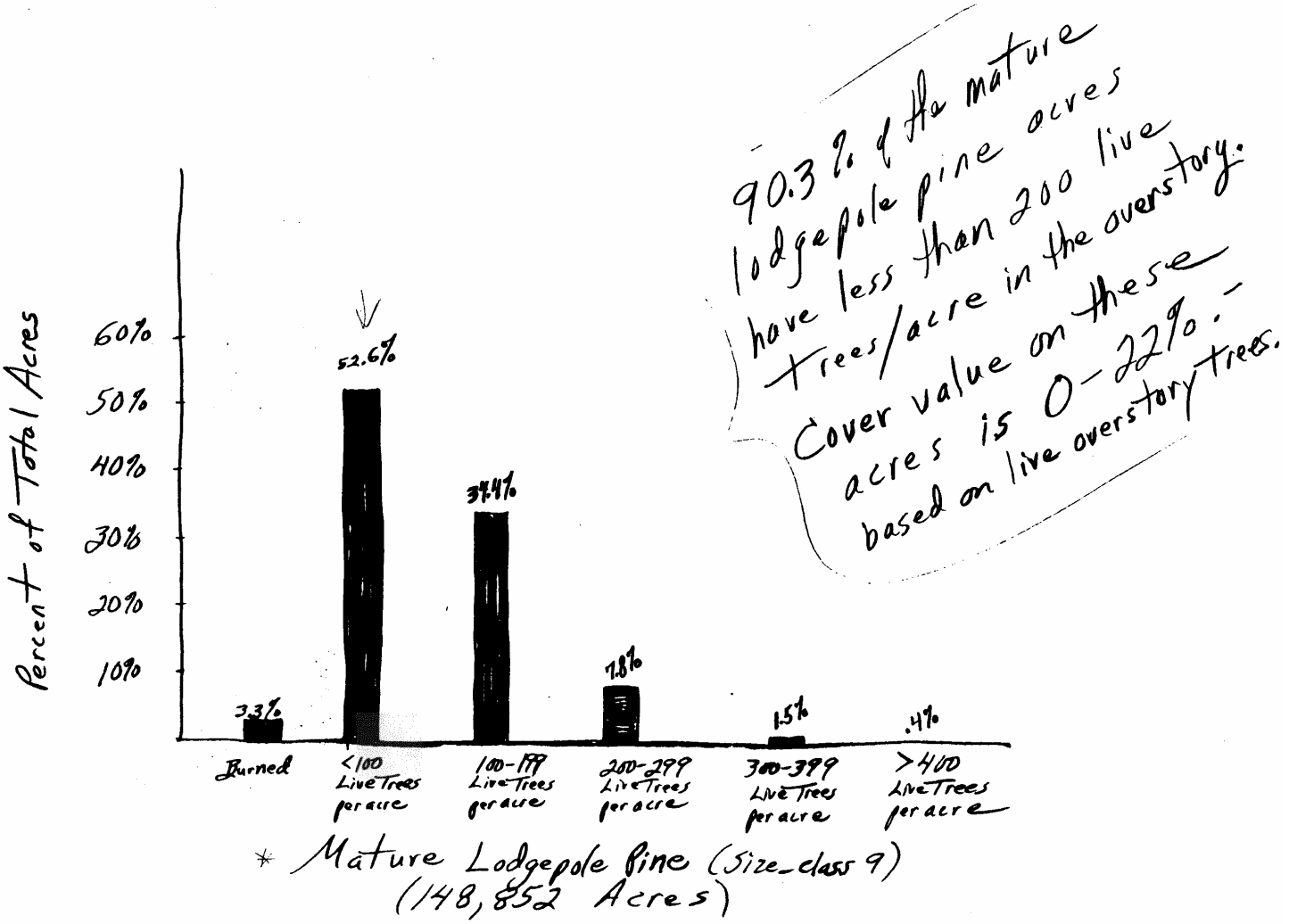

Percent of Total Acres
60%
50%
40%
30%
20%
10%
3.3%
52.6%
37.4%
7.8%
1.5%
.4%
Burned
<100 Live Trees per acre
100-199 Live Trees per acre
200-299 Live Trees per acre
300-399 Live Trees per acre
>400 Live Trees per acre
90.3% of the mature lodgepole pine acres have less than 200 live trees/acre in the overstory. Cover value on these acres is 0-22%. - based on live overstory trees.
* Mature Lodgepole Pine (Size_class 9) (148,852 Acres)

FIGURE 5

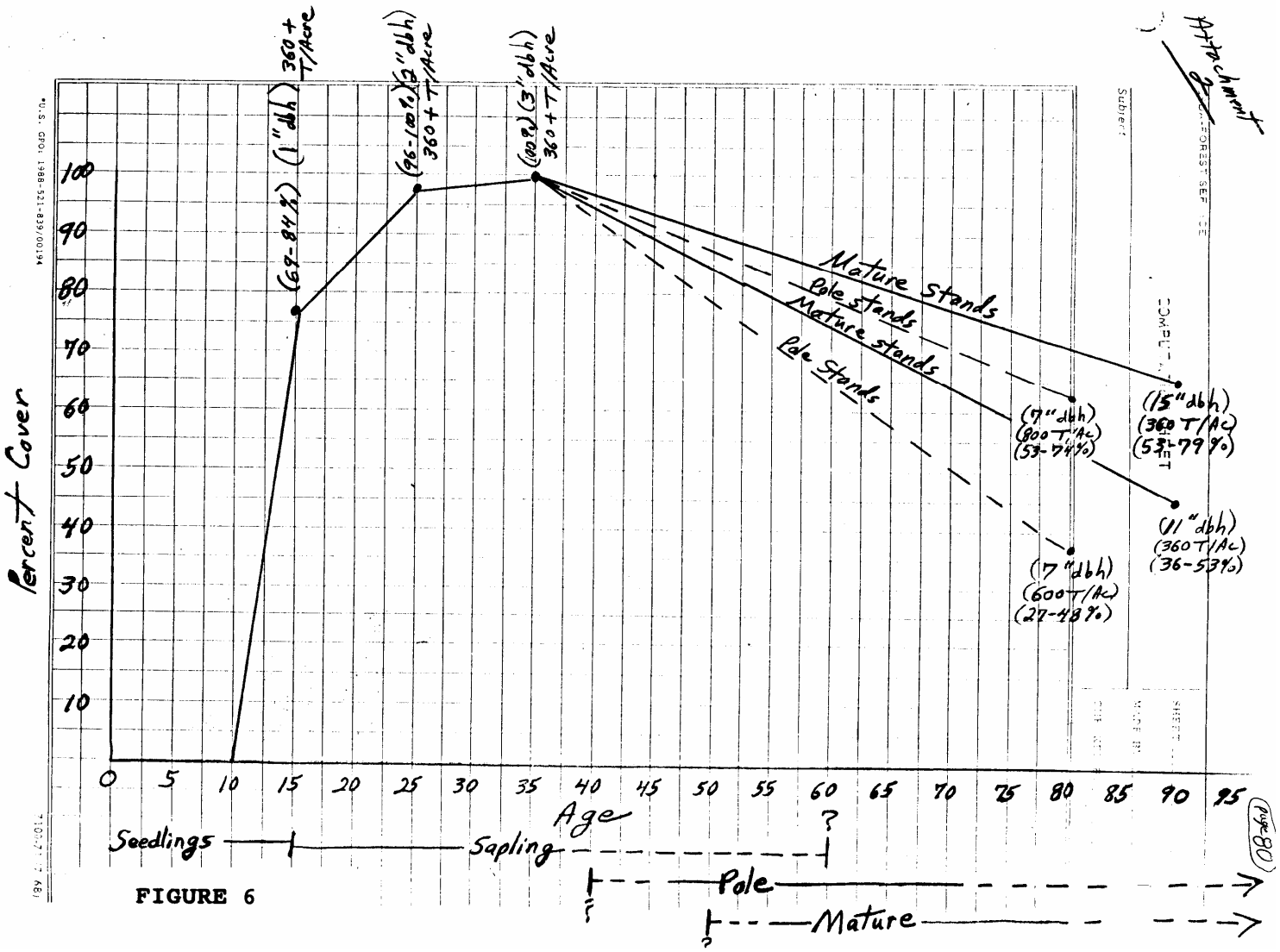

Attachment
Percent Cover
100
90
80
70
60
50
40
30
20
10
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
Age
(69-84%) (1" dbh) 360+ T/Acre
(72-96%) (9" dbh) 360+ T/Acre
(100%) (3" dbh) 360+ T/Acre
Mature Stands
Pole Stands
Mature stands
Pole Stands
(15" dbh) (360 T/Ac) (53-79%)
(11" dbh) (360 T/Ac) (36-53%)
(7" dbh) (800 T/Ac) (53-74%)
(7" dbh) (600 T/Ac) (27-48%)
Seedlings
Sapling
Pole
Mature
?
?
Page 80

FIGURE 6

ATTACHMENT E

Hiding Cover Analysis for the Alternatives

8/4/95

Wtrshed No.	Vegetation Description	Veg. Code		Idaho Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
002	Aspen mature	AS9		2,254.0	0.10	225.4
002	Douglas-fir mature	DF9		610.0	0.30	183.0
002	Limber Pine mature	LM9		0.0	0.60	0.0
002	Lodgepole mature	LP9		20.0	0.40	8.0
002	Mixed con. mature	MX39		0.0	0.30	0.0
002	Mixed con. mature	MX9		2,608.0	0.30	782.4
002	Non-commercial Aspen	NAS		0.0	0.10	0.0
002	Non-commercial D.Fir	NDF		0.0	0.30	0.0
002	Non-commercial LP	NLP		0.0	0.40	0.0
002	Non-commercial MX3	NMX3		0.0	0.30	0.0
002	Non-commercial MX	NMX		1,235.0	0.30	370.5
002	Non-commercial SF	NSF		0.0	0.30	0.0
002	Spruce/Fir mature	SF9		0.0	0.60	0.0
002	Whitebark Pine mature	WB9		0.0	0.60	0.0
			Total Ac.	6,727		0.23

Weighted average cover value for mature acres in each watershed. This value is used to calculate % cover for EHE for each alternative

Wtrshed No.	Vegetation Description	Veg. Code		Wyoming Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
002	Aspen mature	AS9		4,190.0	0.10	419.0
002	Douglas-fir mature	DF9		4,017.0	0.30	1,205.1
002	Limber Pine mature	LM9		0.0	0.60	0.0
002	Lodgepole mature	LP9		384.0	0.40	153.6
002	Mixed con. mature	MX39		0.0	0.30	0.0
002	Mixed con. mature	MX9		4,130.0	0.30	1,239.0
002	Non-commercial Aspen	NAS		0.0	0.10	0.0
002	Non-commercial D.Fir	NDF		159.0	0.30	47.7
002	Non-commercial LP	NLP		0.0	0.40	0.0
002	Non-commercial MX3	NMX3		0.0	0.30	0.0
002	Non-commercial MX	NMX		2,930.0	0.30	879.0
002	Non-commercial SF	NSF		0.0	0.30	0.0
002	Spruce/Fir mature	SF9		0.0	0.60	0.0
002	Whitebark Pine mature	WB9		0.0	0.60	0.0
			Total Ac.	15,810		0.25

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
002	Aspen mature	AS9	2,254.0	4,190.0	6,444.0	0.10	644.4
002	Douglas-fir mature	DF9	610.0	4,017.0	4,627.0	0.30	1,388.1
002	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
002	Lodgepole mature	LP9	20.0	384.0	404.0	0.40	161.6
002	Mixed con. mature	MX39	0.0	0.0	0.0	0.30	0.0
002	Mixed con. mature	MX9	2,608.0	4,130.0	6,738.0	0.30	2,021.4
002	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
002	Non-commercial D.Fir	NDF	0.0	159.0	159.0	0.30	47.7
002	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
002	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
002	Non-commercial MX	NMX	1,235.0	2,930.0	4,165.0	0.30	1,249.5
002	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
002	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.60	0.0
002	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	22,537		0.24

Wtrshed No.	Vegetation Description	Veg. Code		Idaho Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
003	Aspen mature	AS9		4,431.0	0.10	443.1
003	Douglas-fir mature	DF9		216.0	0.30	64.8
003	Limber Pine mature	LM9		0.0	0.60	0.0
003	Lodgepole mature	LP9		540.0	0.40	216.0
003	Mixed con. mature	MX39		0.0	0.30	0.0
003	Mixed con. mature	MX9		4,570.0	0.30	1,371.0
003	Non-commercial Aspen	NAS		0.0	0.10	0.0
003	Non-commercial D.Fir	NDF		254.0	0.30	76.2
003	Non-commercial LP	NLP		0.0	0.40	0.0
003	Non-commercial MX3	NMX3		0.0	0.30	0.0
003	Non-commercial MX	NMX		2,809.0	0.30	842.7
003	Non-commercial SF	NSF		0.0	0.30	0.0

003	Spruce/Fir mature	SF9	0.0	0.60	0.0
003	Whitebark Pine mature	WB9	0.0	0.60	0.0
		Total Ac.	12,820		0.24

Wtrshed No.	Vegetation Description	Veg. Code	Wyoming Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
003	Aspen mature	AS9	2,164.0	0.10	216.4
003	Douglas-fir mature	DF9	6,856.0	0.30	2,056.8
003	Limber Pine mature	LM9	0.0	0.60	0.0
003	Lodgepole mature	LP9	685.0	0.40	274.0
003	Mixed con. mature	MX39	40.0	0.30	12.0
003	Mixed con. mature	MX9	1,815.0	0.30	544.5
003	Non-commercial Aspen	NAS	0.0	0.10	0.0
003	Non-commercial D.Fir	NDF	685.0	0.30	205.5
003	Non-commercial LP	NLP	0.0	0.40	0.0
003	Non-commercial MX3	NMX3	0.0	0.30	0.0
003	Non-commercial MX	NMX	2,812.0	0.30	843.6
003	Non-commercial SF	NSF	0.0	0.30	0.0
003	Spruce/Fir mature	SF9	0.0	0.60	0.0
003	Whitebark Pine mature	WB9	0.0	0.60	0.0
		Total Ac.	15,057		0.28

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
003	Aspen mature	AS9	4,431.0	2,164.0	6,595.0	0.10	659.5
003	Douglas-fir mature	DF9	216.0	6,856.0	7,072.0	0.30	2,121.6
003	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
003	Lodgepole mature	LP9	540.0	685.0	1,225.0	0.40	490.0
003	Mixed con. mature	MX39	0.0	40.0	40.0	0.30	12.0
003	Mixed con. mature	MX9	4,570.0	1,815.0	6,385.0	0.30	1,915.5
003	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
003	Non-commercial D.Fir	NDF	254.0	685.0	939.0	0.30	281.7
003	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
003	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
003	Non-commercial MX	NMX	2,809.0	2,812.0	5,621.0	0.30	1,686.3
003	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
003	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.60	0.0
003	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
		Total Ac.			27,877		0.26

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
004	Aspen mature	AS9	3,696.0	7.0	3,703.0	0.10	370.3
004	Douglas-fir mature	DF9	7,170.0	568.0	7,738.0	0.30	2,321.4
004	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
004	Lodgepole mature	LP9	855.0	0.0	855.0	0.40	342.0
004	Mixed con. mature	MX39	0.0	0.0	0.0	0.30	0.0
004	Mixed con. mature	MX9	9,980.0	264.0	10,244.0	0.30	3,073.2
004	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
004	Non-commercial D.Fir	NDF	1,402.0	229.0	1,631.0	0.30	489.3
004	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
004	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
004	Non-commercial MX	NMX	3,766.0	333.0	4,099.0	0.30	1,229.7
004	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
004	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.60	0.0
004	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
		Total Ac.			28,270		0.28

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
005	Aspen mature	AS9			2,637.0	0.10	263.7
005	Douglas-fir mature	DF9			3,786.0	0.30	1,135.8
005	Limber Pine mature	LM9			0.0	0.60	0.0
005	Lodgepole mature	LP9			360.0	0.40	144.0
005	Mixed con. mature	MX39			0.0	0.30	0.0
005	Mixed con. mature	MX9			8,780.0	0.30	2,634.0
005	Non-commercial Aspen	NAS			0.0	0.10	0.0

005	Non-commercial D.Fir	NDF			90.0	0.30	27.0
005	Non-commercial LP	NLP			0.0	0.40	0.0
005	Non-commercial MX3	NMX3			0.0	0.30	0.0
005	Non-commercial MX	NMX			2,402.0	0.30	720.6
005	Non-commercial SF	NSF			0.0	0.30	0.0
005	Spruce/Fir mature	SF9			0.0	0.60	0.0
005	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	18,055		0.27

Wtrshed No.	Vegetation Description	Veg. Code	D4 Acres	D5 Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
006	Aspen mature	AS9	2,333.0	2,118.0	4,451.0	0.10	445.1
006	Douglas-fir mature	DF9	166.0	84.0	250.0	0.30	75.0
006	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
006	Lodgepole mature	LP9	1,026.0	1,478.0	2,504.0	0.40	1,001.6
006	Mixed con. mature	MX39	1,183.0	913.0	2,096.0	0.30	628.8
006	Mixed con. mature	MX9	8,637.0	2,897.0	11,534.0	0.30	3,460.2
006	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
006	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.30	0.0
006	Non-commercial LP	NLP	0.0	16.0	16.0	0.40	6.4
006	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
006	Non-commercial MX	NMX	3,916.0	918.0	4,834.0	0.30	1,450.2
006	Non-commercial SF	NSF	0.0	33.0	33.0	0.30	9.9
006	Spruce/Fir mature	SF9	106.0	297.0	403.0	0.60	241.8
006	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	26,121		0.28

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
007/033	Aspen mature	AS9			5,658.0	0.10	565.8
007/033	Douglas-fir mature	DF9			1,206.0	0.30	361.8
007/033	Limber Pine mature	LM9			0.0	0.60	0.0
007/033	Lodgepole mature	LP9			3,058.0	0.40	1,223.2
007/033	Mixed con. mature	MX39			187.0	0.30	56.1
007/033	Mixed con. mature	MX9			9,761.0	0.30	2,928.3
007/033	Non-commercial Aspen	NAS			0.0	0.10	0.0
007/033	Non-commercial D.Fir	NDF			0.0	0.30	0.0
007/033	Non-commercial LP	NLP			0.0	0.40	0.0
007/033	Non-commercial MX3	NMX3			0.0	0.30	0.0
007/033	Non-commercial MX	NMX			2,508.0	0.30	752.4
007/033	Non-commercial SF	NSF			0.0	0.30	0.0
007/033	Spruce/Fir mature	SF9			2.0	0.60	1.2
007/033	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	22,380		0.26

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
008	Aspen mature	AS9			2,273.0	0.10	227.3
008	Douglas-fir mature	DF9			5,540.0	0.30	1,662.0
008	Limber Pine mature	LM9			0.0	0.60	0.0
008	Lodgepole mature	LP9			28,166.0	0.40	11,266.4
008	Mixed con. mature	MX39			7,770.0	0.30	2,331.0
008	Mixed con. mature	MX9			21,004.0	0.30	6,301.2
008	Non-commercial Aspen	NAS			698.0	0.10	69.8
008	Non-commercial D.Fir	NDF			418.0	0.30	125.4
008	Non-commercial LP	NLP			33.0	0.40	13.2
008	Non-commercial MX3	NMX3			0.0	0.30	0.0
008	Non-commercial MX	NMX			3,010.0	0.30	903.0
008	Non-commercial SF	NSF			0.0	0.30	0.0
008	Spruce/Fir mature	SF9			1,238.0	0.60	742.8
008	Whitebark Pine mature	WB9			25.0	0.60	15.0
				Total Ac.	70,175		0.34

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
009A	Aspen mature	AS9			912.0	0.10	91.2
009A	Douglas-fir mature	DF9			19,352.0	0.30	5,805.6

009A	Limber Pine mature	LM9			0.0	0.60	0.0
009A	Lodgepole mature	LP9			4,260.0	0.40	1,704.0
009A	Mixed con. mature	MX39			7,285.0	0.30	2,185.5
009A	Mixed con. mature	MX9			5,446.0	0.30	1,633.8
009A	Non-commercial Aspen	NAS			72.0	0.10	7.2
009A	Non-commercial D.Fir	NDF			5,375.0	0.30	1,612.5
009A	Non-commercial LP	NLP			0.0	0.40	0.0
009A	Non-commercial MX3	NMX3			0.0	0.30	0.0
009A	Non-commercial MX	NMX			1,263.0	0.30	378.9
009A	Non-commercial SF	NSF			0.0	0.30	0.0
009A	Spruce/Fir mature	SF9			261.0	0.60	156.6
009A	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	44,226		0.31

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
009B	Aspen mature	AS9			299.0	0.10	29.9
009B	Douglas-fir mature	DF9			2,199.0	0.30	659.7
009B	Limber Pine mature	LM9			0.0	0.60	0.0
009B	Lodgepole mature	LP9			11,879.0	0.40	4,751.6
009B	Mixed con. mature	MX39			500.0	0.30	150.0
009B	Mixed con. mature	MX9			5,503.0	0.30	1,650.9
009B	Non-commercial Aspen	NAS			0.0	0.10	0.0
009B	Non-commercial D.Fir	NDF			0.0	0.30	0.0
009B	Non-commercial LP	NLP			710.0	0.40	284.0
009B	Non-commercial MX3	NMX3			0.0	0.30	0.0
009B	Non-commercial MX	NMX			0.0	0.30	0.0
009B	Non-commercial SF	NSF			0.0	0.30	0.0
009B	Spruce/Fir mature	SF9			0.0	0.60	0.0
009B	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	21,090		0.36

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
010	Aspen mature	AS9			3.0	0.10	0.3
010	Douglas-fir mature	DF9			56.0	0.30	16.8
010	Limber Pine mature	LM9			0.0	0.60	0.0
010	Lodgepole mature	LP9			11,515.0	0.40	4,606.0
010	Mixed con. mature	MX39			542.0	0.30	162.6
010	Mixed con. mature	MX9			2,112.0	0.30	633.6
010	Non-commercial Aspen	NAS			0.0	0.10	0.0
010	Non-commercial D.Fir	NDF			0.0	0.30	0.0
010	Non-commercial LP	NLP			0.0	0.40	0.0
010	Non-commercial MX3	NMX3			0.0	0.30	0.0
010	Non-commercial MX	NMX			0.0	0.30	0.0
010	Non-commercial SF	NSF			0.0	0.30	0.0
010	Spruce/Fir mature	SF9			13.0	0.60	7.8
010	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	14,241		0.38

Wtrshed No.	Vegetation Description	Veg. Code	D-2 Acres	D-3 Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
011	Aspen mature	AS9	381.0	142.0	523.0	0.10	52.3
011	Douglas-fir mature	DF9	810.0	4,166.0	4,976.0	0.30	1,492.8
011	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
011	Lodgepole mature	LP9	13,350.0	28,389.0	41,739.0	0.40	16,695.6
011	Mixed con. mature	MX39	29.0	292.0	321.0	0.30	96.3
011	Mixed con. mature	MX9	2,214.0	7,691.0	9,905.0	0.30	2,971.5
011	Non-commercial Aspen	NAS	35.0	0.0	35.0	0.10	3.5
011	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.30	0.0
011	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
011	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
011	Non-commercial MX	NMX	0.0	0.0	0.0	0.30	0.0
011	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
011	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.60	0.0
011	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	57,499		0.37

						Hiding	Weighted

Wtrshed No.	Vegetation Description	Veg. Code	D-2 Acres	D-3 Acres	Total Acres	Cover Value	Cover Col.7xCol.8
012	Aspen mature	AS9	0.0	832.0	832.0	0.10	83.2
012	Douglas-fir mature	DF9	49.0	3,654.0	3,703.0	0.30	1,110.9
012	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
012	Lodgepole mature	LP9	2,296.0	30,216.0	32,512.0	0.40	13,004.8
012	Mixed con. mature	MX39	118.0	72.0	190.0	0.30	57.0
012	Mixed con. mature	MX9	874.0	9,345.0	10,219.0	0.30	3,065.7
012	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
012	Non-commercial D.Fir	NDF	0.0	70.0	70.0	0.30	21.0
012	Non-commercial LP	NLP	0.0	54.0	54.0	0.40	21.6
012	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
012	Non-commercial MX	NMX	0.0	0.0	0.0	0.30	0.0
012	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
012	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.60	0.0
012	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	47,580		0.36

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
013	Aspen mature	AS9	1,040.0	0.0	1,040.0	0.10	104.0
013	Douglas-fir mature	DF9	1,776.0	12.0	1,788.0	0.30	536.4
013	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
013	Lodgepole mature	LP9	20,196.0	183.0	20,379.0	0.40	8,151.6
013	Mixed con. mature	MX39	0.0	0.0	0.0	0.30	0.0
013	Mixed con. mature	MX9	6,265.0	3.0	6,268.0	0.30	1,880.4
013	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
013	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.30	0.0
013	Non-commercial LP	NLP	2.0	0.0	2.0	0.40	0.8
013	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
013	Non-commercial MX	NMX	0.0	0.0	0.0	0.30	0.0
013	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
013	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.60	0.0
013	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	29,477		0.36

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
014/034	Aspen mature	AS9			947.0	0.10	94.7
014/034	Douglas-fir mature	DF9			15,044.0	0.30	4,513.2
014/034	Limber Pine mature	LM9			0.0	0.60	0.0
014/034	Lodgepole mature	LP9			3,229.0	0.40	1,291.6
014/034	Mixed con. mature	MX39			6.0	0.30	1.8
014/034	Mixed con. mature	MX9			7,070.0	0.30	2,121.0
014/034	Non-commercial Aspen	NAS			0.0	0.10	0.0
014/034	Non-commercial D.Fir	NDF			0.0	0.30	0.0
014/034	Non-commercial LP	NLP			0.0	0.40	0.0
014/034	Non-commercial MX3	NMX3			0.0	0.30	0.0
014/034	Non-commercial MX	NMX			0.0	0.30	0.0
014/034	Non-commercial SF	NSF			0.0	0.30	0.0
014/034	Spruce/Fir mature	SF9			0.0	0.60	0.0
014/034	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	26,296		0.31

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
015	Aspen mature	AS9	683.0	0.10	68.3
015	Douglas-fir mature	DF9	308.0	0.30	92.4
015	Limber Pine mature	LM9	0.0	0.60	0.0
015	Lodgepole mature	LP9	6,829.0	0.40	2,731.6
015	Mixed con. mature	MX39	32.0	0.30	9.6
015	Mixed con. mature	MX9	3,304.0	0.30	991.2
015	Non-commercial Aspen	NAS	0.0	0.10	0.0
015	Non-commercial D.Fir	NDF	0.0	0.30	0.0
015	Non-commercial LP	NLP	0.0	0.40	0.0
015	Non-commercial MX3	NMX3	0.0	0.30	0.0
015	Non-commercial MX	NMX	7.0	0.30	2.1
015	Non-commercial SF	NSF	0.0	0.30	0.0
015	Spruce/Fir mature	SF9	0.0	0.60	0.0

015	Whitebark Pine mature	WB9		0.0	0.60	0.0
			Total Ac.	11,163		0.35

Wtrshed No.	Vegetation Description	Veg. Code	Wyoming Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
015	Aspen mature	AS9	448.0	0.10	44.8
015	Douglas-fir mature	DF9	166.0	0.30	49.8
015	Limber Pine mature	LM9	0.0	0.60	0.0
015	Lodgepole mature	LP9	7,195.0	0.40	2,878.0
015	Mixed con. mature	MX39	1,168.0	0.30	350.4
015	Mixed con. mature	MX9	5,275.0	0.30	1,582.5
015	Non-commercial Aspen	NAS	0.0	0.10	0.0
015	Non-commercial D.Fir	NDF	0.0	0.30	0.0
015	Non-commercial LP	NLP	0.0	0.40	0.0
015	Non-commercial MX3	NMX3	0.0	0.30	0.0
015	Non-commercial MX	NMX	26.0	0.30	7.8
015	Non-commercial SF	NSF	0.0	0.30	0.0
015	Spruce/Fir mature	SF9	60.0	0.60	36.0
015	Whitebark Pine mature	WB9	0.0	0.60	0.0
		Total Ac.	14,338		0.35

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
015	Aspen mature	AS9	683.0	448.0	1,131.0	0.10	113.1
015	Douglas-fir mature	DF9	308.0	166.0	474.0	0.30	142.2
015	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
015	Lodgepole mature	LP9	6,829.0	7,195.0	14,024.0	0.40	5,609.6
015	Mixed con. mature	MX39	32.0	1,168.0	1,200.0	0.30	360.0
015	Mixed con. mature	MX9	3,304.0	5,275.0	8,579.0	0.30	2,573.7
015	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
015	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.30	0.0
015	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
015	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
015	Non-commercial MX	NMX	7.0	26.0	33.0	0.30	9.9
015	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
015	Spruce/Fir mature	SF9	0.0	60.0	60.0	0.60	36.0
015	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
			Total Ac.		25,501		0.35

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
016	Aspen mature	AS9	1,642.0	0.10	164.2
016	Douglas-fir mature	DF9	1,443.0	0.30	432.9
016	Limber Pine mature	LM9	0.0	0.60	0.0
016	Lodgepole mature	LP9	5,230.0	0.40	2,092.0
016	Mixed con. mature	MX39	398.0	0.30	119.4
016	Mixed con. mature	MX9	3,865.0	0.30	1,159.5
016	Non-commercial Aspen	NAS	0.0	0.10	0.0
016	Non-commercial D.Fir	NDF	0.0	0.30	0.0
016	Non-commercial LP	NLP	0.0	0.40	0.0
016	Non-commercial MX3	NMX3	0.0	0.30	0.0
016	Non-commercial MX	NMX	0.0	0.30	0.0
016	Non-commercial SF	NSF	0.0	0.30	0.0
016	Spruce/Fir mature	SF9	0.0	0.60	0.0
016	Whitebark Pine mature	WB9	0.0	0.60	0.0
		Total Ac.	12,578		0.32

Wtrshed No.	Vegetation Description	Veg. Code	Wyoming Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
016	Aspen mature	AS9	1,109.0	0.10	110.9
016	Douglas-fir mature	DF9	370.0	0.30	111.0
016	Limber Pine mature	LM9	0.0	0.60	0.0
016	Lodgepole mature	LP9	21,743.0	0.40	8,697.2
016	Mixed con. mature	MX39	1,661.0	0.30	498.3
016	Mixed con. mature	MX9	10,804.0	0.30	3,241.2
016	Non-commercial Aspen	NAS	0.0	0.10	0.0
016	Non-commercial D.Fir	NDF	0.0	0.30	0.0

016	Non-commercial LP	NLP	0.0	0.40	0.0
016	Non-commercial MX3	NMX3	0.0	0.30	0.0
016	Non-commercial MX	NMX	106.0	0.30	31.8
016	Non-commercial SF	NSF	0.0	0.30	0.0
016	Spruce/Fir mature	SF9	839.0	0.60	503.4
016	Whitebark Pine mature	WB9	0.0	0.60	0.0
		Total Ac.	36,632		0.36

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
016	Aspen mature	AS9	1,642.0	1,109.0	2,751.0	0.10	275.1
016	Douglas-fir mature	DF9	1,443.0	370.0	1,813.0	0.30	543.9
016	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
016	Lodgepole mature	LP9	5,230.0	21,743.0	26,973.0	0.40	10,789.2
016	Mixed con. mature	MX39	398.0	1,661.0	2,059.0	0.30	617.7
016	Mixed con. mature	MX9	3,865.0	10,804.0	14,669.0	0.30	4,400.7
016	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
016	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.30	0.0
016	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
016	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
016	Non-commercial MX	NMX	0.0	106.0	106.0	0.30	31.8
016	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
016	Spruce/Fir mature	SF9	0.0	839.0	839.0	0.60	503.4
016	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
		Total Ac.			49,210		0.35

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
017	Aspen mature	AS9	909.0	0.10	90.9
017	Douglas-fir mature	DF9	0.0	0.30	0.0
017	Limber Pine mature	LM9	0.0	0.60	0.0
017	Lodgepole mature	LP9	106.0	0.40	42.4
017	Mixed con. mature	MX39	0.0	0.30	0.0
017	Mixed con. mature	MX9	4,115.0	0.30	1,234.5
017	Non-commercial Aspen	NAS	0.0	0.10	0.0
017	Non-commercial D.Fir	NDF	0.0	0.30	0.0
017	Non-commercial LP	NLP	0.0	0.40	0.0
017	Non-commercial MX3	NMX3	0.0	0.30	0.0
017	Non-commercial MX	NMX	786.0	0.30	235.8
017	Non-commercial SF	NSF	0.0	0.30	0.0
017	Spruce/Fir mature	SF9	0.0	0.60	0.0
017	Whitebark Pine mature	WB9	0.0	0.60	0.0
		Total Ac.	5,916		0.27

Wtrshed No.	Vegetation Description	Veg. Code	Wyoming Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
017	Aspen mature	AS9	1,478.0	0.10	147.8
017	Douglas-fir mature	DF9	4,244.0	0.30	1,273.2
017	Limber Pine mature	LM9	0.0	0.60	0.0
017	Lodgepole mature	LP9	108.0	0.40	43.2
017	Mixed con. mature	MX39	138.0	0.30	41.4
017	Mixed con. mature	MX9	6,819.0	0.30	2,045.7
017	Non-commercial Aspen	NAS	0.0	0.10	0.0
017	Non-commercial D.Fir	NDF	5,348.0	0.30	1,604.4
017	Non-commercial LP	NLP	0.0	0.40	0.0
017	Non-commercial MX3	NMX3	0.0	0.30	0.0
017	Non-commercial MX	NMX	2,057.0	0.30	617.1
017	Non-commercial SF	NSF	0.0	0.30	0.0
017	Spruce/Fir mature	SF9	92.0	0.60	55.2
017	Whitebark Pine mature	WB9	0.0	0.60	0.0
		Total Ac.	20,284		0.29

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
017	Aspen mature	AS9	909.0	1,478.0	2,387.0	0.10	238.7
017	Douglas-fir mature	DF9	0.0	4,244.0	4,244.0	0.30	1,273.2
017	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0

017	Lodgepole mature	LP9	106.0	108.0	214.0	0.40	85.6
017	Mixed con. mature	MX39	0.0	138.0	138.0	0.30	41.4
017	Mixed con. mature	MX9	4,115.0	6,819.0	10,934.0	0.30	3,280.2
017	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
017	Non-commercial D.Fir	NDF	0.0	5,348.0	5,348.0	0.30	1,604.4
017	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
017	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
017	Non-commercial MX	NMX	786.0	2,057.0	2,843.0	0.30	852.9
017	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
017	Spruce/Fir mature	SF9	0.0	92.0	92.0	0.60	55.2
017	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	26,200		0.28

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
018	Aspen mature	AS9			1,923.0	0.10	192.3
018	Douglas-fir mature	DF9			1,784.0	0.30	535.2
018	Limber Pine mature	LM9			0.0	0.60	0.0
018	Lodgepole mature	LP9			341.0	0.40	136.4
018	Mixed con. mature	MX39			451.0	0.30	135.3
018	Mixed con. mature	MX9			4,018.0	0.30	1,205.4
018	Non-commercial Aspen	NAS			0.0	0.10	0.0
018	Non-commercial D.Fir	NDF			1,851.0	0.30	555.3
018	Non-commercial LP	NLP			0.0	0.40	0.0
018	Non-commercial MX3	NMX3			0.0	0.30	0.0
018	Non-commercial MX	NMX			285.0	0.30	85.5
018	Non-commercial SF	NSF			0.0	0.30	0.0
018	Spruce/Fir mature	SF9			94.0	0.60	56.4
018	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	10,747		0.27

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
019	Aspen mature	AS9			2,689.0	0.10	268.9
019	Douglas-fir mature	DF9			2,732.0	0.30	819.6
019	Limber Pine mature	LM9			0.0	0.60	0.0
019	Lodgepole mature	LP9			1,172.0	0.40	468.8
019	Mixed con. mature	MX39			2,033.0	0.30	609.9
019	Mixed con. mature	MX9			1,924.0	0.30	577.2
019	Non-commercial Aspen	NAS			0.0	0.10	0.0
019	Non-commercial D.Fir	NDF			1,519.0	0.30	455.7
019	Non-commercial LP	NLP			0.0	0.40	0.0
019	Non-commercial MX3	NMX3			0.0	0.30	0.0
019	Non-commercial MX	NMX			625.0	0.30	187.5
019	Non-commercial SF	NSF			0.0	0.30	0.0
019	Spruce/Fir mature	SF9			1,367.0	0.60	820.2
019	Whitebark Pine mature	WB9			40.0	0.60	24.0
				Total Ac.	14,101		0.30

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
020	Aspen mature	AS9			1,194.0	0.10	119.4
020	Douglas-fir mature	DF9			2,981.0	0.30	894.3
020	Limber Pine mature	LM9			0.0	0.60	0.0
020	Lodgepole mature	LP9			3,018.0	0.40	1,207.2
020	Mixed con. mature	MX39			2,140.0	0.30	642.0
020	Mixed con. mature	MX9			1,794.0	0.30	538.2
020	Non-commercial Aspen	NAS			8.0	0.10	0.8
020	Non-commercial D.Fir	NDF			41.0	0.30	12.3
020	Non-commercial LP	NLP			169.0	0.40	67.6
020	Non-commercial MX3	NMX3			0.0	0.30	0.0
020	Non-commercial MX	NMX			1,996.0	0.30	598.8
020	Non-commercial SF	NSF			0.0	0.30	0.0
020	Spruce/Fir mature	SF9			234.0	0.60	140.4
020	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	13,575		0.31

Wtrshed	Vegetation	Veg.	D5 Idaho	D3 Idaho	Total ID	Hiding Cover	Weighted Cover

No.	Description	Code	Acres	Acres	Acres	Value	Col.7xCol.8
021	Aspen mature	AS9	25.0	114.0	139.0	0.10	13.9
021	Douglas-fir mature	DF9	870.0	220.0	1,090.0	0.30	327.0
021	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
021	Lodgepole mature	LP9	2,206.0	1,790.0	3,996.0	0.40	1,598.4
021	Mixed con. mature	MX39	810.0	71.0	881.0	0.30	264.3
021	Mixed con. mature	MX9	2,420.0	400.0	2,820.0	0.30	846.0
021	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
021	Non-commercial D.Fir	NDF	422.0	0.0	422.0	0.30	126.6
021	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
021	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
021	Non-commercial MX	NMX	444.0	38.0	482.0	0.30	144.6
021	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
021	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.60	0.0
021	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	9,830		0.34

Wtrshed No.	Vegetation Description	Veg. Code	D5 Wyo. Acres	D3 Wyo. Acres	Total Wyo Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
021	Aspen mature	AS9	586.0	379.0	965.0	0.10	96.5
021	Douglas-fir mature	DF9	3,163.0	3,201.0	6,364.0	0.30	1,909.2
021	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
021	Lodgepole mature	LP9	10,716.0	4,763.0	15,479.0	0.40	6,191.6
021	Mixed con. mature	MX39	5,684.0	3,034.0	8,718.0	0.30	2,615.4
021	Mixed con. mature	MX9	3,340.0	0.0	3,340.0	0.30	1,002.0
021	Non-commercial Aspen	NAS	380.0	0.0	380.0	0.10	38.0
021	Non-commercial D.Fir	NDF	417.0	258.0	675.0	0.30	202.5
021	Non-commercial LP	NLP	281.0	0.0	281.0	0.40	112.4
021	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
021	Non-commercial MX	NMX	1,228.0	715.0	1,943.0	0.30	582.9
021	Non-commercial SF	NSF	28.0	0.0	28.0	0.30	8.4
021	Spruce/Fir mature	SF9	676.0	0.0	676.0	0.60	405.6
021	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	38,849		0.34

Wtrshed No.	Vegetation Description	Veg. Code	Total ID Acres	Total Wyo Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
021	Aspen mature	AS9	139.0	965.0	1,104.0	0.10	110.4
021	Douglas-fir mature	DF9	1,090.0	6,364.0	7,454.0	0.30	2,236.2
021	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
021	Lodgepole mature	LP9	3,996.0	15,479.0	19,475.0	0.40	7,790.0
021	Mixed con. mature	MX39	881.0	8,718.0	9,599.0	0.30	2,879.7
021	Mixed con. mature	MX9	2,820.0	3,340.0	6,160.0	0.30	1,848.0
021	Non-commercial Aspen	NAS	0.0	380.0	380.0	0.10	38.0
021	Non-commercial D.Fir	NDF	422.0	675.0	1,097.0	0.30	329.1
021	Non-commercial LP	NLP	0.0	281.0	281.0	0.40	112.4
021	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
021	Non-commercial MX	NMX	482.0	1,943.0	2,425.0	0.30	727.5
021	Non-commercial SF	NSF	0.0	28.0	28.0	0.30	8.4
021	Spruce/Fir mature	SF9	0.0	676.0	676.0	0.60	405.6
021	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	48,679		0.34

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
022	Aspen mature	AS9			4,648.0	0.10	464.8
022	Douglas-fir mature	DF9			1,183.0	0.30	354.9
022	Limber Pine mature	LM9			0.0	0.60	0.0
022	Lodgepole mature	LP9			5,680.0	0.40	2,272.0
022	Mixed con. mature	MX39			5,693.0	0.30	1,707.9
022	Mixed con. mature	MX9			10,091.0	0.30	3,027.3
022	Non-commercial Aspen	NAS			13.0	0.10	1.3
022	Non-commercial D.Fir	NDF			0.0	0.30	0.0
022	Non-commercial LP	NLP			0.0	0.40	0.0
022	Non-commercial MX3	NMX3			0.0	0.30	0.0
022	Non-commercial MX	NMX			1,974.0	0.30	592.2
022	Non-commercial SF	NSF			0.0	0.30	0.0
022	Spruce/Fir mature	SF9			157.0	0.60	94.2
022	Whitebark Pine mature	WB9			0.0	0.60	0.0

			Total Ac.		29,439		0.29

Wtrshed No.	Vegetation Description	Veg. Code	024 Acres	023 Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
023/024	Aspen mature	AS9	1,120.0	778.0	1,898.0	0.10	189.8
023/024	Douglas-fir mature	DF9	529.0	617.0	1,146.0	0.30	343.8
023/024	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
023/024	Lodgepole mature	LP9	3,517.0	8,466.0	11,983.0	0.40	4,793.2
023/024	Mixed con. mature	MX39	681.0	3,483.0	4,164.0	0.30	1,249.2
023/024	Mixed con. mature	MX9	4,096.0	3,693.0	7,789.0	0.30	2,336.7
023/024	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
023/024	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.30	0.0
023/024	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
023/024	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
023/024	Non-commercial MX	NMX	306.0	733.0	1,039.0	0.30	311.7
023/024	Non-commercial SF	NSF	0.0	755.0	755.0	0.30	226.5
023/024	Spruce/Fir mature	SF9	54.0	124.0	178.0	0.60	106.8
023/024	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	28,952		0.33

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
025	Aspen mature	AS9			750.0	0.10	75.0
025	Douglas-fir mature	DF9			30,722.0	0.30	9,216.6
025	Limber Pine mature	LM9			114.0	0.60	68.4
025	Lodgepole mature	LP9			779.0	0.40	311.6
025	Mixed con. mature	MX39			5,396.0	0.30	1,618.8
025	Mixed con. mature	MX9			582.0	0.30	174.6
025	Non-commercial Aspen	NAS			0.0	0.10	0.0
025	Non-commercial D.Fir	NDF			3,846.0	0.30	1,153.8
025	Non-commercial LP	NLP			0.0	0.40	0.0
025	Non-commercial MX3	NMX3			0.0	0.30	0.0
025	Non-commercial MX	NMX			0.0	0.30	0.0
025	Non-commercial SF	NSF			0.0	0.30	0.0
025	Spruce/Fir mature	SF9			939.0	0.60	563.4
025	Whitebark Pine mature	WB9			253.0	0.60	151.8
				Total Ac.	43,381		0.31

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
026A	Aspen mature	AS9			1,853.0	0.10	185.3
026A	Douglas-fir mature	DF9			12,508.0	0.30	3,752.4
026A	Limber Pine mature	LM9			0.0	0.60	0.0
026A	Lodgepole mature	LP9			1,127.0	0.40	450.8
026A	Mixed con. mature	MX39			1,047.0	0.30	314.1
026A	Mixed con. mature	MX9			0.0	0.30	0.0
026A	Non-commercial Aspen	NAS			0.0	0.10	0.0
026A	Non-commercial D.Fir	NDF			68.0	0.30	20.4
026A	Non-commercial LP	NLP			0.0	0.40	0.0
026A	Non-commercial MX3	NMX3			0.0	0.30	0.0
026A	Non-commercial MX	NMX			0.0	0.30	0.0
026A	Non-commercial SF	NSF			0.0	0.30	0.0
026A	Spruce/Fir mature	SF9			218.0	0.60	130.8
026A	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	16,821		0.29

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
026B	Aspen mature	AS9			1,156.0	0.10	115.6
026B	Douglas-fir mature	DF9			12,960.0	0.30	3,888.0
026B	Limber Pine mature	LM9			0.0	0.60	0.0
026B	Lodgepole mature	LP9			546.0	0.40	218.4
026B	Mixed con. mature	MX39			1,517.0	0.30	455.1
026B	Mixed con. mature	MX9			0.0	0.30	0.0
026B	Non-commercial Aspen	NAS			0.0	0.10	0.0
026B	Non-commercial D.Fir	NDF			1,427.0	0.30	428.1
026B	Non-commercial LP	NLP			0.0	0.40	0.0

026B	Non-commercial MX3	NMX3			0.0	0.30	0.0
026B	Non-commercial MX	NMX			0.0	0.30	0.0
026B	Non-commercial SF	NSF			0.0	0.30	0.0
026B	Spruce/Fir mature	SF9			106.0	0.60	63.6
026B	Whitebark Pine mature	WB9			140.0	0.60	84.0
				Total Ac.	17,852		0.29

Wtrshed No.	Vegetation Description	Veg. Code	028 Acres	027 Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
027/028	Aspen mature	AS9	227.0	132.0	359.0	0.10	35.9
027/028	Douglas-fir mature	DF9	3,293.0	14,554.0	17,847.0	0.30	5,354.1
027/028	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
027/028	Lodgepole mature	LP9	286.0	0.0	286.0	0.40	114.4
027/028	Mixed con. mature	MX39	34.0	0.0	34.0	0.30	10.2
027/028	Mixed con. mature	MX9	0.0	0.0	0.0	0.30	0.0
027/028	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
027/028	Non-commercial D.Fir	NDF	326.0	4,883.0	5,209.0	0.30	1,562.7
027/028	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
027/028	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
027/028	Non-commercial MX	NMX	0.0	0.0	0.0	0.30	0.0
027/028	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
027/028	Spruce/Fir mature	SF9	52.0	0.0	52.0	0.60	31.2
027/028	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	23,787		0.30

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
029	Aspen mature	AS9			40.0	0.10	4.0
029	Douglas-fir mature	DF9			13,767.0	0.30	4,130.1
029	Limber Pine mature	LM9			0.0	0.60	0.0
029	Lodgepole mature	LP9			0.0	0.40	0.0
029	Mixed con. mature	MX39			0.0	0.30	0.0
029	Mixed con. mature	MX9			0.0	0.30	0.0
029	Non-commercial Aspen	NAS			0.0	0.10	0.0
029	Non-commercial D.Fir	NDF			1,569.0	0.30	470.7
029	Non-commercial LP	NLP			0.0	0.40	0.0
029	Non-commercial MX3	NMX3			0.0	0.30	0.0
029	Non-commercial MX	NMX			0.0	0.30	0.0
029	Non-commercial SF	NSF			0.0	0.30	0.0
029	Spruce/Fir mature	SF9			0.0	0.60	0.0
029	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	15,376		0.30

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
030A	Aspen mature	AS9			14.0	0.10	1.4
030A	Douglas-fir mature	DF9			7,470.0	0.30	2,241.0
030A	Limber Pine mature	LM9			0.0	0.60	0.0
030A	Lodgepole mature	LP9			0.0	0.40	0.0
030A	Mixed con. mature	MX39			0.0	0.30	0.0
030A	Mixed con. mature	MX9			287.0	0.30	86.1
030A	Non-commercial Aspen	NAS			0.0	0.10	0.0
030A	Non-commercial D.Fir	NDF			9,357.0	0.30	2,807.1
030A	Non-commercial LP	NLP			0.0	0.40	0.0
030A	Non-commercial MX3	NMX3			0.0	0.30	0.0
030A	Non-commercial MX	NMX			0.0	0.30	0.0
030A	Non-commercial SF	NSF			0.0	0.30	0.0
030A	Spruce/Fir mature	SF9			0.0	0.60	0.0
030A	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	17,128		0.30

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
030B	Aspen mature	AS9			147.0	0.10	14.7
030B	Douglas-fir mature	DF9			9,392.0	0.30	2,817.6
030B	Limber Pine mature	LM9			0.0	0.60	0.0
030B	Lodgepole mature	LP9			0.0	0.40	0.0

030B	Mixed con. mature	MX39			0.0	0.30	0.0
030B	Mixed con. mature	MX9			0.0	0.30	0.0
030B	Non-commercial Aspen	NAS			0.0	0.10	0.0
030B	Non-commercial D.Fir	NDF			8,128.0	0.30	2,438.4
030B	Non-commercial LP	NLP			0.0	0.40	0.0
030B	Non-commercial MX3	NMX3			0.0	0.30	0.0
030B	Non-commercial MX	NMX			0.0	0.30	0.0
030B	Non-commercial SF	NSF			0.0	0.30	0.0
030B	Spruce/Fir mature	SF9			0.0	0.60	0.0
030B	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	17,667		0.30

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
031A	Aspen mature	AS9			2.0	0.10	0.2
031A	Douglas-fir mature	DF9			12,378.0	0.30	3,713.4
031A	Limber Pine mature	LM9			0.0	0.60	0.0
031A	Lodgepole mature	LP9			0.0	0.40	0.0
031A	Mixed con. mature	MX39			0.0	0.30	0.0
031A	Mixed con. mature	MX9			57.0	0.30	17.1
031A	Non-commercial Aspen	NAS			0.0	0.10	0.0
031A	Non-commercial D.Fir	NDF			5,713.0	0.30	1,713.9
031A	Non-commercial LP	NLP			0.0	0.40	0.0
031A	Non-commercial MX3	NMX3			0.0	0.30	0.0
031A	Non-commercial MX	NMX			0.0	0.30	0.0
031A	Non-commercial SF	NSF			0.0	0.30	0.0
031A	Spruce/Fir mature	SF9			0.0	0.60	0.0
031A	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	18,150		0.30

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
031B	Aspen mature	AS9			0.0	0.10	0.0
031B	Douglas-fir mature	DF9			5,472.0	0.30	1,641.6
031B	Limber Pine mature	LM9			0.0	0.60	0.0
031B	Lodgepole mature	LP9			0.0	0.40	0.0
031B	Mixed con. mature	MX39			0.0	0.30	0.0
031B	Mixed con. mature	MX9			0.0	0.30	0.0
031B	Non-commercial Aspen	NAS			0.0	0.10	0.0
031B	Non-commercial D.Fir	NDF			270.0	0.30	81.0
031B	Non-commercial LP	NLP			0.0	0.40	0.0
031B	Non-commercial MX3	NMX3			0.0	0.30	0.0
031B	Non-commercial MX	NMX			0.0	0.30	0.0
031B	Non-commercial SF	NSF			0.0	0.30	0.0
031B	Spruce/Fir mature	SF9			0.0	0.60	0.0
031B	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	5,742		0.30

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
035	Aspen mature	AS9	954.0	0.0	954.0	0.10	95.4
035	Douglas-fir mature	DF9	396.0	0.0	396.0	0.30	118.8
035	Limber Pine mature	LM9	0.0	0.0	0.0	0.60	0.0
035	Lodgepole mature	LP9	115.0	0.0	115.0	0.40	46.0
035	Mixed con. mature	MX39	1,030.0	0.0	1,030.0	0.30	309.0
035	Mixed con. mature	MX9	1,774.0	0.0	1,774.0	0.30	532.2
035	Non-commercial Aspen	NAS	0.0	0.0	0.0	0.10	0.0
035	Non-commercial D.Fir	NDF	0.0	0.0	0.0	0.30	0.0
035	Non-commercial LP	NLP	0.0	0.0	0.0	0.40	0.0
035	Non-commercial MX3	NMX3	0.0	0.0	0.0	0.30	0.0
035	Non-commercial MX	NMX	480.0	0.0	480.0	0.30	144.0
035	Non-commercial SF	NSF	0.0	0.0	0.0	0.30	0.0
035	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.60	0.0
035	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.60	0.0
				Total Ac.	4,749		0.26

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8

036	Aspen mature	AS9			1,915.0	0.10	191.5
036	Douglas-fir mature	DF9			1,185.0	0.30	355.5
036	Limber Pine mature	LM9			0.0	0.60	0.0
036	Lodgepole mature	LP9			238.0	0.40	95.2
036	Mixed con. mature	MX39			3,465.0	0.30	1,039.5
036	Mixed con. mature	MX9			3,932.0	0.30	1,179.6
036	Non-commercial Aspen	NAS			0.0	0.10	0.0
036	Non-commercial D.Fir	NDF			0.0	0.30	0.0
036	Non-commercial LP	NLP			0.0	0.40	0.0
036	Non-commercial MX3	NMX3			0.0	0.30	0.0
036	Non-commercial MX	NMX			1,745.0	0.30	523.5
036	Non-commercial SF	NSF			0.0	0.30	0.0
036	Spruce/Fir mature	SF9			155.0	0.60	93.0
036	Whitebark Pine mature	WB9			0.0	0.60	0.0
			Total Ac.		12,635		0.28

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
037	Aspen mature	AS9			11,047.0	0.10	1,104.7
037	Douglas-fir mature	DF9			3,662.0	0.30	1,098.6
037	Limber Pine mature	LM9			0.0	0.60	0.0
037	Lodgepole mature	LP9			2,427.0	0.40	970.8
037	Mixed con. mature	MX39			1,391.0	0.30	417.3
037	Mixed con. mature	MX9			17,978.0	0.30	5,393.4
037	Non-commercial Aspen	NAS			0.0	0.10	0.0
037	Non-commercial D.Fir	NDF			4.0	0.30	1.2
037	Non-commercial LP	NLP			0.0	0.40	0.0
037	Non-commercial MX3	NMX3			0.0	0.30	0.0
037	Non-commercial MX	NMX			6,469.0	0.30	1,940.7
037	Non-commercial SF	NSF			0.0	0.30	0.0
037	Spruce/Fir mature	SF9			72.0	0.60	43.2
037	Whitebark Pine mature	WB9			0.0	0.60	0.0
			Total Ac.		43,050		0.25

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
038	Aspen mature	AS9			14,973.0	0.10	1,497.3
038	Douglas-fir mature	DF9			7,883.0	0.30	2,364.9
038	Limber Pine mature	LM9			0.0	0.60	0.0
038	Lodgepole mature	LP9			608.0	0.40	243.2
038	Mixed con. mature	MX39			317.0	0.30	95.1
038	Mixed con. mature	MX9			14,528.0	0.30	4,358.4
038	Non-commercial Aspen	NAS			0.0	0.10	0.0
038	Non-commercial D.Fir	NDF			0.0	0.30	0.0
038	Non-commercial LP	NLP			0.0	0.40	0.0
038	Non-commercial MX3	NMX3			0.0	0.30	0.0
038	Non-commercial MX	NMX			2,319.0	0.30	695.7
038	Non-commercial SF	NSF			0.0	0.30	0.0
038	Spruce/Fir mature	SF9			62.0	0.60	37.2
038	Whitebark Pine mature	WB9			0.0	0.60	0.0
			Total Ac.		40,690		0.23

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
039	Aspen mature	AS9			4,267.0	0.10	426.7
039	Douglas-fir mature	DF9			120.0	0.30	36.0
039	Limber Pine mature	LM9			0.0	0.60	0.0
039	Lodgepole mature	LP9			0.0	0.40	0.0
039	Mixed con. mature	MX39			281.0	0.30	84.3
039	Mixed con. mature	MX9			4,643.0	0.30	1,392.9
039	Non-commercial Aspen	NAS			0.0	0.10	0.0
039	Non-commercial D.Fir	NDF			0.0	0.30	0.0
039	Non-commercial LP	NLP			0.0	0.40	0.0
039	Non-commercial MX3	NMX3			0.0	0.30	0.0
039	Non-commercial MX	NMX			0.0	0.30	0.0
039	Non-commercial SF	NSF			0.0	0.30	0.0
039	Spruce/Fir mature	SF9			0.0	0.60	0.0
039	Whitebark Pine mature	WB9			0.0	0.60	0.0
			Total Ac.		9,311		0.21

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Hiding Cover Value	Weighted Cover Col.7xCol.8
040	Aspen mature	AS9			3,343.0	0.10	334.3
040	Douglas-fir mature	DF9			270.0	0.30	81.0
040	Limber Pine mature	LM9			0.0	0.60	0.0
040	Lodgepole mature	LP9			897.0	0.40	358.8
040	Mixed con. mature	MX39			1,372.0	0.30	411.6
040	Mixed con. mature	MX9			2,725.0	0.30	817.5
040	Non-commercial Aspen	NAS			0.0	0.10	0.0
040	Non-commercial D.Fir	NDF			0.0	0.30	0.0
040	Non-commercial LP	NLP			0.0	0.40	0.0
040	Non-commercial MX3	NMX3			0.0	0.30	0.0
040	Non-commercial MX	NMX			147.0	0.30	44.1
040	Non-commercial SF	NSF			0.0	0.30	0.0
040	Spruce/Fir mature	SF9			154.0	0.60	92.4
040	Whitebark Pine mature	WB9			0.0	0.60	0.0
				Total Ac.	8,908		0.24

ATTACHMENT F

Agreement Between the Idaho Department of Fish and Game and the Targhee National Forest for the "Infinitely Open Analysis”

IDAHO FISH & GAME

REGION 6
1515 Lincoln Road
Idaho Falls, Idaho 83401-2198

Cecil D. Andrua / Governor
Jerry M. Conley / Director

September 3, 1993

Subject: Elk Habitat Effectiveness and Elk Vulnerability Analysis for the Targhee
Forest Plan Revision

To: Idaho Department of Fish and Game
Targhee National Forest

This memo documents agreements reached between Jim Caswell (Targhee Forest Supervisor) and Don Wright (Idaho Department of Fish and Game Regional Supervisor) regarding analyzing the motorized use situation for elk habitat effectiveness (EHE) analysis and elk vulnerability (EV) analysis for the Idaho portion of the Targhee Forest Plan Revision.

EHE ANALYSIS

We agreed to use the motorized use road and trail analysis which was completed by the Ranger Districts in cooperation with IDFG Conservation Officers during the fall and winter of 1992/1993. The road and trail mapping will be updated as conditions change and new information is obtained. Idaho Department of Fish and Game Idaho Falls office staff will be provided copies of the maps and the opportunity to review the maps.

Attached to this memo is a copy of the February 10, 1993 letter which summarizes the previous agreements reached concerning EHE analysis. Note that the above paragraph now replaces Item 2 in the February 10 letter.

EV ANALYSIS

We agreed to conduct an additional analysis of existing motorized use for EV analysis using the following criteria and methodology:

1. All slopes over 40 percent will be inventoried using either GIS or topographic maps (the method to be used will depend on availability of the GIS data and the time frame required to complete the analysis). All slopes over 40 percent will be considered not used by motorized off-highway vehicles, unless there is motorized use on roads or trails documented by the Ranger Districts.

2. All "area closures" currently in effect on the Forest Travel Plan will be considered not used by motorized off-highway vehicles, unless there is motorized use on roads or trails documented by the Ranger Districts.

3. For slopes less than or equal to 40 percent and not within area closures, motorized use will be determined as follows:

   a) The Island Park Caldera and portions of the Moose Creek Plateau (Area A on the attached map): In Area A, all areas with slopes less than or equal to 40 percent will be considered "infinitely" open to motorized off-highway vehicles, regardless of type of vegetation.

   b) In portions of the Forest where commercial timber harvesting (intermediate, salvage, or harvest cuttings) has not occurred (Area C on the attached map): forested areas less than or equal to 40 percent slope will be considered not open to motorized off-highway vehicles, unless there is motorized use on roads or trails documented by the Ranger Districts. Non-forested areas (grass, forb, sagebrush) less than or equal to 40 percent slope will be considered "infinitely" open to motorized off-highway vehicles if those areas are accessible.

   c) Other portions of the Forest, where various amounts of commercial timber harvesting has occurred (Area B on the attached map): In Area B, "mature" (>20 years since harvest) forested areas less than or equal to 40 percent slope will be considered not open to motorized off-highway vehicles, unless there is motorized use on roads or trails documented by the Ranger Districts. Non-forested areas (grass, forb, sagebrush) and recently (<20 years) harvested areas less than or equal to 40 percent slope will be considered "infinitely" open to motorized off-highway vehicles if those areas are accessible.

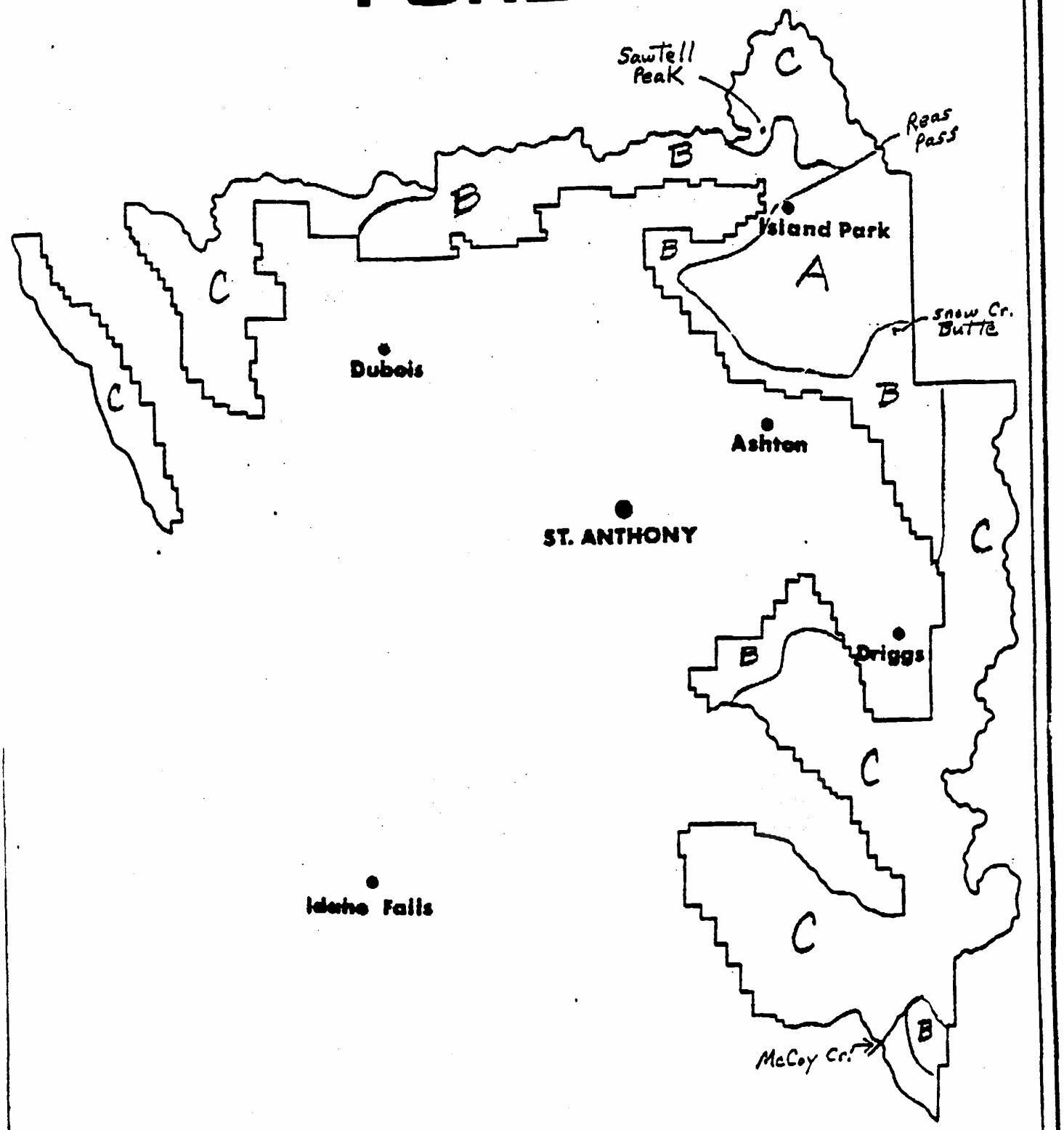
For both EHE and EV analysis, 38 watersheds will be used as the area of analysis. Both agencies will consider the possibility of aggregating the analysis to IDFG Game Management Units for purposes of correlating the habitat analysis with hunting analysis.

James L. Caswell
Forest Supervisor
Targhee National Forest

Don E. Wright
Regional Supervisor
Idaho Dept. of Fish and Game

Attachments

TARGHEE NATIONAL FOREST



ATTACHMENT G

Snag/Cavity Nesting Habitat Analysis with the Permanent Forest Inventory Plots

April 17, 1985

Area of Forest	Timber Stand Strata	Forest Inven. No.	Number of Snags per Acre in 2 inch Diameter Classes: 0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	8"+ dbh Snags/Ac. Downey Woodpkr	Per. Hab. Cap.	10"+ Snags/Ac. 3T & B.B. Woodpkr	Per. Hab. Cap.	Age 1a 12"+ Snags/Ac. Yellow-b. Sapsucker	Per. Hab. Cap.	12"+ Snags/Ac. Hairy Woodpecker	Per. Hab. Cap.	12"+ Snags/Ac. Northern Flicker	Per. Hab. Cap.	14"+ Snags/Ac. Lewis Woodpecker	Per. Hab. Cap.	14"+ Snags/Ac. William. Sapsucker	Per. Hab. Cap.	Total Percent Habitat Capability	Hab. Cap. for Hairy, N. Flicker, Y-b Sap and W. Sapsucker
Island Park	AS 5	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palisades	AS 5	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.28 snags/Ac	0	0	0
																			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Big Holes	AS 6	354	0	0	0	91	12	0	0	0	0	0	0	1	0	0	0	0	13	100	1	100	1	67	1	56	1	100	1	99	1	67	Aspen 100	19
Caribou	AS 6	530	0	0	0	0	13	0	5	0	0	0	0	0	0	0	0	0	18	100	5	100	5	100	5	100	5	100	0	0	0	0	100	97
Island Park	AS 6	684	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palisades	AS 6	385	0	0	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Slope	AS 6	138	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
																			6	40	1	40	1	33	1	31	1	40	0	20	0	13	40	23
Big Holes	AS 7	393	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Island Park	AS 7	171	0	0	0	27	7	17	0	0	2	0	0	0	0	0	0	0	26	100	19	100	2	100	2	100	2	100	2	100	2	100	100	39
Island Park	AS 7	173	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	8	100	8	100	8	100	8	100	8	100	0	0	0	0	97	100
Island Park	AS 7	229	0	0	46	0	0	0	8	5	2	0	0	0	0	0	0	0	15	100	15	100	15	100	15	100	15	100	7	100	7	100	100	100
																			12	75	11	75	6	75	6	75	6	75	2	50	2	50	74	60
Caribou	AS 8	500	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	1	1	33	1	100	1	67	1	56	1	56	1	99	1	67	12	19
Palisades	AS 8	382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W. Centennials/W. of I15	AS 8	375	0	0	0	0	0	7	10	0	0	0	0	0	0	0	0	0	17	100	17	100	10	100	10	100	10	100	0	0	0	0	100	100
																			6	44	6	67	4	56	4	52	4	52	0	33	0	22	37	40
Caribou	AS 9	507	0	0	0	38	0	0	4	0	0	0	0	0	0	0	0	0	4	100	4	100	4	100	4	100	4	100	0	0	0	0	48	77
East Centennials	AS 9	376	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M.A.12/13/N.14	AS 9	272	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M.A.12/13/N.14	AS 9	378	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	67	2	100	2	100	2	100	2	100	2	100	2	100	24	39
M.A.12/13/N.14	AS 9	379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Slope	AS 9	389	0	0	0	136	79	17	0	0	3	0	0	0	0	0	0	1	100	100	21	100	4	100	4	100	4	100	4	100	4	100	100	77
West Slope	AS 9	391	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	8	100	8	100	0	0	0	0	0	0	0	0	0	0	97	0
																			16	52	5	57	1	43	1	43	1	43	1	29	1	29	38	28
Big Holes	DF 5	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Big Holes	DF 5	392	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10.37 snags/Ac DF 0	0
Island Park	DF 5	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Middle Centennials	DF 5	15	0	0	0	0		6	5	0	0	0	0	0	0	0	0	0	11	100	11	100	5	100	5	100	5	100	0	0	0	0	100	97
Palisades	DF 5	118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palisades	DF 5	123	0	0	0	32	13	0	0	0	0	0	0	0	0	0	0	0	13	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0
Palisades	DF 5	384	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S. Bitterroot Mtn.	DF 5	454	0	0	0	0	0	5	4	5	2	0	3	0	0	0	0	1	20	100	20	100	15	100	15	100	15	100	11	100	11	100	100	100
																			6	38	4	25	3	25	3	25	3	25	1	13	1	13	38	25
Big Holes	DF 9	135	0	0	0	28	33	0	5	0	0	0	0	0	0	0	0	0	38	100	5	100	5	100	5	100	5	100	0	0	0	0	100	97
Big Holes	DF 9	153	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	100	96
Big Holes	DF 9	386	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Big Holes	DF 9	387	0	0	0	45	15	0	0	0	0	0	0	0	0	0	0	0	15	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0
Caribou	DF 9	503	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	96	0
Caribou	DF 9	505	0	0	0	126	26	9	11	0	0	0	0	0	0	0	0	0	46	100	20	100	11	100	11	100	11	100	0	0	0	0	100	100
Caribou	DF 9	506	0	0	0	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caribou	DF 9	509	0	0	0	26	15	0	0	0	0	0	0	0	0	0	0	0	15	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0
Caribou	DF 9	510	0	0	0	34	10	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	96	0
Caribou	DF 9	513	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caribou	DF 9	515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caribou	DF 9	516	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caribou	DF 9	517	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

e 2a

| | | |

Middle Centennials	DF	9	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	33	1	169	1	67	1	56	1	56	1	99	1	67	10	19
Middle Centennials	DF	9	30	0	0	0	21	12	0	0	0	0	0	0	0	0	0	0	0	0	12	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0
Middle Centennials	DF	9	31	0	0	0	17	21	0	0	0	0	0	0	0	0	0	0	0	0	21	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0
Middle Centennials	DF	9	32	0	0	0	42	9	0	0	0	0	0	0	0	0	0	0	0	0	9	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0
Middle Centennials	DF	9	94	0	0	0	68	24	8	0	0	0	0	0	0	0	0	0	0	0	32	100	8	100	0	0	0	0	0	0	0	0	0	0	87	0
Middle Centennials	DF	9	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
Palisades	DF	9	5	0	0	0	73	11	0	0	0	0	0	0	0	0	0	0	0	0	11	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palisades	DF	9	6	0	0	0	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
Palisades	DF	9	110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palisades	DF	9	124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palisades	DF	9	128	0	0	0	0	13	0	5	3	3	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palisades	DF	9	129	0	0	0	16	37	0	0	0	0	0	0	0	0	0	0	0	0	29	100	16	100	16	100	16	100	16	100	16	100	11	100	11	100	100	100
S. Bitterroot Mtn.	DF	9	37	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S. Bitterroot Mtn.	DF	9	40	0	0	0	23	11	0	8	0	0	0	2	1	0	0	0	0	0	22	100	11	100	11	100	11	100	11	100	8	0	0	0	0	0	100	0
S. Bitterroot Mtn.	DF	9	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	100	3	100	100	100
S. Bitterroot Mtn.	DF	9	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S. Bitterroot Mtn.	DF	9	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S. Bitterroot Mtn.	DF	9	53	0	0	0	14	53	58	22	3	10	10	0	0	1	0	0	0	0	157	100	104	100	46	100	46	100	46	100	24	100	24	100	100	100
S. Bitterroot Mtn.	DF	9	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S. Bitterroot Mtn.	DF	9	357	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	100	3	100	3	100	3	100	3	100	3	100	3	100	3	100	29	58
W. Centennials/W. of I15	DF	9	34	0	0	0	100	0	15	0	0	0	0	0	0	1	0	0	0	0	16	100	16	100	1	67	1	56	1	56	1	99	1	67	100	19
W. Centennials/W. of I15	DF	9	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W. Centennials/W. of I15	DF	9	38	0	0	0	29	11	0	0	0	0	0	0	0	0	0	0	0	0	11	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
West Slope	DF	9	7	30	0	0	39	11	8	0	0	0	0	0	0	0	0	0	0	0	19	100	8	100	0	0	0	0	0	0	0	0	0	0	100	0
West Slope	DF	9	147	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	4	100	4	100	4	100	4	100	4	100	4	100	4	100	39	77
																					13	61	7	50	4	40	4	40	4	40	3	36	3	35	53	34
S. Bitterroot Mtn.	LM	5	2	0	0	0	0	0	0	0	0	0	6	2	0	0	0	0	0	0	8	100	8	100	8	100	8	100	8	100	8	100	8	100	77	100
S. Bitterroot Mtn.	LM	7	47	0	0	0	0	0	6	0	0	0	0	2	2	0	1	0	0	0	11	100	11	100	5	100	5	100	5	100	5	100	5	100	5	100	100	97
S. Bitterroot Mtn.	LM	9	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
S. Bitterroot Mtn.	LM	9	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	33	1	169	1	67	1	56	1	56	1	99	1	67	10	0
																					5	58	5	92	4	67	4	64	4	64	4	75	4	67	47	19
Island Park	LP	5	286	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54
Island Park	LP	5	659	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
																					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Island Park	LP	6	158	0	0	50	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Island Park	LP	6	159	0	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Island Park	LP	6	195	0	0	0	21	0	8	0	0	0	0	0	0	0	0	0	0	0	8	100	8	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Island Park	LP	6	209	0	0	0	64	19	0	0	0	0	0	0	0	1	0	0	0	0	20	100	1	100	1	67	1	56	1	56	1	99	1	67	100	19
Island Park	LP	6	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Island Park	LP	6	231	0	0	0	0	0	8	4	0	0	0	0	0	0	0	0	0	0	12	100	12	100	4	100	4	100	4	100	0	0	0	0	100	77
Island Park	LP	6	287	0	0	0	0	41	49	4	7	2	0	0	0	0	0	0	0	0	103	100	62	100	13	100	13	100	13	100	9	100	9	100	100	100
Island Park	LP	6	291	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5	100	5	100	5	100	5	100	5	100	0	0	0	0	53	97
Island Park	LP	6	306	0	0	0	42	13	14	0	4	0	0	0	0	0	0	0	0	0	31	100	18	100	4	100	4	100	4	100	4	100	4	100	100	77
																					20	67	12	67	3	52	3	51	3	51	2	33	2	30	60	41
East Centennials	LP	7	77	0	0	0	0	0	6	14	3	3	0	0	0	0	0	0	0	0	26	100	26	100	20	100	20	100	20	100	6	100	6	100	100	100
East Centennials	LP	7	206	0	0	0	62	25	16	0	0	0	0	0	0	0	0	0	0	0	41	100	16	100	0	0	0	0	0	0	0	0	0	0	100	0
East Centennials	LP	7	207	0	0	0	38	14	0	0	0	3	0	0	0	0	0	0	0	0	17	100	3	100	3	100	3	100	3	100	3	100	3	100	100	58
Island Park	LP	7	214	0	0	0	13	8	16	4	3	0	0	0	0	0	0	0	0	0	31	100	23	100	7	100	7	100	7	100	3	100	3	100	100	100
Island Park	LP	7	218	0	0	0	0	0	8	0	0	2	0	0	0	0	0	0	0	0	10	100	10	100	2	100	2	100	2	100	2	100	2	100	100	39
Island Park	LP	7	319	0	0	0	59	18	5	4	0	0	0	0	0	0	0	0	0	0	27	100	9	100	4	100	4	100	4	100	0	0	0	0	100	77
Island Park	LP	7	327	0	0	0	0	0	13	10	0	3	0	0	0	0	0	0	0	0	26	100	26	100	13	100	13	100	13	100	3	100	3	100	100	100
Island Park	LP	7	668	0	0	0	79	23	6	0	4	0	0	0	0	0	0	0	0	0	33	100	10	100	4	100	4	100	4	100	4	100	4	100	100	77
																					26	100	15	100	7	88	7	88	7	88	3	75	3	75	100	69
Big Holes	LP	8	179	0	0	0	345	24	0	0	0	0	0	0	0	0	0	0	0	0	24	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0

| | | |

Island Park	LP 9	223	0	0	0	20	24	15	0	0	0	0	0	0	0	0	0	0	39	100	15	100	0	0	0	0	0	0	0	0	100		0
Island Park	LP 9	224	0	0	50	43	18	6	0	0	0	0	0	0	0	0	0	0	24	100	6	100	0	0	0	0	0	0	0	0	100		0
Island Park	LP 9	226	0	0	23	59	60	13	0	0	0	0	0	0	0	0	0	0	73	100	13	100	0	0	0	0	0	0	0	0	100		0
Island Park	LP 9	227	0	0	25	74	54	12	0	0	2	0	0	0	0	0	0	0	68	100	14	100	2	100	2	100	2	100	2	100	100		39
Island Park	LP 9	228	0	0	69	14	18	16	8	0	0	0	0	0	0	0	0	0	42	100	24	100	8	100	8	100	0	0	0	0	100		100
Island Park	LP 9	230	0	0	0	0	9	13	0	8	3	0	0	0	0	0	0	0	33	100	24	100	11	100	11	100	11	100	11	100	100		100
Island Park	LP 9	234	0	0	0	67	93	36	8	0	0	0	0	0	0	0	0	0	137	100	44	100	8	100	8	100	0	0	0	0	100		100
Island Park	LP 9	235	0	0	0	50	0	14	0	0	3	0	2	0	0	0	0	0	19	100	19	100	5	100	5	100	5	100	5	100	100		97
Island Park	LP 9	236	0	0	0	0	63	40	8	0	0	0	0	0	0	0	0	0	111	100	48	100	8	100	8	100	0	0	0	0	100		100
Island Park	LP 9	237	0	0	0	20	24	22	15	0	0	0	0	0	0	0	0	0	61	100	37	100	15	100	15	100	15	100	0	0	100		100
Island Park	LP 9	258	0	0	0	66	40	24	8	0	0	0	0	0	0	0	0	0	72	100	32	100	8	100	8	100	8	100	0	0	100		100
Island Park	LP 9	275	0	0	0	17	40	21	25	0	0	0	0	0	0	0	0	0	86	100	46	100	25	100	25	100	25	100	0	0	100		100
Island Park	LP 9	276	0	0	0	0	51	6	0	4	3	0	0	0	0	0	0	0	64	100	13	100	7	100	7	100	7	100	7	100	100		100
Island Park	LP 9	279	0	0	109	134	49	48	10	3	0	0	0	0	0	0	0	0	110	100	61	100	13	100	13	100	13	100	3	100	100		100
Island Park	LP 9	280	0	0	0	69	32	35	22	9	4	3	1	0	0	0	0	0	106	100	74	100	39	100	39	100	39	100	17	100	100		100
Island Park	LP 9	281	0	0	0	194	49	13	10	3	0	2	2	0	0	0	0	0	79	100	30	100	17	100	17	100	17	100	7	100	100		100
Island Park	LP 9	282	0	0	0	0	22	8	12	23	0	5	0	2	1	0	0	0	73	100	51	100	43	100	43	100	43	100	31	100	100		100
Island Park	LP 9	283	0	0	0	197	65	77	5	0	0	0	0	0	0	0	0	0	147	100	82	100	5	100	5	100	5	100	0	0	100		97
Island Park	LP 9	289	0	0	0	23	24	73	73	12	0	0	0	0	0	0	0	0	182	100	158	100	85	100	85	100	85	100	12	100	100		100
Island Park	LP 9	292	0	0	0	0	0	7	0	12	14	2	0	0	0	0	0	0	35	100	35	100	28	100	28	100	28	100	28	100	100		100
Island Park	LP 9	293	0	0	0	35	48	26	60	18	9	0	0	0	0	0	0	0	161	100	113	100	87	100	87	100	87	100	27	100	100		100
Island Park	LP 9	294	0	0	27	44	62	40	15	0	0	0	0	0	0	0	0	0	117	100	55	100	15	100	15	100	15	100	0	0	100		100
Island Park	LP 9	296	0	0	0	26	23	44	52	3	3	0	0	0	0	0	0	0	125	100	102	100	58	100	58	100	58	100	6	100	100		100
Island Park	LP 9	298	0	0	0	37	31	24	16	3	2	0	0	0	0	0	0	0	76	100	45	100	21	100	21	100	21	100	5	100	100		100
Island Park	LP 9	301	0	0	0	169	119	13	0	0	0	0	0	0	0	0	0	0	132	100	13	100	0	0	0	0	0	0	0	0	100		0
Island Park	LP 9	303	0	0	27	29	30	28	0	4	0	0	0	1	0	0	0	0	63	100	33	100	5	100	5	100	5	100	5	100	100		97
Island Park	LP 9	304	0	0	90	174	103	43	11	12	0	0	0	0	0	0	0	0	169	100	66	100	23	100	23	100	23	100	12	100	100		100
Island Park	LP 9	307	0	0	0	18	11	24	6	3	0	0	0	0	0	0	0	0	44	100	33	100	9	100	9	100	3	100	3	100	100		100
Island Park	LP 9	309	0	0	0	239	10	51	11	0	0	0	0	0	0	0	0	0	72	100	62	100	11	100	11	100	11	100	0	0	100		100
Island Park	LP 9	312	0	0	50	32	25	13	0	10	0	2	0	0	0	0	0	0	50	100	25	100	12	100	12	100	12	100	12	100	100		100
Island Park	LP 9	313	0	0	0	25	28	7	24	8	0	0	0	0	0	0	0	0	67	100	39	100	32	100	32	100	32	100	8	100	100		100
Island Park	LP 9	318	0	0	43	31	31	10	16	0	0	3	5	2	0	0	0	0	67	100	36	100	26	100	26	100	26	100	10	100	100		100
Island Park	LP 9	623	0	0	0	73	32	32	0	0	0	0	0	0	0	0	0	0	64	100	32	100	0	0	0	0	0	0	0	0	100		0
Island Park	LP 9	635	0	0	0	0	44	8	0	4	0	0	0	0	0	0	0	0	56	100	12	100	4	100	4	100	4	100	4	100	100		77
Island Park	LP 9	638	0	0	136	80	24	28	10	10	5	0	2	0	0	0	0	0	79	100	55	100	27	100	27	100	27	100	17	100	17	100	100	100
Island Park	LP 9	644	0	0	82	29	10	19	10	3	0	0	0	0	0	0	0	0	42	100	32	100	13	100	13	100	13	100	3	100	3	100	100	100
Island Park	LP 9	656	0	0	0	23	14	14	8	0	0	0	0	1	0	0	0	0	37	100	23	100	9	100	9	100	9	100	1	99	1	67	100	100
Island Park	LP 9	658	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Island Park	LP	664	0	0	54	37	0	6	0	3	0	0	0	0	0	0	0	0	9	100	9	100	3	100	3	100	3	100	3	100	3	100	96	58
Island Park	LP 9	672	0	0	0	0	0	51	25	8	9	2	0	0	0	0	0	0	95	100	95	100	44	100	44	100	44	100	19	100	19	100	100	100
Island Park	LP 9	675	0	0	0	44	39	7	6	0	3	0	0	0	0	0	0	0	55	100	16	100	9	100	9	100	9	100	3	100	3	100	100	100
Island Park	LP 9	680	0	0	0	44	34	28	15	7	0	0	0	0	0	0	0	0	84	100	50	100	22	100	22	100	22	100	7	100	7	100	100	100
Island Park	LP 9	692	0	0	0	64	48	21	5	8	0	0	0	0	0	0	0	0	82	100	34	100	13	100	13	100	13	100	8	100	8	100	100	100
M.A.12/13/N.14	LP 9	238	0	0	0	18	10	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0
M.A.12/13/N.14	LP 9	240	0	0	0	0	0	6	15	4	0	0	0	0	0	0	0	0	25	100	25	100	19	100	19	100	19	100	4	100	4	100	100	100
M.A.12/13/N.14	LP 9	243	0	0	50	39	20	24	20	6	3	0	0	0	0	0	0	0	73	100	53	100	29	100	29	100	29	100	9	100	9	100	100	100
M.A.12/13/N.14	LP 9	250	0	0	0	19	0	0	11	0	0	0	0	0	0	0	0	0	11	100	11	100	11	100	11	100	11	100	0	0	0	0	100	100
M.A.12/13/N.14	LP 9	253	0	0	0	27	0	13	0	3	3	0	0	0	0	0	0	0	19	100	19	100	6	100	6	100	6	100	6	100	6	100	100	100
M.A.12/13/N.14	LP 9	260	0	0	0	0	0	0	22	20	6	0	0	0	0	0	0	0	48	100	48	100	48	100	48	100	48	100	26	100	26	100	100	100
M.A.12/13/N.14	LP 9	266	0	0	0	0	0	20	0	0	3	0	0	0	0	0	0	0	23	100	23	100	3	100	3	100	3	100	3	100	3	100	100	58
M.A.12/13/N.14	LP 9	270	0	0	0	0	20	36	32	0	0	0	0	0	0	0	0	0	88	100	68	100	32	100	32	100	32	100	0	0	0	0	100	100
M.A.12/13/N.14	LP 9	273	0	0	0	0	18	19	19	0	0	0	0	0	0	0	0	0	56	100	38	100	19	100	19	100	19	100	0	0	0	0	100	100
M.A.12/13/N.14	LP 9	377	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palisades	LP 9	8	0	0	0	65	73	15	6	0	0	0	0	0	0	0	0	0	94	100	21	100	6	100	6	100	6	100	0	0	0	0	100	100
Palisades	LP 9	331	0	0	0	35	9	31	4	7	0	0	0	0	0	0	0	0	51	100	42	100	11	100	11	100	11	100	7	100	7	100	100	100
W. Centennials/W. of 115	LP 9	1	0	0	0	130	22	27	5	0	0	0	0	0	0	0	0	0	54	100	32	100	5	100	5	100	5	100	0	0	0	0	100	97
West Slope	LP 9	180	0	0	120	155	105	30	0	0	0	0	0	0	0	0	0	0	135	100	30	100	0	0	0	0	0	0	0	0	0	0	100	0
West Slope	LP 9	338	0	0	0	38	19	0	0	0	0	0	0	0	0	0	0	0	19	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0

| | | |

| | | |

| | | |

ATTACHMENT H

Snag/Cavity Nesting Habitat Analysis for the Principle Watersheds

Cavity Nesting Habitat Capability; Appendix 2

Watershed No.	Vegetation Description	Veg. Code	024 Acres	023 Acres	Total Acres	Total Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
023/024	Aspen mature	AS9	1,120.0	778.0	1,898.0	0.38	721.24	0.28	531.44
023/024	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
023/024	Aspen non-stocked	AS5	13.0	0.0	13.0	0.00	0.00	0.00	0.00
023/024	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
023/024	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
023/024	Aspen seedling	AS6	290.0	0.0	290.0	0.00	0.00	0.00	0.00
	Total Aspen		1423.00	778.00	2201.00	0.33		0.24	
023/024	D.Fir Non-commercial	NDF	0.0	0.0	0.0	0.53	0.00	0.34	0.00
023/024	Douglas-fir 1st Entry	1DF9	3.0	0.0	3.0	0.07	0.21	0.07	0.21
023/024	Douglas-fir mature	DF9	529.0	617.0	1,146.0	0.53	607.38	0.34	389.64
023/024	Douglas-fir non-stocked	DF5	255.0	60.0	315.0	0.00	0.00	0.00	0.00
023/024	Douglas-fir pole	DF8	0.0	55.0	55.0	0.53	29.15	0.34	18.70
023/024	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
023/024	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		787.0	732.0	1,519.0	0.42		0.27	
023/024	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
023/024	Lodgepole mature	LP9	3,517.0	8,466.0	11,983.0	0.98	11743.34	0.79	9466.57
023/024	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
023/024	Lodgepole non-stocked	LP5	2,364.0	957.0	3,321.0	0.00	0.00	0.00	0.00
023/024	Lodgepole pole	LP8	0.0	291.0	291.0	0.93	270.63	0.56	162.96
023/024	Lodgepole sapling	LP7	642.0	205.0	847.0	0.00	0.00	0.00	0.00
023/024	Lodgepole seedling	LP6	157.0	450.0	607.0	0.00	0.00	0.00	0.00
	Total Lodgepole		6,680.0	10,369.0	17,049.0	0.70		0.56	
023/024	MX mature	MX9	4,096.0	3,693.0	7,789.0	0.84	6542.76	0.64	4984.96
023/024	MX Non-commercial	NMX	306.0	733.0	1,039.0	0.84	872.76	0.64	664.96
023/024	MX non-stocked	MX5	368.0	0.0	368.0	0.00	0.00	0.00	0.00
023/024	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
023/024	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
023/024	MX seedling	MX6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX		4,770.0	4,426.0	9,196.0	0.81		0.61	
023/024	MX3 1st entry	1MX9	177.0	0.0	177.0	0.00	0.00	0.00	0.00
023/024	MX3 mature	MX39	681.0	3,483.0	4,164.0	0.87	3622.68	0.84	3497.76
023/024	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
023/024	MX3 non-stocked	MX35	114.0	280.0	394.0	0.00	0.00	0.00	0.00
023/024	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
023/024	MX3 sapling	MX37	0.0	16.0	16.0	0.00	0.00	0.00	0.00
023/024	MX3 seedling	MX36	0.0	164.0	164.0	0.00	0.00	0.00	0.00
	Total MX3		972.0	3,943.0	4,915.0	0.74		0.71	
023/024	SF Non-commercial	NSF	0.0	755.0	755.0	0.88	664.40	0.93	702.15
023/024	Spruce/Fir mature	SF9	54.0	124.0	178.0	0.88	156.64	0.93	165.54
023/024	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
023/024	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
023/024	Spruce/Fir sapling	SF7	2.0	0.0	2.0	0.00	0.00	0.00	0.00
023/024	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		56.0	879.0	935.0	0.88		0.93	
023/024	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		14,688.0	21,127.0	35,815.0	0.70		0.57	
023/024	Grass	GR	1.0	95.0	96.0				
023/024	Grass/brush	GRB	247.0	13.0	260.0				
023/024	Grass/forb	GRF	0.0	333.0	333.0				
023/024	Grass/sage	GRS	22.0	278.0	300.0				
023/024	Mahogany	M	0.0	0.0	0.0				
023/024	Mountain Brush	MB	717.0	2,678.0	3,395.0				
023/024	Private/other agency	NUS	157.0	323.0	480.0				
023/024	Rock	R	1.0	28.0	29.0				
023/024	Tall sage/grass	TSG	1,534.0	1,884.0	3,418.0				
023/024	Tall sage/mtn. brush	TSM	0.0	384.0	384.0				
023/024	Undefined/unknown	UD	0.0	0.0	0.0				
023/024	Water	WA	0.0	0.0	0.0				
023/024	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		2,522.0	5,693.0	8,215.0				
	Total (includes NUS acres)		17,367.0	27,143.0	44,510.0				
	Total Nat'l Forest Acres		17,210.0	26,820.0	44,030.0				

4102

Nat'l Forest Square Miles		26.9	41.9	68.8	

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
030A	Aspen mature	AS9			14.0	0.38	5.32	0.28	3.92
030A	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
030A	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
030A	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
030A	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
030A	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	14.00	0.38		0.28	
030A	D.Fir Non-commercial	NDF			9,357.0	0.53	4959.21	0.34	3181.38
030A	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
030A	Douglas-fir mature	DF9			7,470.0	0.53	3959.10	0.34	2539.80
030A	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
030A	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
030A	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
030A	Douglas-fir seedling	DF6			519.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	17,346.0	0.51		0.33	
030A	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
030A	Lodgepole mature	LP9			0.0	0.98	0.00	0.79	0.00
030A	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
030A	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
030A	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
030A	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
030A	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	0.0	ERR		ERR	
030A	MX mature	MX9			287.0	0.84	241.08	0.64	183.68
030A	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
030A	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
030A	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
030A	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
030A	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	287.0	0.84		0.64	
030A	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
030A	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
030A	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
030A	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
030A	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
030A	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
030A	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	
030A	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
030A	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
030A	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
030A	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
030A	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
030A	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
030A	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	17,647.0	0.52		0.33	
030A	Grass	GR			774.0				
030A	Grass/brush	GRB			0.0				
030A	Grass/forb	GRF			2,788.0				
030A	Grass/sage	GRS			1,124.0 —				
030A	Mahogany	M			0.0				
030A	Mountain Brush	MB			1,215.0				
030A	Private/other agency	NUS			426.0				
030A	Rock	R			7,187.0				
030A	Tall sage/grass	TSG			11,788.0 —				
030A	Tall sage/mtn. brush	TSM			0.0 —				
030A	Undefined/unknown	UD			13.0				
030A	Water	WA			91.0				
030A	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	24,980.0				

12912

Total (includes NUS acres)	ERR	ERR	43,053.0
Total Nat'l Forest Acres	ERR	ERR	42,627.0
Nat'l Forest Square Miles	ERR	ERR	66.6

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
031A	Aspen mature	AS9			2.0	0.38	0.76	0.28	0.56
031A	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
031A	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
031A	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
031A	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
031A	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	2.00	0.38		0.28	
031A	D.Fir Non-commercial	NDF			5,713.0	0.53	3027.89	0.34	1942.42
031A	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
031A	Douglas-fir mature	DF9			12,378.0	0.53	6560.34	0.34	4208.52
031A	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
031A	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
031A	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
031A	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	18,091.0	0.53		0.34	
031A	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
031A	Lodgepole mature	LP9			0.0	0.98	0.00	0.79	0.00
031A	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
031A	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
031A	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
031A	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
031A	Lodgepole seedling	LP6			64.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	64.0	0.00		0.00	
031A	MX mature	MX9			57.0	0.84	47.88	0.64	36.48
031A	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
031A	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
031A	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
031A	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
031A	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	57.0	0.84		0.64	
031A	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
031A	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
031A	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
031A	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
031A	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
031A	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
031A	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	
031A	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
031A	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
031A	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
031A	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
031A	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
031A	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
031A	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	18,214.0	0.53		0.34	
031A	Grass	GR			19.0				
031A	Grass/brush	GRB			598.0				
031A	Grass/forb	GRF			2,771.0				
031A	Grass/sage	GRS			2,724.0				
031A	Mahogany	M			1,176.0				
031A	Mountain Brush	MB			99.0				
031A	Private/other agency	NUS			14.0				
031A	Rock	R			5,605.0				
031A	Tall sage/grass	TSG			17,195.0				
031A	Tall sage/mtn. brush	TSM			0.0				
031A	Undefined/unknown	UD			6.0				
031A	Water	WA			123.0				

19,919

031A	Willow	W			0.0
	Total Non-Forested Acres		NA	NA	30,316.0
	Total (includes NUS acres)		ERR	ERR	48,544.0
	Total Nat'l Forest Acres		ERR	ERR	48,530.0
	Nat'l Forest Square Miles		ERR	ERR	75.8

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
025	Aspen mature	AS9			750.0	0.38	285.00	0.28	210.00
025	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
025	Aspen non-stocked	AS5			519.0	0.00	0.00	0.00	0.00
025	Aspen pole	AS8			76.0	0.38	28.88	0.40	30.40
025	Aspen sapling	AS7			23.0	0.00	0.00	0.00	0.00
025	Aspen seedling	AS6			12.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1380.00	0.23		0.17	
025	D.Fir Non-commercial	NDF			3,846.0	0.53	2038.38	0.34	1307.64
025	Douglas-fir 1st Entry	1DF9			9,909.0	0.07	693.63	0.07	693.63
025	Douglas-fir mature	DF9			30,722.0	0.53	16282.66	0.34	10445.48
025	Douglas-fir non-stocked	DF5			239.0	0.00	0.00	0.00	0.00
025	Douglas-fir pole	DF8			7.0	0.53	3.71	0.34	2.38
025	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
025	Douglas-fir seedling	DF6			525.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	45,248.0	0.42		0.28	
025	Limber Pine mature	LM9			114.0	0.47	53.58	0.54	61.56
025	Lodgepole mature	LP9			779.0	0.98	763.42	0.79	615.41
025	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
025	Lodgepole non-stocked	LP5			15.0	0.00	0.00	0.00	0.00
025	Lodgepole pole	LP8			290.0	0.93	269.70	0.56	162.40
025	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
025	Lodgepole seedling	LP6			916.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	2,000.0	0.52		0.39	
025	MX mature	MX9			582.0	0.84	488.88	0.64	372.48
025	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
025	MX non-stocked	MX5			1.0	0.00	0.00	0.00	0.00
025	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
025	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
025	MX seedling	MX6			196.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	779.0	0.63		0.48	
025	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
025	MX3 mature	MX39			5,396.0	0.87	4694.52	0.84	4532.64
025	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
025	MX3 non-stocked	MX35			81.0	0.00	0.00	0.00	0.00
025	MX3 pole	MX38			14.0	0.87	12.18	0.84	11.76
025	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
025	MX3 seedling	MX36			430.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	5,921.0	0.79		0.77	
025	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
025	Spruce/Fir mature	SF9			939.0	0.88	826.32	0.93	873.27
025	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
025	Spruce/Fir Pole	SF8			36.0	0.88	31.68	0.93	33.48
025	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
025	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	975.0	0.88		0.93	
025	Whitebark Pine mature	WB9			253.0	0.50	126.50	0.50	126.50
	Total Forested Acres		ERR	ERR	56,670.0	0.47		0.34	
025	Grass	GR			941.0				
025	Grass/brush	GRB			398.0				
025	Grass/forb	GRF			820.0				
025	Grass/sage	GRS			0.0				
025	Mahogany	M			0.0				
025	Mountain Brush	MB			117.0				
025	Private/other agency	NUS			2,033.0				
025	Rock	R			400.0				
025	Tall sage/grass	TSG			6,087.0				

025	Tall sage/mtn. brush	TSM			39.0
025	Undefined/unknown	UD			6.0
025	Water	WA			10.0
025	Willow	W			228.0
	Total Non-Forested Acres		NA	NA	9,046.0
	Total (includes NUS acres)		ERR	ERR	67,749.0
	Total Nat'l Forest Acres		ERR	ERR	65,716.0
	Nat'l Forest Square Miles		ERR	ERR	102.7

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
026A	Aspen mature	AS9			1,853.0	0.38	704.14	0.28	518.84
026A	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
026A	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
026A	Aspen pole	AS8			27.0	0.38	10.26	0.40	10.80
026A	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
026A	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1880.00	0.38		0.28	
026A	D.Fir Non-commercial	NDF			68.0	0.53	36.04	0.34	23.12
026A	Douglas-fir 1st Entry	1DF9			2,792.0	0.07	195.44	0.07	195.44
026A	Douglas-fir mature	DF9			12,508.0	0.53	6629.24	0.34	4252.72
026A	Douglas-fir non-stocked	DF5			50.0	0.00	0.00	0.00	0.00
026A	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
026A	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
026A	Douglas-fir seedling	DF6			12.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	15,430.0	0.44		0.29	
026A	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
026A	Lodgepole mature	LP9			1,127.0	0.98	1104.46	0.79	890.33
026A	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
026A	Lodgepole non-stocked	LP5			234.0	0.00	0.00	0.00	0.00
026A	Lodgepole pole	LP8			104.0	0.93	96.72	0.56	58.24
026A	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
026A	Lodgepole seedling	LP6			91.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	1,556.0	0.77		0.61	
026A	MX mature	MX9			0.0	0.84	0.00	0.64	0.00
026A	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
026A	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
026A	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
026A	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
026A	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	0.0	ERR		ERR	
026A	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
026A	MX3 mature	MX39			1,047.0	0.87	910.89	0.84	879.48
026A	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
026A	MX3 non-stocked	MX35			19.0	0.00	0.00	0.00	0.00
026A	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
026A	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
026A	MX3 seedling	MX36			10.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	1,076.0	0.85		0.82	
026A	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
026A	Spruce/Fir mature	SF9			218.0	0.88	191.84	0.93	202.74
026A	Spruce/Fir non-stocked	SF5			10.0	0.00	0.00	0.00	0.00
026A	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
026A	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
026A	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	228.0	0.84		0.89	
026A	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	20,170.0	0.49		0.35	
026A	Grass	GR			2,299.0				
026A	Grass/brush	GRB			0.0				
026A	Grass/forb	GRF			3.0				
026A	Grass/sage	GRS			254.0				
026A	Mahogany	M			0.0				
026A	Mountain Brush	MB			777.0				

026A	Private/other agency	NUS			3,015.0
026A	Rock	R			91.0
026A	Tall sage/grass	TSG			17,610.0
026A	Tall sage/mtn. brush	TSM			10.0
026A	Undefined/unknown	UD			57.0
026A	Water	WA			16.0
026A	Willow	W			0.0
	Total Non-Forested Acres		NA	NA	21,117.0
	Total (includes NUS acres)		ERR	ERR	44,302.0
	Total Nat'l Forest Acres		ERR	ERR	41,287.0
	Nat'l Forest Square Miles		ERR	ERR	64.5

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
026B	Aspen mature	AS9			1,156.0	0.38	439.28	0.28	323.68
026B	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
026B	Aspen non-stocked	AS5			185.0	0.00	0.00	0.00	0.00
026B	Aspen pole	AS8			235.0	0.38	89.30	0.40	94.00
026B	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
026B	Aspen seedling	AS6			47.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1623.00	0.33		0.26	
026B	D.Fir Non-commercial	NDF			1,427.0	0.53	756.31	0.34	485.18
026B	Douglas-fir 1st Entry	1DF9			3,672.0	0.07	257.04	0.07	257.04
026B	Douglas-fir mature	DF9			12,960.0	0.53	6868.80	0.34	4406.40
026B	Douglas-fir non-stocked	DF5			24.0	0.00	0.00	0.00	0.00
026B	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
026B	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
026B	Douglas-fir seedling	DF6			231.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	18,314.0	0.43		0.28	
026B	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
026B	Lodgepole mature	LP9			546.0	0.98	535.08	0.79	431.34
026B	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
026B	Lodgepole non-stocked	LP5			178.0	0.00	0.00	0.00	0.00
026B	Lodgepole pole	LP8			24.0	0.93	22.32	0.56	13.44
026B	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
026B	Lodgepole seedling	LP6			99.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	847.0	0.66		0.53	
026B	MX mature	MX9			0.0	0.84	0.00	0.64	0.00
026B	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
026B	MX non-stocked	MX5			80.0	0.00	0.00	0.00	0.00
026B	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
026B	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
026B	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	80.0	0.00		0.00	
026B	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
026B	MX3 mature	MX39			1,517.0	0.87	1319.79	0.84	1274.28
026B	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
026B	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
026B	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
026B	MX3 sapling	MX37			13.0	0.00	0.00	0.00	0.00
026B	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	1,530.0	0.86		0.83	
026B	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
026B	Spruce/Fir mature	SF9			106.0	0.88	93.28	0.93	98.58
026B	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
026B	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
026B	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
026B	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	106.0	0.88		0.93	
026B	Whitebark Pine mature	WB9			140.0	0.50	70.00	0.50	70.00
	Total Forested Acres		ERR	ERR	22,640.0	0.46		0.33	
026B	Grass	GR			442.0				
026B	Grass/brush	GRB			895.0				
026B	Grass/forb	GRF			40.0				

026B	Grass/sage	GRS		1,131.0
026B	Mahogany	M		0.0
026B	Mountain Brush	MB		171.0
026B	Private/other agency	NUS		1,689.0
026B	Rock	R		221.0
026B	Tall sage/grass	TSG		13,609.0
026B	Tall sage/mtn. brush	TSM		0.0
026B	Undefined/unknown	UD		16.0
026B	Water	WA		19.0
026B	Willow	W		0.0
	Total Non-Forested Acres		NA	NA 16,544.0
	Total (includes NUS acres)		ERR	ERR 40,873.0
	Total Nat'l Forest Acres		ERR	ERR 39,184.0
	Nat'l Forest Square Miles		ERR	ERR 61.2

Wtrshed No.	Vegetation Description	Veg. Code	028 Acres	027 Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
027/028	Aspen mature	AS9	227.0	132.0	359.0	0.38	136.42	0.28	100.52
027/028	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
027/028	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
027/028	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	Aspen seedling	AS6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Aspen		227.00	132.00	359.00	0.38		0.28	
027/028	D.Fir Non-commercial	NDF	326.0	4,883.0	5,209.0	0.53	2760.77	0.34	1771.06
027/028	Douglas-fir 1st Entry	1DF9	0.0	0.0	0.0	0.07	0.00	0.07	0.00
027/028	Douglas-fir mature	DF9	3,293.0	14,554.0	17,847.0	0.53	9458.91	0.34	6067.98
027/028	Douglas-fir non-stocked	DF5	14.0	0.0	14.0	0.00	0.00	0.00	0.00
027/028	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
027/028	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		3,633.0	19,437.0	23,070.0	0.53		0.34	
027/028	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
027/028	Lodgepole mature	LP9	286.0	0.0	286.0	0.98	280.28	0.79	225.94
027/028	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
027/028	Lodgepole non-stocked	LP5	134.0	0.0	134.0	0.00	0.00	0.00	0.00
027/028	Lodgepole pole	LP8	0.0	0.0	0.0	0.93	0.00	0.56	0.00
027/028	Lodgepole sapling	LP7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	Lodgepole seedling	LP6	33.0	1,586.0	1,619.0	0.00	0.00	0.00	0.00
	Total Lodgepole		453.0	1,586.0	2,039.0	0.14		0.11	
027/028	MX mature	MX9	0.0	0.0	0.0	0.84	0.00	0.64	0.00
027/028	MX Non-commercial	NMX	0.0	0.0	0.0	0.84	0.00	0.64	0.00
027/028	MX non-stocked	MX5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
027/028	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	MX seedling	MX6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX		0.0	0.0	0.0	ERR		ERR	
027/028	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	MX3 mature	MX39	34.0	0.0	34.0	0.87	29.58	0.84	28.56
027/028	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
027/028	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
027/028	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	MX3 seedling	MX36	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX3		34.0	0.0	34.0	0.87		0.84	
027/028	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
027/028	Spruce/Fir mature	SF9	52.0	0.0	52.0	0.88	45.76	0.93	48.36
027/028	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
027/028	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
027/028	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		52.0	0.0	52.0	0.88		0.93	
027/028	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		4,399.0	21,155.0	25,554.0	0.50		0.32	

027/028	Grass	GR	1,068.0	4,379.0	5,447.0
028	Grass/brush	GRB	0.0	0.0	0.0
028	Grass/forb	GRF	0.0	0.0	0.0
/028	Grass/sage	GRS	32.0	405.0	437.0
7/028	Mahogany	M	4.0	474.0	478.0
27/028	Mountain Brush	MB	186.0	563.0	749.0
027/028	Private/other agency	NUS	227.0	1,081.0	1,308.0
027/028	Rock	R	22.0	1,065.0	1,087.0
027/028	Tall sage/grass	TSG	16,146.0	25,990.0	42,136.0
027/028	Tall sage/mtn. brush	TSM	670.0	0.0	670.0
027/028	Undefined/unknown	UD	0.0	0.0	0.0
027/028	Water	WA	2.0	179.0	181.0
027/028	Willow	W	0.0	0.0	0.0
	Total Non-Forested Acres		18,130.0	33,055.0	51,185.0
	Total (includes NUS acres)		22,756.0	55,291.0	78,047.0
	Total Nat'l Forest Acres		22,529.0	54,210.0	76,739.0
	Nat'l Forest Square Miles		35.2	84.7	119.9

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
029	Aspen mature	AS9			40.0	0.38	15.20	0.28	11.20
029	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
029	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
029	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
029	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
029	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	40.00	0.38		0.28	
029	D.Fir Non-commercial	NDF			1,569.0	0.53	831.57	0.34	533.46
029	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
029	Douglas-fir mature	DF9			13,767.0	0.53	7296.51	0.34	4680.78
029	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
029	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
029	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
029	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	15,336.0	0.53		0.34	
029	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
029	Lodgepole mature	LP9			0.0	0.98	0.00	0.79	0.00
029	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
029	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
029	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
029	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
029	Lodgepole seedling	LP6			2,629.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	2,629.0	0.00		0.00	
029	MX mature	MX9			0.0	0.84	0.00	0.64	0.00
029	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
029	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
029	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
029	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
029	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	0.0	ERR		ERR	
029	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
029	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
029	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
029	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
029	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
029	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
029	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	
029	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
029	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
029	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
029	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
029	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
029	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
029	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00

	Total Forested Acres		ERR	ERR	18,005.0	0.45		0.29
029	Grass	GR			701.0			
029	Grass/brush	GRB			0.0			
029	Grass/forb	GRF			51.0			
029	Grass/sage	GRS			1,979.0			
029	Mahogany	M			890.0			
029	Mountain Brush	MB			272.0			
029	Private/other agency	NUS			348.0			
029	Rock	R			1,185.0			
029	Tall sage/grass	TSG			49,172.0			
029	Tall sage/mtn. brush	TSM			0.0			
029	Undefined/unknown	UD			3.0			
029	Water	WA			1.0			
029	Willow	W			0.0			
	Total Non-Forested Acres		NA	NA	54,254.0			
	Total (includes NUS acres)		ERR	ERR	72,607.0			
	Total Nat'l Forest Acres		ERR	ERR	72,259.0			
	Nat'l Forest Square Miles		ERR	ERR	112.9			

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
030B	Aspen mature	AS9			147.0	0.38	55.86	0.28	41.16
030B	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
030B	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
030B	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
030B	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
030B	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	147.00	0.38		0.28	
030B	D.Fir Non-commercial	NDF			8,128.0	0.53	4307.84	0.34	2763.52
030B	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
030B	Douglas-fir mature	DF9			9,392.0	0.53	4977.76	0.34	3193.28
030B	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
030B	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
030B	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
030B	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	17,520.0	0.53		0.34	
030B	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
030B	Lodgepole mature	LP9			0.0	0.98	0.00	0.79	0.00
030B	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
030B	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
030B	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
030B	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
030B	Lodgepole seedling	LP6			5,368.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	5,368.0	0.00		0.00	
030B	MX mature	MX9			0.0	0.84	0.00	0.64	0.00
030B	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
030B	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
030B	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
030B	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
030B	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	0.0	ERR		ERR	
030B	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
030B	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
030B	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
030B	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
030B	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
030B	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
030B	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	
030B	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
030B	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
030B	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
030B	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
030B	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
030B	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00

	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
030B	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	23,035.0	0.41		0.26	
030B	Grass	GR			25.0				
030B	Grass/brush	GRB			0.0				
030B	Grass/forb	GRF			138.0				
030B	Grass/sage	GRS			1,350.0				
030B	Mahogany	M			147.0				
030B	Mountain Brush	MB			1,284.0				
030B	Private/other agency	NUS			796.0				
030B	Rock	R			2,343.0				
030B	Tall sage/grass	TSG			19,677.0				
030B	Tall sage/mtn. brush	TSM			0.0				
030B	Undefined/unknown	UD			12.0				
030B	Water	WA			2.0				
030B	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	24,978.0				
	Total (includes NUS acres)		ERR	ERR	48,809.0				
	Total Nat'l Forest Acres		ERR	ERR	48,013.0				
	Nat'l Forest Square Miles		ERR	ERR	75.0				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
031B	Aspen mature	AS9			0.0	0.38	0.00	0.28	0.00
031B	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
031B	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
031B	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
031B	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
031B	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	0.00	ERR		ERR	
031B	D.Fir Non-commercial	NDF			270.0	0.53	143.10	0.34	91.80
031B	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
031B	Douglas-fir mature	DF9			5,472.0	0.53	2900.16	0.34	1860.48
031B	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
031B	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
031B	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
031B	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	5,742.0	0.53		0.34	
031B	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
031B	Lodgepole mature	LP9			0.0	0.98	0.00	0.79	0.00
031B	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
031B	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
031B	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
031B	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
031B	Lodgepole seedling	LP6			68.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	68.0	0.00		0.00	
031B	MX mature	MX9			0.0	0.84	0.00	0.64	0.00
031B	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
031B	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
031B	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
031B	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
031B	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	0.0	ERR		ERR	
031B	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
031B	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
031B	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
031B	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
031B	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
031B	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
031B	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	
031B	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
031B	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
031B	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00

031B	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
031B	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
031B	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
031B	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	5,810.0	0.52		0.34	
031B	Grass	GR			39.0				
031B	Grass/brush	GRB			0.0				
031B	Grass/forb	GRF			75.0				
031B	Grass/sage	GRS			385.0				
031B	Mahogany	M			288.0				
031B	Mountain Brush	MB			0.0				
031B	Private/other agency	NUS			441.0				
031B	Rock	R			156.0				
031B	Tall sage/grass	TSG			7,600.0				
031B	Tall sage/mtn. brush	TSM			0.0				
031B	Undefined/unknown	UD			6.0				
031B	Water	WA			10.0				
031B	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	8,559.0				
	Total (includes NUS acres)		ERR	ERR	14,810.0				
	Total Nat'l Forest Acres		ERR	ERR	14,369.0				
	Nat'l Forest Square Miles		ERR	ERR	22.5				

Wtrshed No.	Vegetation Description	Veg. Code			Idaho Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
002	Aspen mature	AS9			2,254.0	0.38	856.52	0.28	631.12
002	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
002	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
002	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
002	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
002	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	2254.00	0.38		0.28	
002	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
002	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
002	Douglas-fir mature	DF9			610.0	0.53	323.30	0.34	207.40
002	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
002	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
002	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
002	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	610.0	0.53		0.34	
002	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
002	Lodgepole mature	LP9			20.0	0.98	19.60	0.79	15.80
002	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
002	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
002	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
002	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
002	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	20.0	0.98		0.79	
002	MX mature	MX9			2,608.0	0.84	2190.72	0.64	1669.12
002	MX Non-commercial	NMX			1,235.0	0.84	1037.40	0.64	790.40
002	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
002	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
002	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
002	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	3,843.0	0.84		0.64	
002	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
002	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
002	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
002	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
002	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
002	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
002	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	

002	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
002	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
002	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
002	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
002	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
002	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
002	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	6,727.0	0.66		0.49	
002	Grass	GR			0.0				
002	Grass/brush	GRB			40.0				
002	Grass/forb	GRF			944.0				
002	Grass/sage	GRS			0.0				
002	Mahogany	M			0.0				
002	Mountain Brush	MB			216.0				
002	Private/other agency	NUS			433.0				
002	Rock	R			64.0				
002	Tall sage/grass	TSG			73.0				
002	Tall sage/mtn. brush	TSM			0.0				
002	Undefined/unknown	UD			48.0				
002	Water	WA			0.0				
002	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	1,385.0				
	Total (includes NUS acres)		ERR	ERR	8,545.0				
	Total Nat'l Forest Acres		ERR	ERR	8,112.0				
	Nat'l Forest Square Miles		ERR	ERR	12.7				

Wtrshed No.	Vegetation Description	Veg. Code			Wyoming Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
002	Aspen mature	AS9			4,190.0	0.38	1592.20	0.28	1173.20
002	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
002	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
002	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
002	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
002	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	4190.00	0.38		0.28	
002	D.Fir Non-commercial	NDF			159.0	0.53	84.27	0.34	54.06
002	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
002	Douglas-fir mature	DF9			4,017.0	0.53	2129.01	0.34	1365.78
002	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
002	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
002	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
002	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	4,176.0	0.53		0.34	
002	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
002	Lodgepole mature	LP9			384.0	0.98	376.32	0.79	303.36
002	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
002	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
002	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
002	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
002	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	384.0	0.98		0.79	
002	MX mature	MX9			4,130.0	0.84	3469.20	0.64	2643.20
002	MX Non-commercial	NMX			2,930.0	0.84	2461.20	0.64	1875.20
002	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
002	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
002	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
002	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	7,060.0	0.84		0.64	
002	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
002	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
002	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
002	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
002	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
002	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00

002	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	
002	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
002	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
002	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
002	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
002	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
002	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
002	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	15,810.0	0.64		0.47	
002	Grass	GR			0.0				
002	Grass/brush	GRB			395.0				
002	Grass/forb	GRF			6,976.0				
002	Grass/sage	GRS			7.0				
002	Mahogany	M			0.0				
002	Mountain Brush	MB			648.0				
002	Private/other agency	NUS			1,327.0				
002	Rock	R			1,248.0				
002	Tall sage/grass	TSG			251.0				
002	Tall sage/mtn. brush	TSM			0.0				
002	Undefined/unknown	UD			23.0				
002	Water	WA			54.0				
002	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	9,602.0				
	Total (includes NUS acres)		ERR	ERR	26,739.0				
	Total Nat'l Forest Acres		ERR	ERR	25,412.0				
	Nat'l Forest Square Miles		ERR	ERR	39.7				

shed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
002	Aspen mature	AS9	2,254.0	4,190.0	6,444.0	0.38	2448.72	0.28	1804.32
002	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
002	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
002	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	Aspen seedling	AS6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Aspen		2254.00	4190.00	6444.00	0.38		0.28	
002	D.Fir Non-commercial	NDF	0.0	159.0	159.0	0.53	84.27	0.34	54.06
002	Douglas-fir 1st Entry	1DF9	0.0	0.0	0.0	0.07	0.00	0.07	0.00
002	Douglas-fir mature	DF9	610.0	4,017.0	4,627.0	0.53	2452.31	0.34	1573.18
002	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
002	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		610.0	4,176.0	4,786.0	0.53		0.34	
002	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
002	Lodgepole mature	LP9	20.0	384.0	404.0	0.98	395.92	0.79	319.16
002	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
002	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	Lodgepole pole	LP8	0.0	0.0	0.0	0.93	0.00	0.56	0.00
002	Lodgepole sapling	LP7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	Lodgepole seedling	LP6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		20.0	384.0	404.0	0.98		0.79	
002	MX mature	MX9	2,608.0	4,130.0	6,738.0	0.84	5659.92	0.64	4312.32
002	MX Non-commercial	NMX	1,235.0	2,930.0	4,165.0	0.84	3498.60	0.64	2665.60
002	MX non-stocked	MX5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
002	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	MX seedling	MX6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX		3,843.0	7,060.0	10,903.0	0.84		0.64	
002	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	MX3 mature	MX39	0.0	0.0	0.0	0.87	0.00	0.84	0.00
002	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00

002	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
002	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	MX3 seedling	MX36	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX3		0.0	0.0	0.0	ERR		ERR	
002	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
002	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.88	0.00	0.93	0.00
002	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
002	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
002	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	0.0	0.0	ERR		ERR	
002	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		6,727.0	15,810.0	22,537.0	0.65		0.48	
002	Grass	GR	0.0	0.0	0.0				
002	Grass/brush	GRB	40.0	395.0	435.0				
002	Grass/forb	GRF	944.0	6,976.0	7,920.0				
002	Grass/sage	GRS	0.0	7.0	7.0				
002	Mahogany	M	0.0	0.0	0.0				
002	Mountain Brush	MB	216.0	648.0	864.0				
002	Private/other agency	NUS	433.0	1,327.0	1,760.0				
002	Rock	R	64.0	1,248.0	1,312.0				
002	Tall sage/grass	TSG	73.0	251.0	324.0				
002	Tall sage/mtn. brush	TSM	0.0	0.0	0.0				
002	Undefined/unknown	UD	48.0	23.0	71.0				
002	Water	WA	0.0	54.0	54.0				
002	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		1,385.0	9,602.0	10,987.0				
	Total (includes NUS acres)		8,545.0	26,739.0	35,284.0				
	Total Nat'l Forest Acres		8,112.0	25,412.0	33,524.0				
	Nat'l Forest Square Miles		12.7	39.7	52.4				

Wtrshed No.	Vegetation Description	Veg. Code			Idaho Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
003	Aspen mature	AS9			4,431.0	0.38	1683.78	0.28	1240.68
003	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
003	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
003	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
003	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
003	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	4431.00	0.38		0.28	
003	D.Fir Non-commercial	NDF			254.0	0.53	134.62	0.34	86.36
003	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
003	Douglas-fir mature	DF9			216.0	0.53	114.48	0.34	73.44
003	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
003	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
003	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
003	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	470.0	0.53		0.34	
003	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
003	Lodgepole mature	LP9			540.0	0.98	529.20	0.79	426.60
003	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
003	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
003	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
003	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
003	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	540.0	0.98		0.79	
003	MX mature	MX9			4,570.0	0.84	3838.80	0.64	2924.80
003	MX Non-commercial	NMX			2,809.0	0.84	2359.56	0.64	1797.76
003	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
003	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
003	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
003	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	7,379.0	0.84		0.64	

003	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
003	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
003	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
003	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
003	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
003	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
003	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	
003	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
003	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
003	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
003	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
003	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
003	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
003	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	12,820.0	0.68		0.51	
003	Grass	GR			5.0				
003	Grass/brush	GRB			577.0				
003	Grass/forb	GRF			5,302.0				
003	Grass/sage	GRS			2.0				
003	Mahogany	M			0.0				
003	Mountain Brush	MB			881.0				
003	Private/other agency	NUS			1,470.0				
003	Rock	R			919.0				
003	Tall sage/grass	TSG			6.0				
003	Tall sage/mtn. brush	TSM			0.0				
003	Undefined/unknown	UD			75.0				
003	Water	WA			6.0				
003	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	7,773.0				
	Total (includes NUS acres)		ERR	ERR	22,063.0				
	Total Nat'l Forest Acres		ERR	ERR	20,593.0				
	Nat'l Forest Square Miles		ERR	ERR	32.2				

Wtrshed No.	Vegetation Description	Veg. Code			Wyoming Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
003	Aspen mature	AS9			2,164.0	0.38	822.32	0.28	605.92
003	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
003	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
003	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
003	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
003	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	2164.00	0.38		0.28	
003	D.Fir Non-commercial	NDF			685.0	0.53	363.05	0.34	232.90
003	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
003	Douglas-fir mature	DF9			6,856.0	0.53	3633.68	0.34	2331.04
003	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
003	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
003	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
003	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	7,541.0	0.53		0.34	
003	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
003	Lodgepole mature	LP9			685.0	0.98	671.30	0.79	541.15
003	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
003	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
003	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
003	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
003	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	685.0	0.98		0.79	
003	MX mature	MX9			1,815.0	0.84	1524.60	0.64	1161.60
003	MX Non-commercial	NMX			2,812.0	0.84	2362.08	0.64	1799.68
003	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
003	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
003	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00

003	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	4,627.0	0.84		0.64	
003	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
003	MX3 mature	MX39			40.0	0.87	34.80	0.84	33.60
003	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
003	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
003	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
003	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
003	MX3 seedling	MX36			325.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	365.0	0.10		0.09	
003	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
003	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
003	Spruce/Fir non-stocked	SF5			4.0	0.00	0.00	0.00	0.00
003	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
003	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
003	Spruce/Fir seedling	SF6			41.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	45.0	0.00		0.00	
003	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	15,427.0	0.61		0.43	
003	Grass	GR			0.0				
003	Grass/brush	GRB			39.0				
003	Grass/forb	GRF			6,983.0				
003	Grass/sage	GRS			0.0				
003	Mahogany	M			0.0				
003	Mountain Brush	MB			1,497.0				
003	Private/other agency	NUS			0.0				
003	Rock	R			554.0				
003	Tall sage/grass	TSG			1.0				
003	Tall sage/mtn. brush	TSM			0.0				
003	Undefined/unknown	UD			33.0				
003	Water	WA			10.0				
003	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	9,117.0				
	Total (includes NUS acres)		ERR	ERR	24,544.0				
	Total Nat'l Forest Acres		ERR	ERR	24,544.0				
	Nat'l Forest Square Miles		ERR	ERR	38.4				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
003	Aspen mature	AS9	4,431.0	2,164.0	6,595.0	0.38	2506.10	0.28	1846.60
003	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
003	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
003	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	Aspen seedling	AS6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Aspen		4431.00	2164.00	6595.00	0.38		0.28	
003	D.Fir Non-commercial	NDF	254.0	685.0	939.0	0.53	497.67	0.34	319.26
003	Douglas-fir 1st Entry	1DF9	0.0	0.0	0.0	0.07	0.00	0.07	0.00
003	Douglas-fir mature	DF9	216.0	6,856.0	7,072.0	0.53	3748.16	0.34	2404.48
003	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
003	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		470.0	7,541.0	8,011.0	0.53		0.34	
003	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
003	Lodgepole mature	LP9	540.0	685.0	1,225.0	0.98	1200.50	0.79	967.75
003	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
003	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	Lodgepole pole	LP8	0.0	0.0	0.0	0.93	0.00	0.56	0.00
003	Lodgepole sapling	LP7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	Lodgepole seedling	LP6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		540.0	685.0	1,225.0	0.98		0.79	
003	MX mature	MX9	4,570.0	1,815.0	6,385.0	0.84	5363.40	0.64	4086.40
003	MX Non-commercial	NMX	2,809.0	2,812.0	5,621.0	0.84	4721.64	0.64	3597.44

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
003	MX non-stocked	MX5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
003	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	MX seedling	MX6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX		7,379.0	4,627.0	12,006.0	0.84		0.64	
003	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	MX3 mature	MX39	0.0	40.0	40.0	0.87	34.80	0.84	33.60
003	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
003	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
003	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	MX3 seedling	MX36	0.0	325.0	325.0	0.00	0.00	0.00	0.00
	Total MX3		0.0	365.0	365.0	0.10		0.09	
003	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
003	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.88	0.00	0.93	0.00
003	Spruce/Fir non-stocked	SF5	0.0	4.0	4.0	0.00	0.00	0.00	0.00
003	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
003	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
003	Spruce/Fir seedling	SF6	0.0	41.0	41.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	45.0	45.0	0.00		0.00	
003	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		12,820.0	15,427.0	28,247.0	0.64		0.47	
003	Grass	GR	5.0	0.0	5.0				
003	Grass/brush	GRB	577.0	39.0	616.0				
003	Grass/forb	GRF	5,302.0	6,983.0	12,285.0				
003	Grass/sage	GRS	2.0	0.0	2.0				
003	Mahogany	M	0.0	0.0	0.0				
003	Mountain Brush	MB	881.0	1,497.0	2,378.0				
003	Private/other agency	NUS	1,470.0	0.0	1,470.0				
003	Rock	R	919.0	554.0	1,473.0				
003	Tall sage/grass	TSG	6.0	1.0	7.0				
003	Tall sage/mtn. brush	TSM	0.0	0.0	0.0				
003	Undefined/unknown	UD	75.0	33.0	108.0				
003	Water	WA	6.0	10.0	16.0				
003	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		7,773.0	9,117.0	16,890.0				
	Total (includes NUS acres)		22,063.0	24,544.0	46,607.0				
	Total Nat'l Forest Acres		20,593.0	24,544.0	45,137.0				
	Nat'l Forest Square Miles		32.2	38.4	70.5				
004	Aspen mature	AS9	3,696.0	7.0	3,703.0	0.38	1407.14	0.28	1036.84
004	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
004	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
004	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	Aspen seedling	AS6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Aspen		3696.00	7.00	3703.00	0.38		0.28	
004	D.Fir Non-commercial	NDF	1,402.0	229.0	1,631.0	0.53	864.43	0.34	554.54
004	Douglas-fir 1st Entry	1DF9	0.0	0.0	0.0	0.07	0.00	0.07	0.00
004	Douglas-fir mature	DF9	7,170.0	568.0	7,738.0	0.53	4101.14	0.34	2630.92
004	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
004	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		8,572.0	797.0	9,369.0	0.53		0.34	
004	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
004	Lodgepole mature	LP9	855.0	0.0	855.0	0.98	837.90	0.79	675.45
004	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
004	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	Lodgepole pole	LP8	0.0	0.0	0.0	0.93	0.00	0.56	0.00
004	Lodgepole sapling	LP7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	Lodgepole seedling	LP6	35.0	0.0	35.0	0.00	0.00	0.00	0.00
	Total Lodgepole		890.0	0.0	890.0	0.94		0.76	

004	MX mature	MX9	9,980.0	264.0	10,244.0	0.84	8604.96	0.64	6556.16
004	MX Non-commercial	NMX	3,766.0	333.0	4,099.0	0.84	3443.16	0.64	2623.36
004	MX non-stocked	MX5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
004	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	MX seedling	MX6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX		13,746.0	597.0	14,343.0	0.84		0.64	
004	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	MX3 mature	MX39	0.0	0.0	0.0	0.87	0.00	0.84	0.00
004	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
004	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
004	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	MX3 seedling	MX36	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX3		0.0	0.0	0.0	ERR		ERR	
004	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
004	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.88	0.00	0.93	0.00
004	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
004	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
004	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	0.0	0.0	ERR		ERR	
004	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		26,904.0	1,401.0	28,305.0	0.68		0.50	
004	Grass	GR	170.0	0.0	170.0				
004	Grass/brush	GRB	844.0	1.0	845.0				
004	Grass/forb	GRF	8,949.0	380.0	9,329.0				
004	Grass/sage	GRS	50.0	0.0	50.0				
004	Mahogany	M	0.0	0.0	0.0				
004	Mountain Brush	MB	8,631.0	387.0	9,018.0				
004	Private/other agency	NUS	1,194.0	0.0	1,194.0				
004	Rock	R	1,341.0	5.0	1,346.0				
004	Tall sage/grass	TSG	446.0	0.0	446.0				
004	Tall sage/mtn. brush	TSM	0.0	0.0	0.0				
004	Undefined/unknown	UD	119.0	2.0	121.0				
004	Water	WA	277.0	2.0	279.0				
004	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		20,827.0	777.0	21,604.0				
	Total (includes NUS acres)		48,925.0	2,178.0	51,103.0				
	Total Nat'l Forest Acres		47,731.0	2,178.0	49,909.0				
	Nat'l Forest Square Miles		74.6	3.4	78.0				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
005	Aspen mature	AS9			2,637.0	0.38	1002.06	0.28	738.36
005	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
005	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
005	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
005	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
005	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	2637.00	0.38		0.28	
005	D.Fir Non-commercial	NDF			90.0	0.53	47.70	0.34	30.60
005	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
005	Douglas-fir mature	DF9			3,786.0	0.53	2006.58	0.34	1287.24
005	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
005	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
005	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
005	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	3,876.0	0.53		0.34	
005	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
005	Lodgepole mature	LP9			360.0	0.98	352.80	0.79	284.40
005	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
005	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
005	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00

005	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
005	Lodgepole seedling	LP6			800.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	1,160.0	0.30		0.25	
005	MX mature	MX9			8,780.0	0.84	7375.20	0.64	5619.20
005	MX Non-commercial	NMX			2,402.0	0.84	2017.68	0.64	1537.28
005	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
005	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
005	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
005	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	11,182.0	0.84		0.64	
005	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
005	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
005	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
005	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
005	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
005	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
005	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	
005	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
005	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
005	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
005	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
005	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
005	Spruce/Fir seedling	SF6			1.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	1.0	0.00		0.00	
005	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	18,856.0	0.68		0.50	
005	Grass	GR			55.0				
005	Grass/brush	GRB			167.0				
005	Grass/forb	GRF			838.0				
005	Grass/sage	GRS			483.0				
005	Mahogany	M			0.0				
005	Mountain Brush	MB			4,455.0				
005	Private/other agency	NUS			6.0				
005	Rock	R			130.0				
005	Tall sage/grass	TSG			2,154.0				
005	Tall sage/mtn. brush	TSM			0.0				
005	Undefined/unknown	UD			105.0				
005	Water	WA			18.0				
005	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	8,405.0				
	Total (includes NUS acres)		ERR	ERR	27,267.0				
	Total Nat'l Forest Acres		ERR	ERR	27,261.0				
	Nat'l Forest Square Miles		ERR	ERR	42.6				

Wtrshed No.	Vegetation Description	Veg. Code	D4 Acres	D5 Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
006	Aspen mature	AS9	2,333.0	2,118.0	4,451.0	0.38	1691.38	0.28	1246.28
006	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
006	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
006	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	Aspen seedling	AS6	0.0	20.0	20.0	0.00	0.00	0.00	0.00
	Total Aspen		2333.00	2138.00	4471.00	0.38		0.28	
006	D.Fir Non-commercial	NDF	0.0	0.0	0.0	0.53	0.00	0.34	0.00
006	Douglas-fir 1st Entry	1DF9	0.0	0.0	0.0	0.07	0.00	0.07	0.00
006	Douglas-fir mature	DF9	166.0	84.0	250.0	0.53	132.50	0.34	85.00
006	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
006	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		166.0	84.0	250.0	0.53		0.34	
006	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
006	Lodgepole mature	LP9	1,026.0	1,478.0	2,504.0	0.98	2453.92	0.79	1978.16

006	Lodgepole Non-commercial	NLP	0.0	16.0	16.0	0.98	15.68	0.79	12.64
006	Lodgepole non-stocked	LP5	63.0	0.0	63.0	0.00	0.00	0.00	0.00
006	Lodgepole pole	LP8	0.0	126.0	126.0	0.93	117.18	0.56	70.56
006	Lodgepole sapling	LP7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	Lodgepole seedling	LP6	42.0	0.0	42.0	0.00	0.00	0.00	0.00
	Total Lodgepole		1,131.0	1,620.0	2,751.0	0.94		0.75	
006	MX mature	MX9	8,637.0	2,897.0	11,534.0	0.84	9688.56	0.64	7381.76
006	MX Non-commercial	NMX	3,916.0	918.0	4,834.0	0.84	4060.56	0.64	3093.76
006	MX non-stocked	MX5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
006	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	MX seedling	MX6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX		12,553.0	3,815.0	16,368.0	0.84		0.64	
006	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	MX3 mature	MX39	1,183.0	913.0	2,096.0	0.87	1823.52	0.84	1760.64
006	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
006	MX3 non-stocked	MX35	13.0	0.0	13.0	0.00	0.00	0.00	0.00
006	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
006	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	MX3 seedling	MX36	27.0	0.0	27.0	0.00	0.00	0.00	0.00
	Total MX3		1,223.0	913.0	2,136.0	0.85		0.82	
006	SF Non-commercial	NSF	0.0	33.0	33.0	0.88	29.04	0.93	30.69
006	Spruce/Fir mature	SF9	106.0	297.0	403.0	0.88	354.64	0.93	374.79
006	Spruce/Fir non-stocked	SF5	63.0	0.0	63.0	0.00	0.00	0.00	0.00
006	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
006	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
006	Spruce/Fir seedling	SF6	18.0	0.0	18.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		187.0	330.0	517.0	0.74		0.78	
006	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		17,593.0	8,900.0	26,493.0	0.77		0.61	
006	Grass	GR	184.0	60.0	244.0				
006	Grass/brush	GRB	18.0	11.0	29.0				
006	Grass/forb	GRF	558.0	709.0	1,267.0				
006	Grass/sage	GRS	487.0	387.0	874.0				
006	Mahogany	M	0.0	0.0	0.0				
006	Mountain Brush	MB	6,572.0	5,015.0	11,587.0				
006	Private/other agency	NUS	172.0	0.0	172.0				
006	Rock	R	44.0	7.0	51.0				
006	Tall sage/grass	TSG	2,491.0	1,067.0	3,558.0				
006	Tall sage/mtn. brush	TSM	3.0	593.0	596.0				
006	Undefined/unknown	UD	0.0	2.0	2.0				
006	Water	WA	0.0	2.0	2.0				
006	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		10,357.0	7,853.0	18,210.0				
	Total (includes NUS acres)		28,122.0	16,753.0	44,875.0				
	Total Nat'l Forest Acres		27,950.0	16,753.0	44,703.0				
	Nat'l Forest Square Miles		43.7	26.2	69.8				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
007/033	Aspen mature	AS9			5,658.0	0.38	2150.04	0.28	1584.24
007/033	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
007/033	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
007/033	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
007/033	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
007/033	Aspen seedling	AS6			105.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	5763.00	0.37		0.27	
007/033	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
007/033	Douglas-fir 1st Entry	1DF9			472.0	0.07	33.04	0.07	33.04
007/033	Douglas-fir mature	DF9			1,206.0	0.53	639.18	0.34	410.04
007/033	Douglas-fir non-stocked	DF5			133.0	0.00	0.00	0.00	0.00
007/033	Douglas-fir pole	DF8			13.0	0.53	6.89	0.34	4.42
007/033	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
007/033	Douglas-fir seedling	DF6			15.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	1,839.0	0.37		0.24	

007/033	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
007/033	Lodgepole mature	LP9			3,058.0	0.98	2996.84	0.79	2415.82
007/033	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
007/033	Lodgepole non-stocked	LP5			507.0	0.00	0.00	0.00	0.00
007/033	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
007/033	Lodgepole sapling	LP7			357.0	0.00	0.00	0.00	0.00
007/033	Lodgepole seedling	LP6			44.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	3,966.0	0.76		0.61	
007/033	MX mature	MX9			9,761.0	0.84	8199.24	0.64	6247.04
007/033	MX Non-commercial	NMX			2,508.0	0.84	2106.72	0.64	1605.12
007/033	MX non-stocked	MX5			64.0	0.00	0.00	0.00	0.00
007/033	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
007/033	MX sapling	MX7			87.0	0.00	0.00	0.00	0.00
007/033	MX seedling	MX6			28.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	12,448.0	0.83		0.63	
007/033	MX3 1st entry	1MX9			3.0	0.00	0.00	0.00	0.00
007/033	MX3 mature	MX39			187.0	0.87	162.69	0.84	157.08
007/033	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
007/033	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
007/033	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
007/033	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
007/033	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	190.0	0.86		0.83	
007/033	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
007/033	Spruce/Fir mature	SF9			2.0	0.88	1.76	0.93	1.86
007/033	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
007/033	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
007/033	Spruce/Fir sapling	SF7			1.0	0.00	0.00	0.00	0.00
007/033	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	3.0	0.59		0.62	
007/033	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	24,209.0	0.67		0.51	
007/033	Grass	GR			58.0				
007/033	Grass/brush	GRB			823.0				
007/033	Grass/forb	GRF			520.0				
007/033	Grass/sage	GRS			322.0				
007/033	Mahogany	M			0.0				
007/033	Mountain Brush	MB			11,327.0				
007/033	Private/other agency	NUS			1,038.0				
007/033	Rock	R			134.0				
007/033	Tall sage/grass	TSG			4,412.0				
007/033	Tall sage/mtn. brush	TSM			123.0				
007/033	Undefined/unknown	UD			104.0				
007/033	Water	WA			136.0				
007/033	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	17,959.0				
	Total (includes NUS acres)		ERR	ERR	43,206.0				
	Total Nat'l Forest Acres		ERR	ERR	42,168.0				
	Nat'l Forest Square Miles		ERR	ERR	65.9				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
035	Aspen mature	AS9	954.0	0.0	954.0	0.38	362.52	0.28	267.12
035	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
035	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
035	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	Aspen seedling	AS6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Aspen		954.00	0.00	954.00	0.38		0.28	
035	D.Fir Non-commercial	NDF	0.0	0.0	0.0	0.53	0.00	0.34	0.00
035	Douglas-fir 1st Entry	1DF9	0.0	0.0	0.0	0.07	0.00	0.07	0.00
035	Douglas-fir mature	DF9	396.0	0.0	396.0	0.53	209.88	0.34	134.64
035	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
035	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00

035	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		396.0	0.0	396.0	0.53		0.34	
035	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
035	Lodgepole mature	LP9	115.0	0.0	115.0	0.98	112.70	0.79	90.85
035	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
035	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	Lodgepole pole	LP8	0.0	0.0	0.0	0.93	0.00	0.56	0.00
035	Lodgepole sapling	LP7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	Lodgepole seedling	LP6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		115.0	0.0	115.0	0.98		0.79	
035	MX mature	MX9	1,774.0	0.0	1,774.0	0.84	1490.16	0.64	1135.36
035	MX Non-commercial	NMX	480.0	0.0	480.0	0.84	403.20	0.64	307.20
035	MX non-stocked	MX5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
035	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	MX seedling	MX6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX		2,254.0	0.0	2,254.0	0.84		0.64	
035	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	MX3 mature	MX39	1,030.0	0.0	1,030.0	0.87	896.10	0.84	865.20
035	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
035	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
035	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	MX3 seedling	MX36	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX3		1,030.0	0.0	1,030.0	0.87		0.84	
035	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
035	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.88	0.00	0.93	0.00
035	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
035	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
035	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	0.0	0.0	ERR		ERR	
035	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		4,749.0	0.0	4,749.0	0.73		0.59	
035	Grass	GR	0.0	0.0	0.0				
035	Grass/brush	GRB	40.0	0.0	40.0				
035	Grass/forb	GRF	599.0	0.0	599.0				
035	Grass/sage	GRS	0.0	0.0	0.0				
035	Mahogany	M	0.0	0.0	0.0				
035	Mountain Brush	MB	274.0	0.0	274.0				
035	Private/other agency	NUS	928.0	1,456.0	2,384.0				
035	Rock	R	69.0	0.0	69.0				
035	Tall sage/grass	TSG	54.0	0.0	54.0				
035	Tall sage/mtn. brush	TSM	0.0	0.0	0.0				
035	Undefined/unknown	UD	2,631.0	600.0	3,231.0				
035	Water	WA	0.0	0.0	0.0				
035	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		3,667.0	600.0	4,267.0				
	Total (includes NUS acres)		9,344.0	2,056.0	11,400.0				
	Total Nat'l Forest Acres		8,416.0	600.0	9,016.0				
	Nat'l Forest Square Miles		13.2	0.9	14.1				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
036	Aspen mature	AS9			1,915.0	0.38	727.70	0.28	536.20
036	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
036	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
036	Aspen pole	AS8			5.0	0.38	1.90	0.40	2.00
036	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
036	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1920.00	0.38		0.28	
036	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
036	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
036	Douglas-fir mature	DF9			1,185.0	0.53	628.05	0.34	402.90

036	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
036	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
036	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
036	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	1,185.0	0.53		0.34	
036	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
036	Lodgepole mature	LP9			238.0	0.98	233.24	0.79	188.02
036	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
036	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
036	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
036	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
036	Lodgepole seedling	LP6			94.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	332.0	0.70		0.57	
036	MX mature	MX9			3,932.0	0.84	3302.88	0.64	2516.48
036	MX Non-commercial	NMX			1,745.0	0.84	1465.80	0.64	1116.80
036	MX non-stocked	MX5			99.0	0.00	0.00	0.00	0.00
036	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
036	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
036	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	5,776.0	0.83		0.63	
036	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
036	MX3 mature	MX39			3,465.0	0.87	3014.55	0.84	2910.60
036	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
036	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
036	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
036	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
036	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	3,465.0	0.87		0.84	
036	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
036	Spruce/Fir mature	SF9			155.0	0.88	136.40	0.93	144.15
036	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
036	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
036	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
036	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	155.0	0.88		0.93	
036	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	12,833.0	0.74		0.61	
036	Grass	GR			0.0				
036	Grass/brush	GRB			16.0				
036	Grass/forb	GRF			1,817.0				
036	Grass/sage	GRS			0.0				
036	Mahogany	M			0.0				
036	Mountain Brush	MB			1,294.0				
036	Private/other agency	NUS			932.0				
036	Rock	R			105.0				
036	Tall sage/grass	TSG			400.0				
036	Tall sage/mtn. brush	TSM			0.0				
036	Undefined/unknown	UD			208.0				
036	Water	WA			0.0				
036	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	3,840.0				
	Total (includes NUS acres)		ERR	ERR	17,605.0				
	Total Nat'l Forest Acres		ERR	ERR	16,673.0				
	Nat'l Forest Square Miles		ERR	ERR	26.1				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
037	Aspen mature	AS9			11,047.0	0.38	4197.86	0.28	3093.16
037	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
037	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
037	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
037	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
037	Aspen seedling	AS6			5.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	11052.00	0.38		0.28	

037	D.Fir Non-commercial	NDF			4.0	0.53	2.12	0.34	1.36
037	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
037	Douglas-fir mature	DF9			3,662.0	0.53	1940.86	0.34	1245.08
037	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
037	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
037	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
037	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	3,666.0	0.53		0.34	
037	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
037	Lodgepole mature	LP9			2,427.0	0.98	2378.46	0.79	1917.33
037	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
037	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
037	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
037	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
037	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	2,427.0	0.98		0.79	
037	MX mature	MX9			17,978.0	0.84	15101.52	0.64	11505.92
037	MX Non-commercial	NMX			6,469.0	0.84	5433.96	0.64	4140.16
037	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
037	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
037	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
037	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	24,447.0	0.84		0.64	
037	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
037	MX3 mature	MX39			1,391.0	0.87	1210.17	0.84	1168.44
037	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
037	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
037	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
037	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
037	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	1,391.0	0.87		0.84	
037	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
037	Spruce/Fir mature	SF9			72.0	0.88	63.36	0.93	66.96
037	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
037	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
037	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
037	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	72.0	0.88		0.93	
037	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	43,055.0	0.70		0.54	
037	Grass	GR			399.0				
037	Grass/brush	GRB			2,267.0				
037	Grass/forb	GRF			3,926.0				
037	Grass/sage	GRS			4,478.0				
037	Mahogany	M			0.0				
037	Mountain Brush	MB			4,358.0				
037	Private/other agency	NUS			57.0				
037	Rock	R			860.0				
037	Tall sage/grass	TSG			5,813.0				
037	Tall sage/mtn. brush	TSM			0.0				
037	Undefined/unknown	UD			82.0				
037	Water	WA			17.0				
037	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	22,200.0				
	Total (includes NUS acres)		ERR	ERR	65,312.0				
	Total Nat'l Forest Acres		ERR	ERR	65,255.0				
	Nat'l Forest Square Miles		ERR	ERR	102.0				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
038	Aspen mature	AS9			14,973.0	0.38	5689.74	0.28	4192.44
038	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
038	Aspen non-stocked	AS5			47.0	0.00	0.00	0.00	0.00
038	Aspen pole	AS8			439.0	0.38	166.82	0.40	175.60
038	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00

038	Aspen seedling	AS6			62.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	15521.00	0.38		0.28	
038	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
038	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
038	Douglas-fir mature	DF9			7,883.0	0.53	4177.99	0.34	2680.22
038	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
038	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
038	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
038	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	7,883.0	0.53		0.34	
038	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
038	Lodgepole mature	LP9			608.0	0.98	595.84	0.79	480.32
038	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
038	Lodgepole non-stocked	LP5			29.0	0.00	0.00	0.00	0.00
038	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
038	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
038	Lodgepole seedling	LP6			46.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	683.0	0.87		0.70	
038	MX mature	MX9			14,528.0	0.84	12203.52	0.64	9297.92
038	MX Non-commercial	NMX			2,319.0	0.84	1947.96	0.64	1484.16
038	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
038	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
038	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
038	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	16,847.0	0.84		0.64	
038	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
038	MX3 mature	MX39			317.0	0.87	275.79	0.84	266.28
038	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
038	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
038	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
038	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
038	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	317.0	0.87		0.84	
038	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
038	Spruce/Fir mature	SF9			62.0	0.88	54.56	0.93	57.66
038	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
038	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
038	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
038	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	62.0	0.88		0.93	
038	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	41,313.0	0.61		0.45	
038	Grass	GR			438.0				
038	Grass/brush	GRB			952.0				
038	Grass/forb	GRF			1,130.0				
038	Grass/sage	GRS			4,082.0				
038	Mahogany	M			0.0				
038	Mountain Brush	MB			5,392.0				
038	Private/other agency	NUS			3,993.0				
038	Rock	R			278.0				
038	Tall sage/grass	TSG			21,443.0				
038	Tall sage/mtn. brush	TSM			0.0				
038	Undefined/unknown	UD			10.0				
038	Water	WA			308.0				
038	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	34,033.0				
	Total (includes NUS acres)		ERR	ERR	79,339.0				
	Total Nat'l Forest Acres		ERR	ERR	75,346.0				
	Nat'l Forest Square Miles		ERR	ERR	117.7				

Watershed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
039	Aspen mature	AS9			4,267.0	0.38	1621.46	0.28	1194.76
039	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00

Itrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
039	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
039	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
039	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
039	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	4267.00	0.38		0.28	
039	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
039	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
039	Douglas-fir mature	DF9			120.0	0.53	63.60	0.34	40.80
039	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
039	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
039	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
039	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	120.0	0.53		0.34	
039	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
039	Lodgepole mature	LP9			0.0	0.98	0.00	0.79	0.00
039	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
039	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
039	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
039	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
039	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	0.0	ERR		ERR	
039	MX mature	MX9			4,643.0	0.84	3900.12	0.64	2971.52
039	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
039	MX non-stocked	MX5			345.0	0.00	0.00	0.00	0.00
039	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
039	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
039	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	4,988.0	0.78		0.60	
039	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
039	MX3 mature	MX39			281.0	0.87	244.47	0.84	236.04
039	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
039	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
039	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
039	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
039	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	281.0	0.87		0.84	
039	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
039	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
039	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
039	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
039	Spruce/Fir sapling	SF7			25.0	0.00	0.00	0.00	0.00
039	Spruce/Fir seedling	SF6			134.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	159.0	0.00		0.00	
039	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	9,815.0	0.59		0.45	
039	Grass	GR			11.0				
039	Grass/brush	GRB			109.0				
039	Grass/forb	GRF			0.0				
039	Grass/sage	GRS			37.0				
039	Mahogany	M			0.0				
039	Mountain Brush	MB			622.0				
039	Private/other agency	NUS			79.0				
039	Rock	R			0.0				
039	Tall sage/grass	TSG			4,688.0				
039	Tall sage/mtn. brush	TSM			0.0				
039	Undefined/unknown	UD			34.0				
039	Water	WA			20.0				
039	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	5,521.0				
	Total (includes NUS acres)		ERR	ERR	15,415.0				
	Total Nat'l Forest Acres		ERR	ERR	15,336.0				
	Nat'l Forest Square Miles		ERR	ERR	24.0				

040	Aspen mature	AS9			3,343.0	0.38	1270.34	0.28	936.04
040	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
040	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
040	Aspen pole	AS8			36.0	0.38	13.68	0.40	14.40
040	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
040	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	3379.00	0.38		0.28	
040	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
040	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
040	Douglas-fir mature	DF9			270.0	0.53	143.10	0.34	91.80
040	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
040	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
040	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
040	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	270.0	0.53		0.34	
040	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
040	Lodgepole mature	LP9			897.0	0.98	879.06	0.79	708.63
040	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
040	Lodgepole non-stocked	LP5			214.0	0.00	0.00	0.00	0.00
040	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
040	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
040	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	1,111.0	0.79		0.64	
040	MX mature	MX9			2,725.0	0.84	2289.00	0.64	1744.00
040	MX Non-commercial	NMX			147.0	0.84	123.48	0.64	94.08
040	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
040	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
040	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
040	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	2,872.0	0.84		0.64	
040	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
040	MX3 mature	MX39			1,372.0	0.87	1193.64	0.84	1152.48
040	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
040	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
040	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
040	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
040	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	1,372.0	0.87		0.84	
040	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
040	Spruce/Fir mature	SF9			154.0	0.88	135.52	0.93	143.22
040	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
040	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
040	Spruce/Fir sapling	SF7			188.0	0.00	0.00	0.00	0.00
040	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	342.0	0.40		0.42	
040	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	9,346.0	0.65		0.52	
040	Grass	GR			0.0				
040	Grass/brush	GRB			106.0				
040	Grass/forb	GRF			0.0				
040	Grass/sage	GRS			260.0				
040	Mahogany	M			0.0				
040	Mountain Brush	MB			269.0				
040	Private/other agency	NUS			964.0				
040	Rock	R			0.0				
040	Tall sage/grass	TSG			7,849.0				
040	Tall sage/mtn. brush	TSM			0.0				
040	Undefined/unknown	UD			29.0				
040	Water	WA			0.0				
040	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	8,513.0				
	Total (includes NUS acres)		ERR	ERR	18,823.0				
	Total Nat'l Forest Acres		ERR	ERR	17,859.0				
	Nat'l Forest Square Miles		ERR	ERR	27.9				

						Habitat		Hab. Cap. for	

Wtrshed No.	Vegetation Description	Veg. Code			Idaho Acres	Capability for Cavity Nesting Species	Weighted Average	Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
017	Aspen mature	AS9			909.0	0.38	345.42	0.28	254.52
017	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
017	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
017	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
017	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
017	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	909.00	0.38		0.28	
017	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
017	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
017	Douglas-fir mature	DF9			0.0	0.53	0.00	0.34	0.00
017	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
017	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
017	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
017	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	0.0	ERR		ERR	
017	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
017	Lodgepole mature	LP9			106.0	0.98	103.88	0.79	83.74
017	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
017	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
017	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
017	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
017	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	106.0	0.98		0.79	
017	MX mature	MX9			4,115.0	0.84	3456.60	0.64	2633.60
017	MX Non-commercial	NMX			786.0	0.84	660.24	0.64	503.04
017	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
017	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
017	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
017	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	4,901.0	0.84		0.64	
017	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
017	MX3 mature	MX39			0.0	0.87	0.00	0.84	0.00
017	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
017	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
017	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
017	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
017	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	0.0	ERR		ERR	
017	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
017	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
017	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
017	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
017	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
017	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
017	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	5,916.0	0.77		0.59	
017	Grass	GR			8.0				
017	Grass/brush	GRB			182.0				
017	Grass/forb	GRF			406.0				
017	Grass/sage	GRS			0.0				
017	Mahogany	M			0.0				
017	Mountain Brush	MB			84.0				
017	Private/other agency	NUS			246.0				
017	Rock	R			3.0				
017	Tall sage/grass	TSG			0.0				
017	Tall sage/mtn. brush	TSM			0.0				
017	Undefined/unknown	UD			2.0				
017	Water	WA			0.0				
017	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	685.0				
	Total (includes NUS acres)		ERR	ERR	6,847.0				
	Total Nat'l Forest Acres		ERR	ERR	6,601.0				
	Nat'l Forest Square Miles		ERR	ERR	10.3				

Shed No.	Vegetation Description	Veg. Code			Wyoming Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
017	Aspen mature	AS9			1,478.0	0.38	561.64	0.28	413.84
017	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
017	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
017	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
017	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
017	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1478.00	0.38		0.28	
017	D.Fir Non-commercial	NDF			5,348.0	0.53	2834.44	0.34	1818.32
017	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
017	Douglas-fir mature	DF9			4,244.0	0.53	2249.32	0.34	1442.96
017	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
017	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
017	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
017	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	9,592.0	0.53		0.34	
017	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
017	Lodgepole mature	LP9			108.0	0.98	105.84	0.79	85.32
017	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
017	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
017	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
017	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
017	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	108.0	0.98		0.79	
017	MX mature	MX9			6,819.0	0.84	5727.96	0.64	4364.16
017	MX Non-commercial	NMX			2,057.0	0.84	1727.88	0.64	1316.48
017	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
017	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
017	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
017	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	8,876.0	0.84		0.64	
017	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
017	MX3 mature	MX39			138.0	0.87	120.06	0.84	115.92
017	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
017	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
017	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
017	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
017	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	138.0	0.87		0.84	
017	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
017	Spruce/Fir mature	SF9			92.0	0.88	80.96	0.93	85.56
017	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
017	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
017	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
017	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	92.0	0.88		0.93	
017	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	20,284.0	0.66		0.48	
017	Grass	GR			225.0				
017	Grass/brush	GRB			496.0				
017	Grass/forb	GRF			9,951.0				
017	Grass/sage	GRS			0.0				
017	Mahogany	M			0.0				
017	Mountain Brush	MB			875.0				
017	Private/other agency	NUS			240.0				
017	Rock	R			1,192.0				
017	Tall sage/grass	TSG			0.0				
017	Tall sage/mtn. brush	TSM			0.0				
017	Undefined/unknown	UD			0.0				
017	Water	WA			40.0				
017	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	12,779.0				

Total (includes NUS acres)	ERR	ERR	33,303.0
Total Nat'l Forest Acres	ERR	ERR	33,063.0
Nat'l Forest Square Miles	ERR	ERR	51.7

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
017	Aspen mature	AS9	909.0	1,478.0	2,387.0	0.38	907.06	0.28	668.36
017	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
017	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
017	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	Aspen seedling	AS6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Aspen		909.00	1478.00	2387.00	0.38		0.28	
017	D.Fir Non-commercial	NDF	0.0	5,348.0	5,348.0	0.53	2834.44	0.34	1818.32
017	Douglas-fir 1st Entry	1DF9	0.0	0.0	0.0	0.07	0.00	0.07	0.00
017	Douglas-fir mature	DF9	0.0	4,244.0	4,244.0	0.53	2249.32	0.34	1442.96
017	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
017	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		0.0	9,592.0	9,592.0	0.53		0.34	
017	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
017	Lodgepole mature	LP9	106.0	108.0	214.0	0.98	209.72	0.79	169.06
017	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
017	Lodgepole non-stocked	LP5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	Lodgepole pole	LP8	0.0	0.0	0.0	0.93	0.00	0.56	0.00
017	Lodgepole sapling	LP7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	Lodgepole seedling	LP6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		106.0	108.0	214.0	0.98		0.79	
017	MX mature	MX9	4,115.0	6,819.0	10,934.0	0.84	9184.56	0.64	6997.76
017	MX Non-commercial	NMX	786.0	2,057.0	2,843.0	0.84	2388.12	0.64	1819.52
017	MX non-stocked	MX5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
017	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	MX seedling	MX6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX		4,901.0	8,876.0	13,777.0	0.84		0.64	
017	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	MX3 mature	MX39	0.0	138.0	138.0	0.87	120.06	0.84	115.92
017	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
017	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
017	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	MX3 seedling	MX36	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX3		0.0	138.0	138.0	0.87		0.84	
017	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
017	Spruce/Fir mature	SF9	0.0	92.0	92.0	0.88	80.96	0.93	85.56
017	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
017	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
017	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	92.0	92.0	0.88		0.93	
017	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		5,916.0	20,284.0	26,200.0	0.69		0.50	
017	Grass	GR	8.0	225.0	233.0				
017	Grass/brush	GRB	182.0	496.0	678.0				
017	Grass/forb	GRF	406.0	9,951.0	10,357.0				
017	Grass/sage	GRS	0.0	0.0	0.0				
017	Mahogany	M	0.0	0.0	0.0				
017	Mountain Brush	MB	84.0	875.0	959.0				
017	Private/other agency	NUS	246.0	240.0	486.0				
017	Rock	R	3.0	1,192.0	1,195.0				
017	Tall sage/grass	TSG	0.0	0.0	0.0				
017	Tall sage/mtn. brush	TSM	0.0	0.0	0.0				
017	Undefined/unknown	UD	2.0	0.0	2.0				
017	Water	WA	0.0	40.0	40.0				
017	Willow	W	0.0	0.0	0.0				

Total Non-Forested Acres	685.0	12,779.0	13,464.0
Total (includes NUS acres)	6,847.0	33,303.0	40,150.0
Total Nat'l Forest Acres	6,601.0	33,063.0	39,664.0
Nat'l Forest Square Miles	10.3	51.7	62.0

Wtrshed No.	Vegetation Description	Veg. Code	D5 Idaho Acres	D3 Idaho Acres	Total ID Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
021	Aspen mature	AS9	25.0	114.0	139.0	0.38	52.82	0.28	38.92
021	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
021	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
021	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Aspen seedling	AS6	40.0	0.0	40.0	0.00	0.00	0.00	0.00
	Total Aspen		65.00	114.00	179.00	0.30		0.22	
021	D.Fir Non-commercial	NDF	422.0	0.0	422.0	0.53	223.66	0.34	143.48
021	Douglas-fir 1st Entry	1DF9	91.0	0.0	91.0	0.07	6.37	0.07	6.37
021	Douglas-fir mature	DF9	870.0	220.0	1,090.0	0.53	577.70	0.34	370.60
021	Douglas-fir non-stocked	DF5	12.0	0.0	12.0	0.00	0.00	0.00	0.00
021	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
021	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		1,395.0	220.0	1,615.0	0.50		0.32	
021	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
021	Lodgepole mature	LP9	2,206.0	1,790.0	3,996.0	0.98	3916.08	0.79	3156.84
021	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
021	Lodgepole non-stocked	LP5	608.0	59.0	667.0	0.00	0.00	0.00	0.00
021	Lodgepole pole	LP8	0.0	0.0	0.0	0.93	0.00	0.56	0.00
021	Lodgepole sapling	LP7	1,096.0	279.0	1,375.0	0.00	0.00	0.00	0.00
021	Lodgepole seedling	LP6	2,665.0	687.0	3,352.0	0.00	0.00	0.00	0.00
	Total Lodgepole		6,575.0	2,815.0	9,390.0	0.42		0.34	
021	MX mature	MX9	2,420.0	400.0	2,820.0	0.84	2368.80	0.64	1804.80
021	MX Non-commercial	NMX	444.0	38.0	482.0	0.84	404.88	0.64	308.48
021	MX non-stocked	MX5	67.0	2.0	69.0	0.00	0.00	0.00	0.00
021	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
021	MX sapling	MX7	69.0	0.0	69.0	0.00	0.00	0.00	0.00
021	MX seedling	MX6	210.0	0.0	210.0	0.00	0.00	0.00	0.00
	Total MX		3,210.0	440.0	3,650.0	0.76		0.58	
021	MX3 1st entry	1MX9	37.0	0.0	37.0	0.00	0.00	0.00	0.00
021	MX3 mature	MX39	810.0	71.0	881.0	0.87	766.47	0.84	740.04
021	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
021	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
021	MX3 sapling	MX37	215.0	0.0	215.0	0.00	0.00	0.00	0.00
021	MX3 seedling	MX36	64.0	0.0	64.0	0.00	0.00	0.00	0.00
	Total MX3		1,126.0	71.0	1,197.0	0.64		0.62	
021	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
021	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.88	0.00	0.93	0.00
021	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
021	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	0.0	0.0	ERR		ERR	
021	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		12,371.0	3,660.0	16,031.0	0.52		0.41	
021	Grass	GR	11.0	6.0	17.0				
021	Grass/brush	GRB	440.0	35.0	475.0				
021	Grass/forb	GRF	253.0	24.0	277.0				
021	Grass/sage	GRS	0.0	0.0	0.0				
021	Mahogany	M	0.0	0.0	0.0				
021	Mountain Brush	MB	442.0	207.0	649.0				
021	Private/other agency	NUS	43.0	1.0	44.0				
021	Rock	R	33.0	22.0	55.0				
021	Tall sage/grass	TSG	0.0	0.0	0.0				
021	Tall sage/mtn. brush	TSM	0.0	0.0	0.0				

021	Undefined/unknown	UD	0.0	13.0	13.0
021	Water	WA	63.0	0.0	63.0
021	Willow	W	0.0	0.0	0.0
	Total Non-Forested Acres		1,242.0	307.0	1,549.0
	Total (includes NUS acres)		13,656.0	3,968.0	17,624.0
	Total Nat'l Forest Acres		13,613.0	3,967.0	17,580.0
	Nat'l Forest Square Miles		21.3	6.2	27.5

Wtrshed No.	Vegetation Description	Veg. Code	D5 Wyo. Acres	D3 Wyo. Acres	Total Wyo Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
021	Aspen mature	AS9	586.0	379.0	965.0	0.38	366.70	0.28	270.20
021	Aspen Non-commercial	NAS	380.0	0.0	380.0	0.38	144.40	0.28	106.40
021	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
021	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Aspen seedling	AS6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Aspen		966.00	379.00	1345.00	0.38		0.28	
021	D.Fir Non-commercial	NDF	417.0	258.0	675.0	0.53	357.75	0.34	229.50
021	Douglas-fir 1st Entry	1DF9	30.0	0.0	30.0	0.07	2.10	0.07	2.10
021	Douglas-fir mature	DF9	3,163.0	3,201.0	6,364.0	0.53	3372.92	0.34	2163.76
021	Douglas-fir non-stocked	DF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
021	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		3,610.0	3,459.0	7,069.0	0.53		0.34	
021	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
021	Lodgepole mature	LP9	10,716.0	4,763.0	15,479.0	0.98	15169.42	0.79	12228.41
021	Lodgepole Non-commercial	NLP	281.0	0.0	281.0	0.98	275.38	0.79	221.99
021	Lodgepole non-stocked	LP5	873.0	0.0	873.0	0.00	0.00	0.00	0.00
021	Lodgepole pole	LP8	2,176.0	0.0	2,176.0	0.93	2023.68	0.56	1218.56
021	Lodgepole sapling	LP7	183.0	12.0	195.0	0.00	0.00	0.00	0.00
021	Lodgepole seedling	LP6	3,388.0	231.0	3,619.0	0.00	0.00	0.00	0.00
	Total Lodgepole		17,617.0	5,006.0	22,623.0	0.77		0.60	
021	MX mature	MX9	3,340.0	0.0	3,340.0	0.84	2805.60	0.64	2137.60
021	MX Non-commercial	NMX	1,228.0	715.0	1,943.0	0.84	1632.12	0.64	1243.52
021	MX non-stocked	MX5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
021	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	MX seedling	MX6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX		4,568.0	715.0	5,283.0	0.84		0.64	
021	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	MX3 mature	MX39	5,684.0	3,034.0	8,718.0	0.87	7584.66	0.84	7323.12
021	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
021	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	MX3 pole	MX38	122.0	0.0	122.0	0.87	106.14	0.84	102.48
021	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	MX3 seedling	MX36	788.0	0.0	788.0	0.00	0.00	0.00	0.00
	Total MX3		6,594.0	3,034.0	9,628.0	0.80		0.77	
021	SF Non-commercial	NSF	28.0	0.0	28.0	0.88	24.64	0.93	26.04
021	Spruce/Fir mature	SF9	676.0	0.0	676.0	0.88	594.88	0.93	628.68
021	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
021	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		704.0	0.0	704.0	0.88		0.93	
021	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		34,059.0	12,593.0	46,652.0	0.74		0.60	
021	Grass	GR	34.0	0.0	34.0				
021	Grass/brush	GRB	734.0	121.0	855.0				
021	Grass/forb	GRF	3,353.0	2,984.0	6,337.0				
021	Grass/sage	GRS	0.0	0.0	0.0				
021	Mahogany	M	0.0	0.0	0.0				
021	Mountain Brush	MB	510.0	462.0	972.0				
021	Private/other agency	NUS	3.0	0.0	3.0				

021	Rock	R	1,994.0	1,010.0	3,004.0
021	Tall sage/grass	TSG	0.0	0.0	0.0
021	Tall sage/mtn. brush	TSM	113.0	0.0	113.0
021	Undefined/unknown	UD	0.0	6.0	6.0
021	Water	WA	141.0	5.0	146.0
021	Willow	W	0.0	0.0	0.0
	Total Non-Forested Acres		6,879.0	4,588.0	11,467.0
	Total (includes NUS acres)		40,941.0	17,181.0	58,122.0
	Total Nat'l Forest Acres		40,938.0	17,181.0	58,119.0
	Nat'l Forest Square Miles		64.0	26.8	90.8

Wtrshed No.	Vegetation Description	Veg. Code	Total ID Acres	Total Wyo Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
021	Aspen mature	AS9	139.0	965.0	1,104.0	0.38	419.52	0.28	309.12
021	Aspen Non-commercial	NAS	0.0	380.0	380.0	0.38	144.40	0.28	106.40
021	Aspen non-stocked	AS5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
021	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Aspen seedling	AS6	40.0	0.0	40.0	0.00	0.00	0.00	0.00
	Total Aspen		179.00	1345.00	1524.00	0.37		0.27	
021	D.Fir Non-commercial	NDF	422.0	675.0	1,097.0	0.53	581.41	0.34	372.98
021	Douglas-fir 1st Entry	1DF9	91.0	30.0	121.0	0.07	8.47	0.07	8.47
021	Douglas-fir mature	DF9	1,090.0	6,364.0	7,454.0	0.53	3950.62	0.34	2534.36
021	Douglas-fir non-stocked	DF5	12.0	0.0	12.0	0.00	0.00	0.00	0.00
021	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
021	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		1,615.0	7,069.0	8,684.0	0.52		0.34	
021	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
021	Lodgepole mature	LP9	3,996.0	15,479.0	19,475.0	0.98	19085.50	0.79	15385.25
021	Lodgepole Non-commercial	NLP	0.0	281.0	281.0	0.98	275.38	0.79	221.99
021	Lodgepole non-stocked	LP5	667.0	873.0	1,540.0	0.00	0.00	0.00	0.00
021	Lodgepole pole	LP8	0.0	2,176.0	2,176.0	0.93	2023.68	0.56	1218.56
021	Lodgepole sapling	LP7	1,375.0	195.0	1,570.0	0.00	0.00	0.00	0.00
021	Lodgepole seedling	LP6	3,352.0	3,619.0	6,971.0	0.00	0.00	0.00	0.00
	Total Lodgepole		9,390.0	22,623.0	32,013.0	0.67		0.53	
021	MX mature	MX9	2,820.0	3,340.0	6,160.0	0.84	5174.40	0.64	3942.40
021	MX Non-commercial	NMX	482.0	1,943.0	2,425.0	0.84	2037.00	0.64	1552.00
021	MX non-stocked	MX5	69.0	0.0	69.0	0.00	0.00	0.00	0.00
021	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
021	MX sapling	MX7	69.0	0.0	69.0	0.00	0.00	0.00	0.00
021	MX seedling	MX6	210.0	0.0	210.0	0.00	0.00	0.00	0.00
	Total MX		3,650.0	5,283.0	8,933.0	0.81		0.62	
021	MX3 1st entry	1MX9	37.0	0.0	37.0	0.00	0.00	0.00	0.00
021	MX3 mature	MX39	881.0	8,718.0	9,599.0	0.87	8351.13	0.84	8063.16
021	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
021	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	MX3 pole	MX38	0.0	122.0	122.0	0.87	106.14	0.84	102.48
021	MX3 sapling	MX37	215.0	0.0	215.0	0.00	0.00	0.00	0.00
021	MX3 seedling	MX36	64.0	788.0	852.0	0.00	0.00	0.00	0.00
	Total MX3		1,197.0	9,628.0	10,825.0	0.78		0.75	
021	SF Non-commercial	NSF	0.0	28.0	28.0	0.88	24.64	0.93	26.04
021	Spruce/Fir mature	SF9	0.0	676.0	676.0	0.88	594.88	0.93	628.68
021	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
021	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
021	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	704.0	704.0	0.88		0.93	
021	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		16,031.0	46,652.0	62,683.0	0.68		0.55	
021	Grass	GR	17.0	34.0	51.0				
021	Grass/brush	GRB	475.0	855.0	1,330.0				
021	Grass/forb	GRF	277.0	6,337.0	6,614.0				
021	Grass/sage	GRS	0.0	0.0	0.0				

021	Mahogany	M	0.0	0.0	0.0
021	Mountain Brush	MB	649.0	972.0	1,621.0
021	Private/other agency	NUS	44.0	3.0	47.0
021	Rock	R	55.0	3,004.0	3,059.0
021	Tall sage/grass	TSG	0.0	0.0	0.0
021	Tall sage/mtn. brush	TSM	0.0	113.0	113.0
021	Undefined/unknown	UD	13.0	6.0	19.0
021	Water	WA	63.0	146.0	209.0
021	Willow	W	0.0	0.0	0.0
	Total Non-Forested Acres		1,549.0	11,467.0	13,016.0
	Total (includes NUS acres)		17,624.0	58,122.0	75,746.0
	Total Nat'l Forest Acres		17,580.0	58,119.0	75,699.0
	Nat'l Forest Square Miles		27.5	90.8	118.3

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
022	Aspen mature	AS9			4,648.0	0.38	1766.24	0.28	1301.44
022	Aspen Non-commercial	NAS			13.0	0.38	4.94	0.28	3.64
022	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
022	Aspen pole	AS8			7.0	0.38	2.66	0.40	2.80
022	Aspen sapling	AS7			40.0	0.00	0.00	0.00	0.00
022	Aspen seedling	AS6			165.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	4873.00	0.36		0.27	
022	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
022	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
022	Douglas-fir mature	DF9			1,183.0	0.53	626.99	0.34	402.22
022	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
022	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
022	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
022	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	1,183.0	0.53		0.34	
022	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
022	Lodgepole mature	LP9			5,680.0	0.98	5566.40	0.79	4487.20
022	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
022	Lodgepole non-stocked	LP5			706.0	0.00	0.00	0.00	0.00
022	Lodgepole pole	LP8			416.0	0.93	386.88	0.56	232.96
022	Lodgepole sapling	LP7			58.0	0.00	0.00	0.00	0.00
022	Lodgepole seedling	LP6			82.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	6,942.0	0.86		0.68	
022	MX mature	MX9			10,091.0	0.84	8476.44	0.64	6458.24
022	MX Non-commercial	NMX			1,974.0	0.84	1658.16	0.64	1263.36
022	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
022	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
022	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
022	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	12,065.0	0.84		0.64	
022	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
022	MX3 mature	MX39			5,693.0	0.87	4952.91	0.84	4782.12
022	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
022	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
022	MX3 pole	MX38			11.0	0.87	9.57	0.84	9.24
022	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
022	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	5,704.0	0.87		0.84	
022	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
022	Spruce/Fir mature	SF9			157.0	0.88	138.16	0.93	146.01
022	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
022	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
022	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
022	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	157.0	0.88		0.93	
022	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	30,924.0	0.76		0.62	
022	Grass	GR			28.0				

022	Grass/brush	GRB			110.0
022	Grass/forb	GRF			719.0
022	Grass/sage	GRS			1,081.0
022	Mahogany	M			0.0
022	Mountain Brush	MB			4,344.0
022	Private/other agency	NUS			1,632.0
022	Rock	R			8.0
022	Tall sage/grass	TSG			2,840.0
022	Tall sage/mtn. brush	TSM			983.0
022	Undefined/unknown	UD			1.0
022	Water	WA			0.0
022	Willow	W			0.0
	Total Non-Forested Acres		NA	NA	10,114.0
	Total (includes NUS acres)		ERR	ERR	42,670.0
	Total Nat'l Forest Acres		ERR	ERR	41,038.0
	Nat'l Forest Square Miles		ERR	ERR	64.1

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
018	Aspen mature	AS9			1,923.0	0.38	730.74	0.28	538.44
018	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
018	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
018	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
018	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
018	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1923.00	0.38		0.28	
018	D.Fir Non-commercial	NDF			1,851.0	0.53	981.03	0.34	629.34
018	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
018	Douglas-fir mature	DF9			1,784.0	0.53	945.52	0.34	606.56
018	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
018	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
018	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
018	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	3,635.0	0.53		0.34	
018	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
018	Lodgepole mature	LP9			341.0	0.98	334.18	0.79	269.39
018	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
018	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
018	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
018	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
018	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	341.0	0.98		0.79	
018	MX mature	MX9			4,018.0	0.84	3375.12	0.64	2571.52
018	MX Non-commercial	NMX			285.0	0.84	239.40	0.64	182.40
018	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
018	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
018	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
018	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	4,303.0	0.84		0.64	
018	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
018	MX3 mature	MX39			451.0	0.87	392.37	0.84	378.84
018	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
018	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
018	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
018	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
018	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	451.0	0.87		0.84	
018	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
018	Spruce/Fir mature	SF9			94.0	0.88	82.72	0.93	87.42
018	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
018	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
018	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
018	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	94.0	0.88		0.93	
018	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00

	Total Forested Acres		ERR	ERR	10,747.0	0.66		0.49
018	Grass	GR			49.0			
018	Grass/brush	GRB			1,184.0			
018	Grass/forb	GRF			7,815.0			
018	Grass/sage	GRS			0.0			
018	Mahogany	M			0.0			
018	Mountain Brush	MB			306.0			
018	Private/other agency	NUS			164.0			
018	Rock	R			3,406.0			
018	Tall sage/grass	TSG			0.0			
018	Tall sage/mtn. brush	TSM			0.0			
018	Undefined/unknown	UD			0.0			
018	Water	WA			8.0			
018	Willow	W			0.0			
	Total Non-Forested Acres		NA	NA	12,768.0			
	Total (includes NUS acres)		ERR	ERR	23,679.0			
	Total Nat'l Forest Acres		ERR	ERR	23,515.0			
	Nat'l Forest Square Miles		ERR	ERR	36.7			

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
019	Aspen mature	AS9			2,689.0	0.38	1021.82	0.28	752.92
019	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
019	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
019	Aspen pole	AS8			59.0	0.38	22.42	0.40	23.60
019	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
019	Aspen seedling	AS6			0.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	2748.00	0.38		0.28	
019	D.Fir Non-commercial	NDF			1,519.0	0.53	805.07	0.34	516.46
019	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
019	Douglas-fir mature	DF9			2,732.0	0.53	1447.96	0.34	928.88
019	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
019	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
019	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
019	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	4,251.0	0.53		0.34	
019	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
019	Lodgepole mature	LP9			1,172.0	0.98	1148.56	0.79	925.88
019	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
019	Lodgepole non-stocked	LP5			0.0	0.00	0.00	0.00	0.00
019	Lodgepole pole	LP8			0.0	0.93	0.00	0.56	0.00
019	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
019	Lodgepole seedling	LP6			0.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	1,172.0	0.98		0.79	
019	MX mature	MX9			1,924.0	0.84	1616.16	0.64	1231.36
019	MX Non-commercial	NMX			625.0	0.84	525.00	0.64	400.00
019	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
019	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
019	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
019	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	2,549.0	0.84		0.64	
019	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
019	MX3 mature	MX39			2,033.0	0.87	1768.71	0.84	1707.72
019	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
019	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
019	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
019	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
019	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	2,033.0	0.87		0.84	
019	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
019	Spruce/Fir mature	SF9			1,367.0	0.88	1202.96	0.93	1271.31
019	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
019	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
019	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
019	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	1,367.0	0.88		0.93	

019	Whitebark Pine mature	WB9			40.0	0.50	20.00		0.50	20.00
	Total Forested Acres		ERR	ERR	14,160.0	0.68			0.55	
019	Grass	GR			325.0					
019	Grass/brush	GRB			964.0					
019	Grass/forb	GRF			11,522.0					
019	Grass/sage	GRS			0.0					
019	Mahogany	M			0.0					
019	Mountain Brush	MB			774.0					
019	Private/other agency	NUS			624.0					
019	Rock	R			4,574.0					
019	Tall sage/grass	TSG			0.0					
019	Tall sage/mtn. brush	TSM			58.0					
019	Undefined/unknown	UD			0.0					
019	Water	WA			171.0					
019	Willow	W			0.0					
	Total Non-Forested Acres		NA	NA	18,388.0					
	Total (includes NUS acres)		ERR	ERR	33,172.0					
	Total Nat'l Forest Acres		ERR	ERR	32,548.0					
	Nat'l Forest Square Miles		ERR	ERR	50.9					

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
020	Aspen mature	AS9			1,194.0	0.38	453.72	0.28	334.32
020	Aspen Non-commercial	NAS			8.0	0.38	3.04	0.28	2.24
020	Aspen non-stocked	AS5			52.0	0.00	0.00	0.00	0.00
020	Aspen pole	AS8			152.0	0.38	57.76	0.40	60.80
020	Aspen sapling	AS7			508.0	0.00	0.00	0.00	0.00
020	Aspen seedling	AS6			21.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1935.00	0.27		0.21	
020	D.Fir Non-commercial	NDF			41.0	0.53	21.73	0.34	13.94
020	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
020	Douglas-fir mature	DF9			2,981.0	0.53	1579.93	0.34	1013.54
020	Douglas-fir non-stocked	DF5			108.0	0.00	0.00	0.00	0.00
020	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
020	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
020	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	3,130.0	0.51		0.33	
020	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
020	Lodgepole mature	LP9			3,018.0	0.98	2957.64	0.79	2384.22
020	Lodgepole Non-commercial	NLP			169.0	0.98	165.62	0.79	133.51
020	Lodgepole non-stocked	LP5			411.0	0.00	0.00	0.00	0.00
020	Lodgepole pole	LP8			113.0	0.93	105.09	0.56	63.28
020	Lodgepole sapling	LP7			0.0	0.00	0.00	0.00	0.00
020	Lodgepole seedling	LP6			723.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	4,434.0	0.73		0.58	
020	MX mature	MX9			1,794.0	0.84	1506.96	0.64	1148.16
020	MX Non-commercial	NMX			1,996.0	0.84	1676.64	0.64	1277.44
020	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
020	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
020	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
020	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	3,790.0	0.84		0.64	
020	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
020	MX3 mature	MX39			2,140.0	0.87	1861.80	0.84	1797.60
020	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
020	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
020	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
020	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
020	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	2,140.0	0.87		0.84	
020	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
020	Spruce/Fir mature	SF9			234.0	0.88	205.92	0.93	217.62
020	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
020	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00

020	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
020	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	234.0	0.88		0.93	
020	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	15,663.0	0.68		0.54	
020	Grass	GR			509.0				
020	Grass/brush	GRB			1,036.0				
020	Grass/forb	GRF			8,700.0				
020	Grass/sage	GRS			0.0				
020	Mahogany	M			0.0				
020	Mountain Brush	MB			955.0				
020	Private/other agency	NUS			41.0				
020	Rock	R			1,979.0				
020	Tall sage/grass	TSG			0.0				
020	Tall sage/mtn. brush	TSM			139.0				
020	Undefined/unknown	UD			0.0				
020	Water	WA			303.0				
020	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	13,621.0				
	Total (includes NUS acres)		ERR	ERR	29,325.0				
	Total Nat'l Forest Acres		ERR	ERR	29,284.0				
	Nat'l Forest Square Miles		ERR	ERR	45.8				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
008	Aspen mature	AS9			2,273.0	0.38	863.74	0.28	636.44
008	Aspen Non-commercial	NAS			698.0	0.38	265.24	0.28	195.44
008	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
008	Aspen pole	AS8			29.0	0.38	11.02	0.40	11.60
008	Aspen sapling	AS7			41.0	0.00	0.00	0.00	0.00
008	Aspen seedling	AS6			83.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	3124.00	0.36		0.27	
008	D.Fir Non-commercial	NDF			418.0	0.53	221.54	0.34	142.12
008	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
008	Douglas-fir mature	DF9			5,540.0	0.53	2936.20	0.34	1883.60
008	Douglas-fir non-stocked	DF5			11.0	0.00	0.00	0.00	0.00
008	Douglas-fir pole	DF8			13.0	0.53	6.89	0.34	4.42
008	Douglas-fir sapling	DF7			35.0	0.00	0.00	0.00	0.00
008	Douglas-fir seedling	DF6			112.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	6,129.0	0.52		0.33	
008	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
008	Lodgepole mature	LP9			28,166.0	0.98	27602.68	0.79	22251.14
008	Lodgepole Non-commercial	NLP			33.0	0.98	32.34	0.79	26.07
008	Lodgepole non-stocked	LP5			3,873.0	0.00	0.00	0.00	0.00
008	Lodgepole pole	LP8			8,092.0	0.93	7525.56	0.56	4531.52
008	Lodgepole sapling	LP7			7,362.0	0.00	0.00	0.00	0.00
008	Lodgepole seedling	LP6			11,474.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	59,000.0	0.60		0.45	
008	MX mature	MX9			21,004.0	0.84	17643.36	0.64	13442.56
008	MX Non-commercial	NMX			3,010.0	0.84	2528.40	0.64	1926.40
008	MX non-stocked	MX5			28.0	0.00	0.00	0.00	0.00
008	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
008	MX sapling	MX7			45.0	0.00	0.00	0.00	0.00
008	MX seedling	MX6			98.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	24,185.0	0.83		0.64	
008	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
008	MX3 mature	MX39			7,770.0	0.87	6759.90	0.84	6526.80
008	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
008	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
008	MX3 pole	MX38			138.0	0.87	120.06	0.84	115.92
008	MX3 sapling	MX37			158.0	0.00	0.00	0.00	0.00
008	MX3 seedling	MX36			608.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	8,674.0	0.79		0.77	
008	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00

008	Spruce/Fir mature	SF9			1,238.0	0.88	1089.44	0.93	1151.34
008	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
008	Spruce/Fir Pole	SF8			37.0	0.88	32.56	0.93	34.41
008	Spruce/Fir sapling	SF7			62.0	0.00	0.00	0.00	0.00
008	Spruce/Fir seedling	SF6			1.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	1,338.0	0.84		0.89	
008	Whitebark Pine mature	WB9			25.0	0.50	12.50	0.50	12.50
	Total Forested Acres		ERR	ERR	102,475.0	0.66		0.52	
008	Grass	GR			645.0				
008	Grass/brush	GRB			500.0				
008	Grass/forb	GRF			3,310.0				
008	Grass/sage	GRS			26.0				
008	Mahogany	M			0.0				
008	Mountain Brush	MB			53.0				
008	Private/other agency	NUS			34,908.0				
008	Rock	R			1,217.0				
008	Tall sage/grass	TSG			8,937.0				
008	Tall sage/mtn. brush	TSM			12.0				
008	Undefined/unknown	UD			5.0				
008	Water	WA			1,164.0				
008	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	15,869.0				
	Total (includes NUS acres)		ERR	ERR	153,252.0				
	Total Nat'l Forest Acres		ERR	ERR	118,344.0				
	Nat'l Forest Square Miles		ERR	ERR	184.9				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
009A	Aspen mature	AS9			912.0	0.38	346.56	0.28	255.36
009A	Aspen Non-commercial	NAS			72.0	0.38	27.36	0.28	20.16
009A	Aspen non-stocked	AS5			23.0	0.00	0.00	0.00	0.00
009A	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
009A	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
009A	Aspen seedling	AS6			53.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1060.00	0.35		0.26	
009A	D.Fir Non-commercial	NDF			5,375.0	0.53	2848.75	0.34	1827.50
009A	Douglas-fir 1st Entry	1DF9			365.0	0.07	25.55	0.07	25.55
009A	Douglas-fir mature	DF9			19,352.0	0.53	10256.56	0.34	6579.68
009A	Douglas-fir non-stocked	DF5			639.0	0.00	0.00	0.00	0.00
009A	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
009A	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
009A	Douglas-fir seedling	DF6			229.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	25,960.0	0.51		0.32	
009A	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
009A	Lodgepole mature	LP9			4,260.0	0.98	4174.80	0.79	3365.40
009A	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
009A	Lodgepole non-stocked	LP5			280.0	0.00	0.00	0.00	0.00
009A	Lodgepole pole	LP8			94.0	0.93	87.42	0.56	52.64
009A	Lodgepole sapling	LP7			1,197.0	0.00	0.00	0.00	0.00
009A	Lodgepole seedling	LP6			2,837.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	8,668.0	0.49		0.39	
009A	MX mature	MX9			5,446.0	0.84	4574.64	0.64	3485.44
009A	MX Non-commercial	NMX			1,263.0	0.84	1060.92	0.64	808.32
009A	MX non-stocked	MX5			132.0	0.00	0.00	0.00	0.00
009A	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
009A	MX sapling	MX7			52.0	0.00	0.00	0.00	0.00
009A	MX seedling	MX6			282.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	7,175.0	0.79		0.60	
009A	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
009A	MX3 mature	MX39			7,285.0	0.87	6337.95	0.84	6119.40
009A	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
009A	MX3 non-stocked	MX35			149.0	0.00	0.00	0.00	0.00
009A	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
009A	MX3 sapling	MX37			91.0	0.00	0.00	0.00	0.00
009A	MX3 seedling	MX36			276.0	0.00	0.00	0.00	0.00

	Total MX3		NA	NA	7,801.0	0.81		0.78	
009A	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
009A	Spruce/Fir mature	SF9			261.0	0.88	229.68	0.93	242.73
009A	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
009A	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
009A	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
009A	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	261.0	0.88		0.93	
009A	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	50,925.0	0.59		0.45	
009A	Grass	GR			68.0				
009A	Grass/brush	GRB			0.0				
009A	Grass/forb	GRF			4,088.0				
009A	Grass/sage	GRS			18.0				
009A	Mahogany	M			0.0				
009A	Mountain Brush	MB			37.0				
009A	Private/other agency	NUS			0.0				
009A	Rock	R			75.0				
009A	Tall sage/grass	TSG			5,693.0				
009A	Tall sage/mtn. brush	TSM			83.0				
009A	Undefined/unknown	UD			7.0				
009A	Water	WA			513.0				
009A	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	10,582.0				
	Total (includes NUS acres)		ERR	ERR	61,507.0				
	Total Nat'l Forest Acres		ERR	ERR	61,507.0				
	Nat'l Forest Square Miles		ERR	ERR	96.1				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
009B	Aspen mature	AS9			299.0	0.38	113.62	0.28	83.72
009B	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
009B	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
009B	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
009B	Aspen sapling	AS7			29.0	0.00	0.00	0.00	0.00
009B	Aspen seedling	AS6			63.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	391.00	0.29		0.21	
009B	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
009B	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
009B	Douglas-fir mature	DF9			2,199.0	0.53	1165.47	0.34	747.66
009B	Douglas-fir non-stocked	DF5			5.0	0.00	0.00	0.00	0.00
009B	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
009B	Douglas-fir sapling	DF7			68.0	0.00	0.00	0.00	0.00
009B	Douglas-fir seedling	DF6			38.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	2,310.0	0.50		0.32	
009B	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
009B	Lodgepole mature	LP9			11,879.0	0.98	11641.42	0.79	9384.41
009B	Lodgepole Non-commercial	NLP			710.0	0.98	695.80	0.79	560.90
009B	Lodgepole non-stocked	LP5			1,502.0	0.00	0.00	0.00	0.00
009B	Lodgepole pole	LP8			2,977.0	0.93	2768.61	0.56	1667.12
009B	Lodgepole sapling	LP7			2,562.0	0.00	0.00	0.00	0.00
009B	Lodgepole seedling	LP6			4,300.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	23,930.0	0.63		0.49	
009B	MX mature	MX9			5,503.0	0.84	4622.52	0.64	3521.92
009B	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
009B	MX non-stocked	MX5			39.0	0.00	0.00	0.00	0.00
009B	MX pole	MX8			24.0	0.84	20.16	0.64	15.36
009B	MX sapling	MX7			199.0	0.00	0.00	0.00	0.00
009B	MX seedling	MX6			559.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	6,324.0	0.73		0.56	
009B	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
009B	MX3 mature	MX39			500.0	0.87	435.00	0.84	420.00
009B	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
009B	MX3 non-stocked	MX35			20.0	0.00	0.00	0.00	0.00

009B	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
009B	MX3 sapling	MX37			115.0	0.00	0.00	0.00	0.00
009B	MX3 seedling	MX36			137.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	772.0	0.56		0.54	
009B	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
009B	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
009B	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
009B	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
009B	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
009B	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
009B	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	33,727.0	0.64		0.49	
009B	Grass	GR			1,343.0				
009B	Grass/brush	GRB			0.0				
009B	Grass/forb	GRF			0.0				
009B	Grass/sage	GRS			23.0				
009B	Mahogany	M			0.0				
009B	Mountain Brush	MB			29.0				
009B	Private/other agency	NUS			0.0				
009B	Rock	R			144.0				
009B	Tall sage/grass	TSG			3,186.0				
009B	Tall sage/mtn. brush	TSM			27.0				
009B	Undefined/unknown	UD			5.0				
009B	Water	WA			1,783.0				
009B	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	6,540.0				
	Total (includes NUS acres)		ERR	ERR	40,267.0				
	Total Nat'l Forest Acres		ERR	ERR	40,267.0				
	Nat'l Forest Square Miles		ERR	ERR	62.9				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
010	Aspen mature	AS9			3.0	0.38	1.14	0.28	0.84
010	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
010	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
010	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
010	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
010	Aspen seedling	AS6			31.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	34.00	0.03		0.02	
010	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
010	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
010	Douglas-fir mature	DF9			56.0	0.53	29.68	0.34	19.04
010	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
010	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
010	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
010	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	56.0	0.53		0.34	
010	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
010	Lodgepole mature	LP9			11,515.0	0.98	11284.70	0.79	9096.85
010	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
010	Lodgepole non-stocked	LP5			3,777.0	0.00	0.00	0.00	0.00
010	Lodgepole pole	LP8			5,371.0	0.93	4995.03	0.56	3007.76
010	Lodgepole sapling	LP7			6,589.0	0.00	0.00	0.00	0.00
010	Lodgepole seedling	LP6			13,084.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	40,336.0	0.40		0.30	
010	MX mature	MX9			2,112.0	0.84	1774.08	0.64	1351.68
010	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
010	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
010	MX pole	MX8			3.0	0.84	2.52	0.64	1.92
010	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
010	MX seedling	MX6			32.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	2,147.0	0.83		0.63	
010	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00

010	MX3 mature	MX39			542.0	0.87	471.54	0.84	455.28
010	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
010	MX3 non-stocked	MX35			19.0	0.00	0.00	0.00	0.00
010	MX3 pole	MX38			90.0	0.87	78.30	0.84	75.60
010	MX3 sapling	MX37			23.0	0.00	0.00	0.00	0.00
010	MX3 seedling	MX36			69.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	743.0	0.74		0.71	
010	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
010	Spruce/Fir mature	SF9			13.0	0.88	11.44	0.93	12.09
010	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
010	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
010	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
010	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	13.0	0.88		0.93	
010	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	43,329.0	0.43		0.32	
010	Grass	GR			0.0				
010	Grass/brush	GRB			0.0				
010	Grass/forb	GRF			0.0				
010	Grass/sage	GRS			0.0				
010	Mahogany	M			0.0				
010	Mountain Brush	MB			15.0				
010	Private/other agency	NUS			289.0				
010	Rock	R			42.0				
010	Tall sage/grass	TSG			0.0				
010	Tall sage/mtn. brush	TSM			0.0				
010	Undefined/unknown	UD			1.0				
010	Water	WA			519.0				
010	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	577.0				
	Total (includes NUS acres)		ERR	ERR	44,195.0				
	Total Nat'l Forest Acres		ERR	ERR	43,906.0				
	Nat'l Forest Square Miles		ERR	ERR	68.6				

Wtrshed No.	Vegetation Description	Veg. Code	D-2 Acres	D-3 Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
011	Aspen mature	AS9	381.0	142.0	523.0	0.38	198.74	0.28	146.44
011	Aspen Non-commercial	NAS	35.0	0.0	35.0	0.38	13.30	0.28	9.80
011	Aspen non-stocked	AS5	100.0	0.0	100.0	0.00	0.00	0.00	0.00
011	Aspen pole	AS8	240.0	0.0	240.0	0.38	91.20	0.40	96.00
011	Aspen sapling	AS7	0.0	74.0	74.0	0.00	0.00	0.00	0.00
011	Aspen seedling	AS6	71.0	334.0	405.0	0.00	0.00	0.00	0.00
	Total Aspen		827.00	550.00	1377.00	0.22		0.18	
011	D.Fir Non-commercial	NDF	0.0	0.0	0.0	0.53	0.00	0.34	0.00
011	Douglas-fir 1st Entry	1DF9	0.0	0.0	0.0	0.07	0.00	0.07	0.00
011	Douglas-fir mature	DF9	810.0	4,166.0	4,976.0	0.53	2637.28	0.34	1691.84
011	Douglas-fir non-stocked	DF5	14.0	0.0	14.0	0.00	0.00	0.00	0.00
011	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
011	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
011	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		824.0	4,166.0	4,990.0	0.53		0.34	
011	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
011	Lodgepole mature	LP9	13,350.0	28,389.0	41,739.0	0.98	40904.22	0.79	32973.81
011	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
011	Lodgepole non-stocked	LP5	1,715.0	8,407.0	10,122.0	0.00	0.00	0.00	0.00
011	Lodgepole pole	LP8	2,122.0	668.0	2,790.0	0.93	2594.70	0.56	1562.40
011	Lodgepole sapling	LP7	1,316.0	8,556.0	9,872.0	0.00	0.00	0.00	0.00
011	Lodgepole seedling	LP6	5,666.0	20,139.0	25,805.0	0.00	0.00	0.00	0.00
	Total Lodgepole		24,169.0	66,159.0	90,328.0	0.48		0.38	
011	MX mature	MX9	2,214.0	7,691.0	9,905.0	0.84	8320.20	0.64	6339.20
011	MX Non-commercial	NMX	0.0	0.0	0.0	0.84	0.00	0.64	0.00
011	MX non-stocked	MX5	0.0	78.0	78.0	0.00	0.00	0.00	0.00
011	MX pole	MX8	0.0	16.0	16.0	0.84	13.44	0.64	10.24
011	MX sapling	MX7	185.0	561.0	746.0	0.00	0.00	0.00	0.00
011	MX seedling	MX6	361.0	468.0	829.0	0.00	0.00	0.00	0.00

	Total MX		2,760.0	8,814.0	11,574.0	0.72		0.55	
011	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
011	MX3 mature	MX39	29.0	292.0	321.0	0.87	279.27	0.84	269.64
011	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
011	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
011	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
011	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
011	MX3 seedling	MX36	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX3		29.0	292.0	321.0	0.87		0.84	
011	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
011	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.88	0.00	0.93	0.00
011	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
011	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
011	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
011	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	0.0	0.0	ERR		ERR	
011	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		28,609.0	79,981.0	108,590.0	0.51		0.40	
011	Grass	GR	1,818.0	770.0	2,588.0				
011	Grass/brush	GRB	0.0	0.0	0.0				
011	Grass/forb	GRF	187.0	71.0	258.0				
011	Grass/sage	GRS	0.0	0.0	0.0				
011	Mahogany	M	0.0	0.0	0.0				
011	Mountain Brush	MB	56.0	226.0	282.0				
011	Private/other agency	NUS	923.0	19.0	942.0				
011	Rock	R	174.0	109.0	283.0				
011	Tall sage/grass	TSG	1,911.0	2,880.0	4,791.0				
011	Tall sage/mtn. brush	TSM	2.0	37.0	39.0				
011	Undefined/unknown	UD	0.0	29.0	29.0				
011	Water	WA	1,078.0	627.0	1,705.0				
011	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		5,226.0	4,749.0	9,975.0				
	Total (includes NUS acres)		34,758.0	84,749.0	119,507.0				
	Total Nat'l Forest Acres		33,835.0	84,730.0	118,565.0				
	Nat'l Forest Square Miles		52.9	132.4	185.3				

Wtrshed No.	Vegetation Description	Veg. Code	D-2 Acres	D-3 Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
012	Aspen mature	AS9	0.0	832.0	832.0	0.38	316.16	0.28	232.96
012	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
012	Aspen non-stocked	AS5	0.0	29.0	29.0	0.00	0.00	0.00	0.00
012	Aspen pole	AS8	5.0	0.0	5.0	0.38	1.90	0.40	2.00
012	Aspen sapling	AS7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
012	Aspen seedling	AS6	0.0	863.0	863.0	0.00	0.00	0.00	0.00
	Total Aspen		5.00	1724.00	1729.00	0.18		0.14	
012	D.Fir Non-commercial	NDF	0.0	70.0	70.0	0.53	37.10	0.34	23.80
012	Douglas-fir 1st Entry	1DF9	0.0	27.0	27.0	0.07	1.89	0.07	1.89
012	Douglas-fir mature	DF9	49.0	3,654.0	3,703.0	0.53	1962.59	0.34	1259.02
012	Douglas-fir non-stocked	DF5	0.0	118.0	118.0	0.00	0.00	0.00	0.00
012	Douglas-fir pole	DF8	0.0	53.0	53.0	0.53	28.09	0.34	18.02
012	Douglas-fir sapling	DF7	0.0	12.0	12.0	0.00	0.00	0.00	0.00
012	Douglas-fir seedling	DF6	0.0	36.0	36.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		49.0	3,970.0	4,019.0	0.51		0.32	
012	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
012	Lodgepole mature	LP9	2,296.0	30,216.0	32,512.0	0.98	31861.76	0.79	25684.48
012	Lodgepole Non-commercial	NLP	0.0	54.0	54.0	0.98	52.92	0.79	42.66
012	Lodgepole non-stocked	LP5	915.0	6,300.0	7,215.0	0.00	0.00	0.00	0.00
012	Lodgepole pole	LP8	610.0	3,498.0	4,108.0	0.93	3820.44	0.56	2300.48
012	Lodgepole sapling	LP7	862.0	5,154.0	6,016.0	0.00	0.00	0.00	0.00
012	Lodgepole seedling	LP6	1,727.0	14,752.0	16,479.0	0.00	0.00	0.00	0.00
	Total Lodgepole		6,410.0	59,974.0	66,384.0	0.54		0.42	
012	MX mature	MX9	874.0	9,345.0	10,219.0	0.84	8583.96	0.64	6540.16
012	MX Non-commercial	NMX	0.0	0.0	0.0	0.84	0.00	0.64	0.00
012	MX non-stocked	MX5	0.0	53.0	53.0	0.00	0.00	0.00	0.00

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
012	MX pole	MX8	0.0	27.0	27.0	0.84	22.68	0.64	17.28
012	MX sapling	MX7	54.0	45.0	99.0	0.00	0.00	0.00	0.00
012	MX seedling	MX6	40.0	169.0	209.0	0.00	0.00	0.00	0.00
	Total MX		968.0	9,639.0	10,607.0	0.81		0.62	
012	MX3 1st entry	1MX9	0.0	21.0	21.0	0.00	0.00	0.00	0.00
012	MX3 mature	MX39	118.0	72.0	190.0	0.87	165.30	0.84	159.60
012	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
012	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
012	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
012	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
012	MX3 seedling	MX36	20.0	0.0	20.0	0.00	0.00	0.00	0.00
	Total MX3		138.0	93.0	231.0	0.72		0.69	
012	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
012	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.88	0.00	0.93	0.00
012	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
012	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
012	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
012	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	0.0	0.0	ERR		ERR	
012	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		7,570.0	75,400.0	82,970.0	0.56		0.44	
012	Grass	GR	2.0	46.0	48.0				
012	Grass/brush	GRB	0.0	0.0	0.0				
012	Grass/forb	GRF	0.0	0.0	0.0				
012	Grass/sage	GRS	0.0	0.0	0.0				
012	Mahogany	M	0.0	0.0	0.0				
012	Mountain Brush	MB	0.0	314.0	314.0				
012	Private/other agency	NUS	3,159.0	348.0	3,507.0				
012	Rock	R	2.0	69.0	71.0				
012	Tall sage/grass	TSG	0.0	0.0	0.0				
012	Tall sage/mtn. brush	TSM	0.0	0.0	0.0				
012	Undefined/unknown	UD	0.0	20.0	20.0				
012	Water	WA	11.0	306.0	317.0				
012	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		15.0	755.0	770.0				
	Total (includes NUS acres)		10,744.0	76,503.0	87,247.0				
	Total Nat'l Forest Acres		7,585.0	76,155.0	83,740.0				
	Nat'l Forest Square Miles		11.9	119.0	130.8				
013	Aspen mature	AS9	1,040.0	0.0	1,040.0	0.38	395.20	0.28	291.20
013	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
013	Aspen non-stocked	AS5	39.0	0.0	39.0	0.00	0.00	0.00	0.00
013	Aspen pole	AS8	19.0	0.0	19.0	0.38	7.22	0.40	7.60
013	Aspen sapling	AS7	275.0	0.0	275.0	0.00	0.00	0.00	0.00
013	Aspen seedling	AS6	419.0	0.0	419.0	0.00	0.00	0.00	0.00
	Total Aspen		1792.00	0.00	1792.00	0.22		0.17	
013	D.Fir Non-commercial	NDF	0.0	0.0	0.0	0.53	0.00	0.34	0.00
013	Douglas-fir 1st Entry	1DF9	0.0	0.0	0.0	0.07	0.00	0.07	0.00
013	Douglas-fir mature	DF9	1,776.0	12.0	1,788.0	0.53	947.64	0.34	607.92
013	Douglas-fir non-stocked	DF5	146.0	0.0	146.0	0.00	0.00	0.00	0.00
013	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
013	Douglas-fir sapling	DF7	21.0	0.0	21.0	0.00	0.00	0.00	0.00
013	Douglas-fir seedling	DF6	2.0	0.0	2.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		1,945.0	12.0	1,957.0	0.48		0.31	
013	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
013	Lodgepole mature	LP9	20,196.0	183.0	20,379.0	0.98	19971.42	0.79	16099.41
013	Lodgepole Non-commercial	NLP	2.0	0.0	2.0	0.98	1.96	0.79	1.58
013	Lodgepole non-stocked	LP5	2,796.0	72.0	2,868.0	0.00	0.00	0.00	0.00
013	Lodgepole pole	LP8	453.0	0.0	453.0	0.93	421.29	0.56	253.68
013	Lodgepole sapling	LP7	5,917.0	11.0	5,928.0	0.00	0.00	0.00	0.00
013	Lodgepole seedling	LP6	5,832.0	17.0	5,849.0	0.00	0.00	0.00	0.00
	Total Lodgepole		35,196.0	283.0	35,479.0	0.57		0.46	

013	MX mature	MX9	6,265.0	3.0	6,268.0	0.84	5265.12	0.64	4011.52
013	MX Non-commercial	NMX	0.0	0.0	0.0	0.84	0.00	0.64	0.00
013	MX non-stocked	MX5	341.0	0.0	341.0	0.00	0.00	0.00	0.00
013	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
013	MX sapling	MX7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
013	MX seedling	MX6	76.0	0.0	76.0	0.00	0.00	0.00	0.00
	Total MX		6,682.0	3.0	6,685.0	0.79		0.60	
013	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
013	MX3 mature	MX39	0.0	0.0	0.0	0.87	0.00	0.84	0.00
013	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
013	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
013	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
013	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
013	MX3 seedling	MX36	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total MX3		0.0	0.0	0.0	ERR		ERR	
013	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
013	Spruce/Fir mature	SF9	0.0	0.0	0.0	0.88	0.00	0.93	0.00
013	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
013	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
013	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
013	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	0.0	0.0	ERR		ERR	
013	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		45,615.0	298.0	45,913.0	0.59		0.46	
013	Grass	GR	0.0	0.0	0.0				
013	Grass/brush	GRB	0.0	0.0	0.0				
013	Grass/forb	GRF	8.0	0.0	8.0				
013	Grass/sage	GRS	0.0	0.0	0.0				
013	Mahogany	M	0.0	0.0	0.0				
013	Mountain Brush	MB	84.0	0.0	84.0				
013	Private/other agency	NUS	2.0	0.0	2.0				
013	Rock	R	21.0	0.0	21.0				
013	Tall sage/grass	TSG	2.0	0.0	2.0				
013	Tall sage/mtn. brush	TSM	0.0	0.0	0.0				
013	Undefined/unknown	UD	524.0	0.0	524.0				
013	Water	WA	250.0	0.0	250.0				
013	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		889.0	0.0	889.0				
	Total (includes NUS acres)		46,506.0	298.0	46,804.0				
	Total Nat'l Forest Acres		46,504.0	298.0	46,802.0				
	Nat'l Forest Square Miles		72.7	0.5	73.1				

Wtrshed No.	Vegetation Description	Veg. Code	Acres	Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
014/034	Aspen mature	AS9			947.0	0.38	359.86	0.28	265.16
014/034	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
014/034	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
014/034	Aspen pole	AS8			36.0	0.38	13.68	0.40	14.40
014/034	Aspen sapling	AS7			177.0	0.00	0.00	0.00	0.00
014/034	Aspen seedling	AS6			199.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1359.00	0.27		0.21	
014/034	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
014/034	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
014/034	Douglas-fir mature	DF9			15,044.0	0.53	7973.32	0.34	5114.96
014/034	Douglas-fir non-stocked	DF5			231.0	0.00	0.00	0.00	0.00
014/034	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
014/034	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
014/034	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	15,275.0	0.52		0.33	
014/034	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
014/034	Lodgepole mature	LP9			3,229.0	0.98	3164.42	0.79	2550.91
014/034	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
014/034	Lodgepole non-stocked	LP5			143.0	0.00	0.00	0.00	0.00
014/034	Lodgepole pole	LP8			45.0	0.93	41.85	0.56	25.20
014/034	Lodgepole sapling	LP7			2,158.0	0.00	0.00	0.00	0.00

014/034	Lodgepole seedling	LP6			484.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	6,059.0	0.53		0.43	
014/034	MX mature	MX9			7,070.0	0.84	5938.80	0.64	4524.80
014/034	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
014/034	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
014/034	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
014/034	MX sapling	MX7			228.0	0.00	0.00	0.00	0.00
014/034	MX seedling	MX6			123.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	7,421.0	0.80		0.61	
014/034	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
014/034	MX3 mature	MX39			6.0	0.87	5.22	0.84	5.04
014/034	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
014/034	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
014/034	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
014/034	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
014/034	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	6.0	0.87		0.84	
014/034	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
014/034	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
014/034	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
014/034	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
014/034	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
014/034	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
014/034	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	30,120.0	0.58		0.42	
014/034	Grass	GR			17.0				
014/034	Grass/brush	GRB			0.0				
014/034	Grass/forb	GRF			0.0				
014/034	Grass/sage	GRS			0.0				
014/034	Mahogany	M			0.0				
014/034	Mountain Brush	MB			187.0				
014/034	Private/other agency	NUS			84.0				
014/034	Rock	R			9.0				
014/034	Tall sage/grass	TSG			167.0				
014/034	Tall sage/mtn. brush	TSM			2.0				
014/034	Undefined/unknown	UD			265.0				
014/034	Water	WA			0.0				
014/034	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	647.0				
	Total (includes NUS acres)		ERR	ERR	30,851.0				
	Total Nat'l Forest Acres		ERR	ERR	30,767.0				
	Nat'l Forest Square Miles		ERR	ERR	48.1				

Wtrshed No.	Vegetation Description	Veg. Code			Idaho Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
015	Aspen mature	AS9			683.0	0.38	259.54	0.28	191.24
015	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
015	Aspen non-stocked	AS5			19.0	0.00	0.00	0.00	0.00
015	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
015	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
015	Aspen seedling	AS6			176.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	878.00	0.30		0.22	
015	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
015	Douglas-fir 1st Entry	1DF9			15.0	0.07	1.05	0.07	1.05
015	Douglas-fir mature	DF9			308.0	0.53	163.24	0.34	104.72
015	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
015	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
015	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
015	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	323.0	0.51		0.33	
015	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
015	Lodgepole mature	LP9			6,829.0	0.98	6692.42	0.79	5394.91
015	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00

Wtrshed No.	Vegetation Description	Veg. Code			Wyoming Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
015	Lodgepole non-stocked	LP5			269.0	0.00	0.00	0.00	0.00
015	Lodgepole pole	LP8			27.0	0.93	25.11	0.56	15.12
015	Lodgepole sapling	LP7			1,206.0	0.00	0.00	0.00	0.00
015	Lodgepole seedling	LP6			2,126.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	10,457.0	0.64		0.52	
015	MX mature	MX9			3,304.0	0.84	2775.36	0.64	2114.56
015	MX Non-commercial	NMX			7.0	0.84	5.88	0.64	4.48
015	MX non-stocked	MX5			188.0	0.00	0.00	0.00	0.00
015	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
015	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
015	MX seedling	MX6			103.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	3,602.0	0.77		0.59	
015	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
015	MX3 mature	MX39			32.0	0.87	27.84	0.84	26.88
015	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
015	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
015	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
015	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
015	MX3 seedling	MX36			50.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	82.0	0.34		0.33	
015	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
015	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
015	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
015	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
015	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
015	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
015	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	15,342.0	0.65		0.51	
015	Grass	GR			0.0				
015	Grass/brush	GRB			27.0				
015	Grass/forb	GRF			206.0				
015	Grass/sage	GRS			0.0				
015	Mahogany	M			0.0				
015	Mountain Brush	MB			92.0				
015	Private/other agency	NUS			6.0				
015	Rock	R			84.0				
015	Tall sage/grass	TSG			201.0				
015	Tall sage/mtn. brush	TSM			294.0				
015	Undefined/unknown	UD			63.0				
015	Water	WA			44.0				
015	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	1,011.0				
	Total (includes NUS acres)		ERR	ERR	16,359.0				
	Total Nat'l Forest Acres		ERR	ERR	16,353.0				
	Nat'l Forest Square Miles		ERR	ERR	25.6				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
015	Lodgepole mature	LP9			7,195.0	0.98	7051.10	0.79	5684.05
015	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
015	Lodgepole non-stocked	LP5			1,520.0	0.00	0.00	0.00	0.00
015	Lodgepole pole	LP8			27.0	0.93	25.11	0.56	15.12
015	Lodgepole sapling	LP7			600.0	0.00	0.00	0.00	0.00
015	Lodgepole seedling	LP6			1,046.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	10,388.0	0.68		0.55	
015	MX mature	MX9			5,275.0	0.84	4431.00	0.64	3376.00
015	MX Non-commercial	NMX			26.0	0.84	21.84	0.64	16.64
015	MX non-stocked	MX5			187.0	0.00	0.00	0.00	0.00
015	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
015	MX sapling	MX7			48.0	0.00	0.00	0.00	0.00
015	MX seedling	MX6			0.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	5,536.0	0.80		0.61	
015	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
015	MX3 mature	MX39			1,168.0	0.87	1016.16	0.84	981.12
015	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
015	MX3 non-stocked	MX35			40.0	0.00	0.00	0.00	0.00
015	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
015	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
015	MX3 seedling	MX36			13.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	1,221.0	0.83		0.80	
015	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
015	Spruce/Fir mature	SF9			60.0	0.88	52.80	0.93	55.80
015	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
015	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
015	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
015	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	60.0	0.88		0.93	
015	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	18,457.0	0.70		0.56	
015	Grass	GR			58.0				
015	Grass/brush	GRB			6.0				
015	Grass/forb	GRF			1,308.0				
015	Grass/sage	GRS			0.0				
015	Mahogany	M			0.0				
015	Mountain Brush	MB			697.0				
015	Private/other agency	NUS			20.0				
015	Rock	R			8.0				
015	Tall sage/grass	TSG			67.0				
015	Tall sage/mtn. brush	TSM			60.0				
015	Undefined/unknown	UD			36.0				
015	Water	WA			348.0				
015	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	2,588.0				
	Total (includes NUS acres)		ERR	ERR	21,065.0				
	Total Nat'l Forest Acres		ERR	ERR	21,045.0				
	Nat'l Forest Square Miles		ERR	ERR	32.9				
015	Aspen mature	AS9	683.0	448.0	1,131.0	0.38	429.78	0.28	316.68
015	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
015	Aspen non-stocked	AS5	19.0	75.0	94.0	0.00	0.00	0.00	0.00
015	Aspen pole	AS8	0.0	0.0	0.0	0.38	0.00	0.40	0.00
015	Aspen sapling	AS7	0.0	58.0	58.0	0.00	0.00	0.00	0.00
015	Aspen seedling	AS6	176.0	227.0	403.0	0.00	0.00	0.00	0.00
	Total Aspen		878.00	808.00	1686.00	0.25		0.19	
015	D.Fir Non-commercial	NDF	0.0	0.0	0.0	0.53	0.00	0.34	0.00
015	Douglas-fir 1st Entry	1DF9	15.0	0.0	15.0	0.07	1.05	0.07	1.05
015	Douglas-fir mature	DF9	308.0	166.0	474.0	0.53	251.22	0.34	161.16
015	Douglas-fir non-stocked	DF5	0.0	244.0	244.0	0.00	0.00	0.00	0.00
015	Douglas-fir pole	DF8	0.0	34.0	34.0	0.53	18.02	0.34	11.56
015	Douglas-fir sapling	DF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
015	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00

	Total Douglas-fir		323.0	444.0	767.0	0.35		0.23	
015	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
015	Lodgepole mature	LP9	6,829.0	7,195.0	14,024.0	0.98	13743.52	0.79	11078.96
015	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
015	Lodgepole non-stocked	LP5	269.0	1,520.0	1,789.0	0.00	0.00	0.00	0.00
015	Lodgepole pole	LP8	27.0	27.0	54.0	0.93	50.22	0.56	30.24
015	Lodgepole sapling	LP7	1,206.0	600.0	1,806.0	0.00	0.00	0.00	0.00
015	Lodgepole seedling	LP6	2,126.0	1,046.0	3,172.0	0.00	0.00	0.00	0.00
	Total Lodgepole		10,457.0	10,388.0	20,845.0	0.66		0.53	
015	MX mature	MX9	3,304.0	5,275.0	8,579.0	0.84	7206.36	0.64	5490.56
015	MX Non-commercial	NMX	7.0	26.0	33.0	0.84	27.72	0.64	21.12
015	MX non-stocked	MX5	188.0	187.0	375.0	0.00	0.00	0.00	0.00
015	MX pole	MX8	0.0	0.0	0.0	0.84	0.00	0.64	0.00
015	MX sapling	MX7	0.0	48.0	48.0	0.00	0.00	0.00	0.00
015	MX seedling	MX6	103.0	0.0	103.0	0.00	0.00	0.00	0.00
	Total MX		3,602.0	5,536.0	9,138.0	0.79		0.60	
015	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
015	MX3 mature	MX39	32.0	1,168.0	1,200.0	0.87	1044.00	0.84	1008.00
015	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
015	MX3 non-stocked	MX35	0.0	40.0	40.0	0.00	0.00	0.00	0.00
015	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
015	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
015	MX3 seedling	MX36	50.0	13.0	63.0	0.00	0.00	0.00	0.00
	Total MX3		82.0	1,221.0	1,303.0	0.80		0.77	
015	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
015	Spruce/Fir mature	SF9	0.0	60.0	60.0	0.88	52.80	0.93	55.80
015	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
015	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
015	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
015	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	60.0	60.0	0.88		0.93	
015	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		15,342.0	18,457.0	33,799.0	0.68		0.54	
015	Grass	GR	0.0	58.0	58.0				
015	Grass/brush	GRB	27.0	6.0	33.0				
015	Grass/forb	GRF	206.0	1,308.0	1,514.0				
015	Grass/sage	GRS	0.0	0.0	0.0				
015	Mahogany	M	0.0	0.0	0.0				
015	Mountain Brush	MB	92.0	697.0	789.0				
015	Private/other agency	NUS	6.0	20.0	26.0				
015	Rock	R	84.0	8.0	92.0				
015	Tall sage/grass	TSG	201.0	67.0	268.0				
015	Tall sage/mtn. brush	TSM	294.0	60.0	354.0				
015	Undefined/unknown	UD	63.0	36.0	99.0				
015	Water	WA	44.0	348.0	392.0				
015	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		1,011.0	2,588.0	3,599.0				
	Total (includes NUS acres)		16,359.0	21,065.0	37,424.0				
	Total Nat'l Forest Acres		16,353.0	21,045.0	37,398.0				
	Nat'l Forest Square Miles		25.6	32.9	58.4				

Wtrshed No.	Vegetation Description	Veg. Code			Idaho Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
016	Aspen mature	AS9			1,642.0	0.38	623.96	0.28	459.76
016	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
016	Aspen non-stocked	AS5			672.0	0.00	0.00	0.00	0.00
016	Aspen pole	AS8			0.0	0.38	0.00	0.40	0.00
016	Aspen sapling	AS7			23.0	0.00	0.00	0.00	0.00
016	Aspen seedling	AS6			63.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	2400.00	0.26		0.19	
016	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00
016	Douglas-fir 1st Entry	1DF9			216.0	0.07	15.12	0.07	15.12
016	Douglas-fir mature	DF9			1,443.0	0.53	764.79	0.34	490.62
016	Douglas-fir non-stocked	DF5			137.0	0.00	0.00	0.00	0.00

016	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
016	Douglas-fir sapling	DF7			13.0	0.00	0.00	0.00	0.00
016	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	1,809.0	0.43		0.28	
016	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
016	Lodgepole mature	LP9			5,230.0	0.98	5125.40	0.79	4131.70
016	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
016	Lodgepole non-stocked	LP5			440.0	0.00	0.00	0.00	0.00
016	Lodgepole pole	LP8			71.0	0.93	66.03	0.56	39.76
016	Lodgepole sapling	LP7			1,171.0	0.00	0.00	0.00	0.00
016	Lodgepole seedling	LP6			463.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	7,375.0	0.70		0.57	
016	MX mature	MX9			3,865.0	0.84	3246.60	0.64	2473.60
016	MX Non-commercial	NMX			0.0	0.84	0.00	0.64	0.00
016	MX non-stocked	MX5			66.0	0.00	0.00	0.00	0.00
016	MX pole	MX8			30.0	0.84	25.20	0.64	19.20
016	MX sapling	MX7			94.0	0.00	0.00	0.00	0.00
016	MX seedling	MX6			9.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	4,064.0	0.81		0.61	
016	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
016	MX3 mature	MX39			398.0	0.87	346.26	0.84	334.32
016	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
016	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
016	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
016	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
016	MX3 seedling	MX36			0.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	398.0	0.87		0.84	
016	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
016	Spruce/Fir mature	SF9			0.0	0.88	0.00	0.93	0.00
016	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
016	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
016	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
016	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	0.0	ERR		ERR	
016	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	16,046.0	0.64		0.50	
016	Grass	GR			0.0				
016	Grass/brush	GRB			0.0				
016	Grass/forb	GRF			87.0				
016	Grass/sage	GRS			0.0				
016	Mahogany	M			0.0				
016	Mountain Brush	MB			0.0				
016	Private/other agency	NUS			0.0				
016	Rock	R			16.0				
016	Tall sage/grass	TSG			184.0				
016	Tall sage/mtn. brush	TSM			41.0				
016	Undefined/unknown	UD			65.0				
016	Water	WA			361.0				
016	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	754.0				
	Total (includes NUS acres)		ERR	ERR	16,800.0				
	Total Nat'l Forest Acres		ERR	ERR	16,800.0				
	Nat'l Forest Square Miles		ERR	ERR	26.3				

Wtrshed No.	Vegetation Description	Veg. Code			Wyoming Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
016	Aspen mature	AS9			1,109.0	0.38	421.42	0.28	310.52
016	Aspen Non-commercial	NAS			0.0	0.38	0.00	0.28	0.00
016	Aspen non-stocked	AS5			0.0	0.00	0.00	0.00	0.00
016	Aspen pole	AS8			20.0	0.38	7.60	0.40	8.00
016	Aspen sapling	AS7			0.0	0.00	0.00	0.00	0.00
016	Aspen seedling	AS6			51.0	0.00	0.00	0.00	0.00
	Total Aspen		NA	NA	1180.00	0.36		0.27	
016	D.Fir Non-commercial	NDF			0.0	0.53	0.00	0.34	0.00

016	Douglas-fir 1st Entry	1DF9			0.0	0.07	0.00	0.07	0.00
016	Douglas-fir mature	DF9			370.0	0.53	196.10	0.34	125.80
016	Douglas-fir non-stocked	DF5			0.0	0.00	0.00	0.00	0.00
016	Douglas-fir pole	DF8			0.0	0.53	0.00	0.34	0.00
016	Douglas-fir sapling	DF7			0.0	0.00	0.00	0.00	0.00
016	Douglas-fir seedling	DF6			0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		NA	NA	370.0	0.53		0.34	
016	Limber Pine mature	LM9			0.0	0.47	0.00	0.54	0.00
016	Lodgepole mature	LP9			21,743.0	0.98	21308.14	0.79	17176.97
016	Lodgepole Non-commercial	NLP			0.0	0.98	0.00	0.79	0.00
016	Lodgepole non-stocked	LP5			406.0	0.00	0.00	0.00	0.00
016	Lodgepole pole	LP8			35.0	0.93	32.55	0.56	19.60
016	Lodgepole sapling	LP7			169.0	0.00	0.00	0.00	0.00
016	Lodgepole seedling	LP6			106.0	0.00	0.00	0.00	0.00
	Total Lodgepole		NA	NA	22,459.0	0.95		0.77	
016	MX mature	MX9			10,804.0	0.84	9075.36	0.64	6914.56
016	MX Non-commercial	NMX			106.0	0.84	89.04	0.64	67.84
016	MX non-stocked	MX5			0.0	0.00	0.00	0.00	0.00
016	MX pole	MX8			0.0	0.84	0.00	0.64	0.00
016	MX sapling	MX7			0.0	0.00	0.00	0.00	0.00
016	MX seedling	MX6			24.0	0.00	0.00	0.00	0.00
	Total MX		NA	NA	10,934.0	0.84		0.64	
016	MX3 1st entry	1MX9			0.0	0.00	0.00	0.00	0.00
016	MX3 mature	MX39			1,661.0	0.87	1445.07	0.84	1395.24
016	MX3 Non-commercial	NMX3			0.0	0.87	0.00	0.84	0.00
016	MX3 non-stocked	MX35			0.0	0.00	0.00	0.00	0.00
016	MX3 pole	MX38			0.0	0.87	0.00	0.84	0.00
016	MX3 sapling	MX37			0.0	0.00	0.00	0.00	0.00
016	MX3 seedling	MX36			21.0	0.00	0.00	0.00	0.00
	Total MX3		NA	NA	1,682.0	0.86		0.83	
016	SF Non-commercial	NSF			0.0	0.88	0.00	0.93	0.00
016	Spruce/Fir mature	SF9			839.0	0.88	738.32	0.93	780.27
016	Spruce/Fir non-stocked	SF5			0.0	0.00	0.00	0.00	0.00
016	Spruce/Fir Pole	SF8			0.0	0.88	0.00	0.93	0.00
016	Spruce/Fir sapling	SF7			0.0	0.00	0.00	0.00	0.00
016	Spruce/Fir seedling	SF6			0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		NA	NA	839.0	0.88		0.93	
016	Whitebark Pine mature	WB9			0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		ERR	ERR	37,464.0	0.89		0.72	
016	Grass	GR			14.0				
016	Grass/brush	GRB			0.0				
016	Grass/forb	GRF			2,782.0				
016	Grass/sage	GRS			0.0				
016	Mahogany	M			0.0				
016	Mountain Brush	MB			1,220.0				
016	Private/other agency	NUS			137.0				
016	Rock	R			14.0				
016	Tall sage/grass	TSG			75.0				
016	Tall sage/mtn. brush	TSM			30.0				
016	Undefined/unknown	UD			44.0				
016	Water	WA			754.0				
016	Willow	W			0.0				
	Total Non-Forested Acres		NA	NA	4,933.0				
	Total (includes NUS acres)		ERR	ERR	42,534.0				
	Total Nat'l Forest Acres		ERR	ERR	42,397.0				
	Nat'l Forest Square Miles		ERR	ERR	66.2				

Wtrshed No.	Vegetation Description	Veg. Code	Idaho Acres	Wyoming Acres	Total Acres	Habitat Capability for Cavity Nesting Species	Weighted Average	Hab. Cap. for Hairy, N. Flicker, Y-b Sapsucker, & W. Sapsucker	Weighted Average
016	Aspen mature	AS9	1,642.0	1,109.0	2,751.0	0.38	1045.38	0.28	770.28
016	Aspen Non-commercial	NAS	0.0	0.0	0.0	0.38	0.00	0.28	0.00
016	Aspen non-stocked	AS5	672.0	0.0	672.0	0.00	0.00	0.00	0.00
016	Aspen pole	AS8	0.0	20.0	20.0	0.38	7.60	0.40	8.00
016	Aspen sapling	AS7	23.0	0.0	23.0	0.00	0.00	0.00	0.00
016	Aspen seedling	AS6	63.0	51.0	114.0	0.00	0.00	0.00	0.00

	Total Aspen		2400.00	1180.00	3580.00	0.29		0.22	
016	D.Fir Non-commercial	NDF	0.0	0.0	0.0	0.53	0.00	0.34	0.00
016	Douglas-fir 1st Entry	1DF9	216.0	0.0	216.0	0.07	15.12	0.07	15.12
016	Douglas-fir mature	DF9	1,443.0	370.0	1,813.0	0.53	960.89	0.34	616.42
016	Douglas-fir non-stocked	DF5	137.0	0.0	137.0	0.00	0.00	0.00	0.00
016	Douglas-fir pole	DF8	0.0	0.0	0.0	0.53	0.00	0.34	0.00
016	Douglas-fir sapling	DF7	13.0	0.0	13.0	0.00	0.00	0.00	0.00
016	Douglas-fir seedling	DF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Douglas-fir		1,809.0	370.0	2,179.0	0.45		0.29	
016	Limber Pine mature	LM9	0.0	0.0	0.0	0.47	0.00	0.54	0.00
016	Lodgepole mature	LP9	5,230.0	21,743.0	26,973.0	0.98	26433.54	0.79	21308.67
016	Lodgepole Non-commercial	NLP	0.0	0.0	0.0	0.98	0.00	0.79	0.00
016	Lodgepole non-stocked	LP5	440.0	406.0	846.0	0.00	0.00	0.00	0.00
016	Lodgepole pole	LP8	71.0	35.0	106.0	0.93	98.58	0.56	59.36
016	Lodgepole sapling	LP7	1,171.0	169.0	1,340.0	0.00	0.00	0.00	0.00
016	Lodgepole seedling	LP6	463.0	106.0	569.0	0.00	0.00	0.00	0.00
	Total Lodgepole		7,375.0	22,459.0	29,834.0	0.89		0.72	
016	MX mature	MX9	3,865.0	10,804.0	14,669.0	0.84	12321.96	0.64	9388.16
016	MX Non-commercial	NMX	0.0	106.0	106.0	0.84	89.04	0.64	67.84
016	MX non-stocked	MX5	66.0	0.0	66.0	0.00	0.00	0.00	0.00
016	MX pole	MX8	30.0	0.0	30.0	0.84	25.20	0.64	19.20
016	MX sapling	MX7	94.0	0.0	94.0	0.00	0.00	0.00	0.00
016	MX seedling	MX6	9.0	24.0	33.0	0.00	0.00	0.00	0.00
	Total MX		4,064.0	10,934.0	14,998.0	0.83		0.63	
016	MX3 1st entry	1MX9	0.0	0.0	0.0	0.00	0.00	0.00	0.00
016	MX3 mature	MX39	398.0	1,661.0	2,059.0	0.87	1791.33	0.84	1729.56
016	MX3 Non-commercial	NMX3	0.0	0.0	0.0	0.87	0.00	0.84	0.00
016	MX3 non-stocked	MX35	0.0	0.0	0.0	0.00	0.00	0.00	0.00
016	MX3 pole	MX38	0.0	0.0	0.0	0.87	0.00	0.84	0.00
016	MX3 sapling	MX37	0.0	0.0	0.0	0.00	0.00	0.00	0.00
016	MX3 seedling	MX36	0.0	21.0	21.0	0.00	0.00	0.00	0.00
	Total MX3		398.0	1,682.0	2,080.0	0.86		0.83	
016	SF Non-commercial	NSF	0.0	0.0	0.0	0.88	0.00	0.93	0.00
016	Spruce/Fir mature	SF9	0.0	839.0	839.0	0.88	738.32	0.93	780.27
016	Spruce/Fir non-stocked	SF5	0.0	0.0	0.0	0.00	0.00	0.00	0.00
016	Spruce/Fir Pole	SF8	0.0	0.0	0.0	0.88	0.00	0.93	0.00
016	Spruce/Fir sapling	SF7	0.0	0.0	0.0	0.00	0.00	0.00	0.00
016	Spruce/Fir seedling	SF6	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	Total Spruce/Fir		0.0	839.0	839.0	0.88		0.93	
016	Whitebark Pine mature	WB9	0.0	0.0	0.0	0.50	0.00	0.50	0.00
	Total Forested Acres		16,046.0	37,464.0	53,510.0	0.81		0.65	
016	Grass	GR	0.0	14.0	14.0				
016	Grass/brush	GRB	0.0	0.0	0.0				
016	Grass/forb	GRF	87.0	2,782.0	2,869.0				
016	Grass/sage	GRS	0.0	0.0	0.0				
016	Mahogany	M	0.0	0.0	0.0				
016	Mountain Brush	MB	0.0	1,220.0	1,220.0				
016	Private/other agency	NUS	0.0	137.0	137.0				
016	Rock	R	16.0	14.0	30.0				
016	Tall sage/grass	TSG	184.0	75.0	259.0				
016	Tall sage/mtn. brush	TSM	41.0	30.0	71.0				
016	Undefined/unknown	UD	65.0	44.0	109.0				
016	Water	WA	361.0	754.0	1,115.0				
016	Willow	W	0.0	0.0	0.0				
	Total Non-Forested Acres		754.0	4,933.0	5,687.0				
	Total (includes NUS acres)		16,800.0	42,534.0	59,334.0				
	Total Nat'l Forest Acres		16,800.0	42,397.0	59,197.0				
	Nat'l Forest Square Miles		26.3	66.2	92.5				

ATTACHMENT I

Road and Trail Access Information
For each Principal Watersheds for each Alternative

pages 1-13: Roads and trails by 13 different categories

pages 14-23: Roads and trails by 8 categories

pages 24-33: OROMTRD and TMARD for EHE and EV

EXISTING CONDITION - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
0021	3.1	0.0	4.7	3.4	0.0	0.0	0.2	0.0	0.0	1.0	0.0	0.0	0.0	12.4
0021 other	7.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
002W	3.1	2.9	5.0	40.6	0.0	0.0	0.8	0.0	0.0	0.0	2.2	0.0	7.5	62.1
002W other	8.3	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
0031	0.7	1.5	6.3	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	20.0	32.9
0031 other	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
003W	0.0	0.0	0.0	11.3	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	29.4	48.7
0041	5.1	1.6	7.8	4.9	0.0	0.0	0.0	0.0	0.0	0.8	10.7	0.0	71.6	102.5
0041 other	6.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	6.0
005	2.0	0.9	1.6	32.1	0.8	0.2	2.1	0.0	0.0	2.6	5.1	0.0	0.1	47.5
006	12.6	9.8	9.9	52.9	0.0	3.8	0.0	0.0	0.0	10.1	3.9	1.2	0.1	104.3
006 other	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
007/033	6.1	8.4	20.9	47.9	0.0	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	90.0
007 other	1.3	0.0	2.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
008	72.1	0.0	106.2	17.8	0.0	0.0	0.0	0.0	0.0	13.7	8.3	52.2	32.8	303.1
008 other	34.3	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	113.1
009A	6.6	0.0	40.7	0.0	0.0	0.0	0.0	0.0	0.0	11.2	38.0	40.1	18.6	155.2
009A other	7.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
009B	22.0	0.0	55.3	0.0	7.2	0.0	0.6	0.0	0.0	2.3	0.4	11.1	5.5	104.4
009B other	6.2	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.3	9.4
010	40.3	0.0	66.5	4.9	0.0	0.0	0.0	0.0	0.0	0.4	0.5	42.5	5.4	160.5
010 other	16.1	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	22.0
011	66.4	0.0	154.9	1.5	0.0	0.0	0.3	0.0	0.0	30.9	5.0	51.8	21.1	331.9
011 other	21.3	0.0	4.2	0.3	0.0	0.0	0.0	0.0	0.0	15.3	0.0	0.7	5.3	47.1
012	25.4	2.9	59.2	26.1	0.0	0.0	0.0	0.0	0.0	4.5	0.0	119.5	3.5	241.1
012 other	14.8	0.0	5.7	2.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	23.9
0131	3.0	0.5	54.6	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	84.2	0.0	143.7
0131 other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.5
014/034	9.0	0.0	23.1	0.0	2.0	0.0	3.1	0.0	0.0	0.0	0.0	3.2	0.0	40.4
014 other	0.3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
0151	4.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6	0.0	46.6
0151 other	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
015W	1.2	1.1	14.0	9.2	0.0	0.0	0.0	0.0	0.0	0.0	2.2	13.6	8.7	50.0
015W other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
0161	11.4	0.0	14.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.0	35.1
016W	4.9	6.2	24.5	1.9	0.0	0.0	0.0	0.0	0.0	0.0	13.4	0.4	11.1	62.4
016W other	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
0171	4.1	1.0	1.8	4.3	0.0	0.0	0.0	0.0	0.0	2.3	0.7	0.0	0.0	14.2
0171 other	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	2.1
017W	12.4	0.0	1.2	7.7	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	35.5	61.4
018	5.5	0.0	4.6	2.2	0.0	0.0	0.8	0.0	0.0	0.0	4.8	0.0	9.8	27.7
018 other	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
019	3.5	6.4	10.3	6.5	0.0	0.0	0.5	0.0	0.0	0.0	3.0	0.0	29.7	59.9
019 other	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
020	4.6	10.1	13.1	2.3	0.0	0.0	0.0	0.0	0.0	1.7	7.1	12.0	27.4	78.3
0211	0.2	0.3	25.2	8.4	0.0	0.0	0.0	0.0	0.0	2.7	0.0	29.7	0.0	66.5
021W	0.0	0.0	41.0	12.2	0.0	0.0	0.0	0.0	0.0	4.0	4.6	31.5	51.9	145.2
022	21.0	21.6	25.9	28.4	0.0	0.0	0.0	0.0	0.0	8.4	7.0	0.1	0.0	112.4
022 other	1.0	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	3.2
023/024	29.9	16.4	50.5	47.4	0.0	0.0	12.8	0.0	0.0	0.0	0.9	11.0	0.0	168.9
023 other	1.6	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
025	26.1	6.0	47.8	17.7	5.0	0.0	12.0	0.0	0.0	20.0	5.9	34.8	34.3	209.6

YRSTR = yearlong restricted system trail
UNKWN = unKnown road or trail

Note: 'other' is roads and trails on State, private and BLM lands within the Administrative Boundary of the Forest.

'H.Flat' is the non-National Forest land on Henry's Lake Flat.

OPNRD = open nonsystem road
OPNTR = open nonsystem trail
OPSRD = open system road
OPSTR = open system trail
SRNRD = seasonally restricted nonsystem road
SRNTR = seasonally restricted nonsystem trail
SRSRD = seasonally restricted system road
SRSTR = seasonally restricted system trail
YRNRD = yearlong restricted nonsystem road
YRNTR = yearlong restricted nonsystem trail
YRSRD = yearlong restricted system road

025 other	5.2	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	7.8
026A	34.1	2.1	37.8	18.6	7.3	0.0	0.8	0.0	0.0	1.9	2.8	2.9	3.5	111.8
026A other	8.9	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.7
026B	64.6	5.6	35.1	8.5	0.3	0.0	0.0	0.0	0.0	3.5	0.7	6.5	0.0	124.8
026B other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
027/028	40.2	4.7	40.9	30.7	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.0	12.4	134.3
027 other	1.4	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
029	34.7	5.6	59.8	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	106.9
029 other	1.6	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
030A	36.0	1.9	13.0	6.1	0.0	0.0	0.0	0.0	0.0	1.5	8.3	0.0	0.0	66.8
030A other	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
030B	27.9	3.7	21.3	12.8	0.0	0.0	0.0	0.0	0.0	0.7	3.0	0.0	2.7	72.1
030B other	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
031A	15.7	1.1	9.4	10.7	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	40.3
031B	24.3	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.2
031B other	4.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
035I	1.2	0.0	5.5	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9
035I other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
035W	0.1	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
035W other	5.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
036	0.3	0.0	16.4	10.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.2	27.8
036 other	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
037	0.7	4.5	25.7	64.0	1.2	0.0	0.0	0.0	0.0	0.0	4.3	0.5	11.1	112.0
038	18.7	7.5	48.7	56.5	7.6	0.0	20.0	0.0	0.0	3.0	0.0	2.3	0.0	164.3
038 other	3.3	2.4	4.4	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	0.0	0.0	11.5
039	4.4	6.5	10.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.2
040	3.7	0.0	29.9	0.0	0.0	0.0	0.2	0.0	0.0	2.3	0.0	0.0	0.0	36.1
040 other	0.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	983.2	144.8	1,339.3	638.0	31.9	4.0	61.8	0.0	0.0	154.3	165.0	583.7	465.6	4,571.6

ALTERNATIVE 3M - MILES OF ROADS AND TRAILS IN EACH WATERSHED

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
002I	5.0	0.0	5.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	13.4
002I other	7.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
002W	5.0	0.0	5.3	28.1	0.0	0.0	0.0	0.0	0.0	0.5	0.9	0.3	20.3	60.4
002W other	8.3	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
003I	6.5	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.6	25.5	39.3
003I other	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
003W	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	39.1	46.8
004I	10.5	0.6	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	0.0	77.4	99.3
004I other	6.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	5.9
005	0.9	1.3	3.7	13.2	0.0	0.0	0.0	0.0	0.0	0.8	4.0	0.0	20.0	43.9
006	11.8	1.3	8.2	33.3	0.0	0.0	0.0	0.0	0.0	6.2	9.8	0.0	30.7	101.3
006 other	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
007/033	2.3	3.5	24.5	43.7	0.4	0.0	2.3	0.0	0.0	0.0	0.0	2.4	5.0	84.1
007 other	1.3	0.0	2.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
008	43.5	0.0	94.5	12.6	1.6	0.0	0.0	0.0	0.0	7.8	6.6	31.7	29.3	227.6
008 other	34.3	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	113.1
009A	5.8	0.0	36.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.7	24.5	16.8	118.3
009A other	7.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
009B	9.6	0.0	54.9	0.0	1.6	0.0	0.0	0.0	0.0	1.6	0.1	10.3	6.8	84.9
009B other	6.2	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.3	9.4

010	27.6	0.0	56.5	7.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	17.4	5.5	115.5
010 other	16.1	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	22.0
011	40.6	0.0	155.5	1.6	0.0	0.0	0.0	0.0	0.0	35.9	5.0	26.6	26.7	291.9
011 other	21.3	0.0	4.2	0.3	0.0	0.0	0.0	0.0	0.0	15.3	0.0	0.7	5.3	47.1
012	0.0	0.0	61.1	15.7	0.0	0.0	0.0	0.0	0.0	2.4	3.4	21.0	18.0	121.6
012 other	14.8	0.0	5.7	2.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	23.9
013I	0.0	0.0	50.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.2	1.5	68.4
013I other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
014/034	5.6	0.0	20.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	29.5
014 other	0.3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
015I	0.0	0.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	18.9
015I other	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
015W	0.7	0.1	12.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.4	15.1	33.5
015W other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
016I	2.5	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	3.8	0.0	23.4
016W	0.7	0.0	22.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	13.0	39.2
016W other	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
017I	3.8	0.0	0.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	4.3	12.6
017I other	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	2.1
017W	8.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	43.3	55.6
018	5.5	0.0	6.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	10.6	28.4
018 other	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
019	2.1	0.5	10.9	6.5	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	27.0	54.2
019 other	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
020	3.7	0.4	13.0	0.0	0.0	0.0	2.4	0.0	0.0	0.3	12.8	9.0	29.6	71.2
021I	0.0	0.3	22.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	8.4	44.4
021W	0.0	1.0	32.2	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.8	19.4	62.3	117.4
022	5.1	20.8	22.6	36.9	9.6	0.0	0.0	0.0	0.0	2.2	7.2	2.6	0.0	107.0
022 other	1.0	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	3.2
023/024	3.3	3.7	42.2	53.5	0.0	0.0	5.0	0.0	0.0	0.7	3.1	25.6	2.3	139.4
023 other	1.6	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
025	4.6	0.6	45.4	0.1	0.0	0.0	9.6	0.0	0.0	4.0	14.1	21.9	45.4	145.7
025 other	5.2	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	7.8
026A	20.3	0.3	32.8	11.7	0.0	0.0	1.7	0.0	0.0	0.0	2.3	0.0	9.4	78.5
026A other	8.9	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.7
026B	9.3	3.6	31.9	2.7	0.0	0.0	0.0	0.0	0.0	1.3	0.7	6.2	5.0	60.7
026B other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
027/028	7.1	3.9	40.1	37.7	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.0	3.3	100.3
027 other	1.4	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
029	6.2	0.0	56.5	6.8	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	74.3
029 other	1.6	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
030A	31.7	0.9	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	9.8	0.0	6.1	59.2
030A other	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
030B	6.7	2.6	21.3	12.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	3.6	50.3
030B other	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
031A	15.2	4.4	9.7	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.9
031B	7.1	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7
031B other	4.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
035I	1.2	0.0	4.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1
035I other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
035W	4.2	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
035W other	5.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
036	1.9	0.0	13.2	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	4.7	26.8
036 other	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
037	0.0	2.3	22.4	55.6	0.0	0.0	0.0	0.0	2.4	0.0	3.4	0.5	20.0	106.6
038	8.8	7.2	66.0	55.7	0.0	0.0	0.0	0.0	0.0	2.2	0.0	3.5	4.3	147.7
038 other	3.3	2.4	4.4	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	0.0	0.0	11.5

039	4.2	4.7	10.8	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	31.7
040	1.5	0.0	25.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.8
040 other	0.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	610.7	68.6	1,264.1	479.5	13.7	0.0	21.3	0.0	3.4	93.7	169.7	267.4	656.8	3,648.9

ALTERNATIVE 1 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
002I	6.6	0.0	5.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.1
002I other	7.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
002W	8.7	1.1	5.1	24.8	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	23.3	67.0
002W other	8.3	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
003I	8.1	0.9	6.1	2.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	21.4	40.1
003I other	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
003W	0.0	1.6	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0	6.4	0.0	34.1	48.7
004I	9.6	0.0	7.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	12.3	0.0	76.0	105.5
004I other	6.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0
005	0.0	0.5	3.7	29.4	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	2.8	42.1
006	22.5	4.4	10.9	31.8	0.0	0.0	0.0	0.0	0.0	0.0	13.1	0.0	21.2	103.9
006 other	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
007/033	3.8	5.4	25.4	47.9	1.0	0.0	5.1	0.0	6.1	0.0	3.0	0.0	0.0	97.7
007 other	1.3	0.0	2.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
008	50.6	9.6	100.1	0.0	0.0	0.0	0.0	0.0	0.0	14.0	-1.3	52.1	50.6	275.7
008 other	34.3	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	113.1
009A	4.9	0.0	35.3	0.0	0.0	0.0	2.2	0.0	0.0	7.8	38.0	32.4	18.6	139.2
009A other	7.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
009B	11.1	0.0	49.8	0.0	1.6	0.0	0.0	0.0	0.0	1.3	0.4	13.3	5.5	83.0
009B other	6.2	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.3	9.4
010	35.5	5.3	86.3	0.0	0.0	1.7	0.0	0.0	0.0	2.1	-6.5	21.6	10.3	156.3
010 other	16.1	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	22.0
011	68.9	1.6	170.2	0.0	0.0	0.0	1.1	0.0	0.0	33.4	3.4	35.7	22.6	336.9
011 other	21.3	0.0	4.2	0.3	0.0	0.0	0.0	0.0	0.0	15.3	0.0	0.7	5.3	47.1
012	20.1	20.2	72.1	7.4	0.0	0.0	0.0	0.0	0.0	4.7	-17.3	105.6	22.2	235.0
012 other	14.8	0.0	5.7	2.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	23.9
013I	8.3	0.0	55.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5	81.2	0.0	146.1
013I other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.5
014/034	9.3	0.0	27.6	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	42.0
014 other	0.3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
015I	4.3	0.0	21.2	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	9.4	0.0	39.4
015I other	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
015W	1.2	0.1	14.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	3.2	11.6	9.6	48.0
015W other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
016I	6.1	0.0	13.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.0	28.5
016W	5.9	0.0	24.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.4	13.0	63.5
016W other	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
017I	2.4	0.0	2.2	2.8	1.9	0.0	0.0	0.0	0.0	0.0	1.7	0.0	1.5	12.5
017I other	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	2.1
017W	9.2	2.0	0.5	3.9	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	39.3	57.5
018	5.5	0.0	6.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	9.6	28.3
018 other	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
019	2.5	3.8	11.3	6.5	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	29.7	59.4
019 other	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8

020	3.9	9.0	10.1	0.0	0.9	0.0	15.1	0.0	0.0	0.0	8.2	0.0	29.7	76.9
021I	1.5	0.0	21.1	8.4	1.5	0.0	31.2	0.0	0.0	0.0	0.3	0.8	0.0	64.8
021W	1.0	0.0	19.4	3.6	1.8	0.0	50.4	0.0	0.0	0.0	4.6	0.0	60.5	141.3
022	10.8	21.9	25.3	18.8	13.4	0.0	0.0	0.0	0.0	0.0	6.7	0.0	9.6	106.5
022 other	1.0	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	3.2
023/024	21.7	9.3	40.6	38.5	3.5	4.6	34.2	0.0	0.0	0.0	3.4	0.0	8.9	164.7
023 other	1.6	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
025	10.3	0.0	49.1	11.1	1.8	0.0	21.6	0.0	0.0	0.0	11.9	12.0	40.9	158.7
025 other	5.2	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	7.8
026A	19.2	0.8	35.2	3.4	0.0	0.0	2.5	0.0	0.0	0.0	4.1	0.0	18.7	83.9
026A other	8.9	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.7
026B	23.4	0.0	32.0	6.6	0.0	0.0	4.2	0.0	0.0	0.0	6.3	0.0	1.9	74.4
026B other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
027/028	11.0	0.0	43.0	16.5	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	26.6	107.2
027 other	1.4	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
029	3.5	0.0	59.6	6.8	0.0	4.5	0.8	0.0	0.0	0.0	1.1	0.0	0.0	76.3
029 other	1.6	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
030A	30.9	0.9	12.8	6.1	0.0	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0	60.0
030A other	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
030B	7.9	0.0	24.1	9.1	0.0	1.1	0.0	0.0	0.0	0.0	5.6	0.0	6.4	54.2
030B other	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
031A	15.1	2.7	9.8	8.7	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	2.0	40.1
031B	9.9	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7
031B other	4.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
035I	1.8	0.0	4.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7
035I other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
035W	4.2	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
035W other	5.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
036	1.6	0.0	14.8	10.5	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	28.5
036 other	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
037	0.6	6.9	25.3	56.2	0.0	0.0	0.5	0.0	0.0	0.0	1.9	0.0	18.9	110.3
038	32.3	10.2	68.1	56.2	2.2	0.5	1.9	0.0	0.0	0.0	-3.2	1.0	0.3	169.5
038 other	3.3	2.4	4.4	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	0.0	0.0	11.5
039	4.4	6.5	10.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.2
040	5.3	0.0	31.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.6
040 other	0.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	795.7	128.7	1,362.5	454.8	32.1	12.4	177.2	0.0	6.1	87.5	172.7	391.2	648.8	4,269.7

ALTERNATIVE 2 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
002I	6.6	0.0	5.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.1
002I other	7.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
002W	6.8	0.0	3.8	29.1	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	19.0	63.8
002W other	8.3	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
003I	8.1	0.9	6.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	21.8	40.1
003I other	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
003W	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	36.7	48.7
004I	8.3	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	0.0	76.5	102.4
004I other	6.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0
005	0.8	2.1	3.7	12.2	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	20.0	42.9
006	9.2	1.5	10.3	23.9	6.4	0.0	0.0	0.0	0.0	0.0	16.0	0.0	29.1	96.4
006 other	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
007/033	0.9	1.8	21.3	38.0	0.0	0.0	2.4	0.0	0.0	0.0	6.6	0.0	9.9	80.9

007 other	1.3	0.0	2.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
008	50.1	9.6	133.6	0.0	3.0	0.0	1.1	0.0	0.0	7.1	-1.3	13.4	50.6	267.2
008 other	34.3	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	113.1
009A	9.1	0.0	43.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.0	23.8	18.6	132.7
009A other	7.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
009B	15.7	0.0	62.9	0.0	1.6	0.0	0.0	0.0	0.0	1.3	0.4	3.0	5.5	90.4
009B other	6.2	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.3	9.4
010	27.7	7.0	85.9	0.0	0.0	0.0	0.0	0.0	0.0	4.1	-6.5	2.0	10.3	130.5
010 other	16.1	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	22.0
011	57.9	1.6	181.3	0.0	0.0	0.0	0.0	0.0	0.0	14.0	3.4	21.6	22.6	302.4
011 other	21.3	0.0	4.2	0.3	0.0	0.0	0.0	0.0	0.0	15.3	0.0	0.7	5.3	47.1
012	3.8	16.7	101.3	7.4	0.0	0.0	0.0	0.0	0.0	0.0	-13.8	74.6	22.2	212.2
012 other	14.8	0.0	5.7	2.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	23.9
013I	0.5	0.0	65.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	47.8	0.0	114.5
013I other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
014/034	9.1	0.0	28.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.2
014 other	0.3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
015I	0.5	0.0	21.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	29.9
015I other	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
015W	0.9	0.0	12.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	8.8	17.9	43.8
015W other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
016I	4.7	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	4.6	0.0	26.4
016W	4.0	0.0	24.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	13.0	61.2
016W other	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
017I	2.6	0.0	2.2	0.0	1.9	0.0	0.0	0.0	0.0	0.0	1.7	0.0	4.3	12.7
017I other	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	2.1
017W	7.9	2.0	0.9	1.3	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	41.9	56.6
018	5.5	0.0	6.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	9.6	28.3
018 other	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
019	1.7	0.0	11.1	6.5	0.0	0.0	0.0	0.0	0.0	0.0	9.4	0.0	29.7	58.4
019 other	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
020	3.7	2.4	13.1	0.0	0.6	0.0	2.7	0.0	0.0	0.0	14.8	0.0	29.7	67.0
021I	0.0	0.0	29.9	0.0	0.1	0.0	22.4	0.0	0.0	0.0	0.3	0.8	8.4	61.9
021W	0.0	0.0	54.6	0.0	4.7	0.0	15.1	0.0	0.0	0.0	4.6	0.0	64.1	143.1
022	8.5	24.8	19.0	21.9	17.0	0.0	2.0	0.8	0.0	0.0	3.8	0.0	5.7	103.5
022 other	1.0	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	3.2
023/024	2.1	9.1	37.3	26.4	0.0	0.0	5.0	10.8	0.0	0.0	8.2	0.7	10.2	109.8
023 other	1.6	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
025	4.7	0.0	44.1	2.3	1.8	1.9	33.5	7.3	0.0	0.0	10.0	0.0	42.4	148.0
025 other	5.2	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	7.8
026A	31.7	0.0	31.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	4.9	0.0	18.7	89.9
026A other	8.9	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.7
026B	17.1	0.0	25.6	6.6	0.0	0.0	5.3	0.0	0.0	0.0	6.3	0.0	1.9	62.8
026B other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
027/028	14.3	2.2	40.4	19.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	0.0	24.1	107.9
027 other	1.4	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
029	10.4	9.1	58.2	8.1	0.0	0.0	0.0	0.0	0.0	0.0	-3.5	0.0	-1.3	81.0
029 other	1.6	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
030A	34.8	0.0	11.4	6.1	0.0	0.0	0.0	0.0	0.0	0.3	10.2	0.0	0.0	62.8
030A other	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
030B	8.7	1.1	22.2	9.1	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	6.4	53.1
030B other	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
031A	12.7	2.7	9.8	8.7	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	2.0	37.7
031B	6.8	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3
031B other	4.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
035I	1.1	0.0	4.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0

035I other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
035W	4.2	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
035W other	5.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
036	1.6	0.0	14.4	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	26.5
036 other	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
037	0.8	4.6	23.1	52.7	0.0	0.0	0.5	0.0	0.0	0.0	4.2	0.0	22.4	108.3
038	22.7	5.8	61.0	51.2	2.2	0.0	1.9	0.0	0.0	0.0	1.7	1.0	5.3	152.8
038 other	3.3	2.4	4.4	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	0.0	0.0	11.5
039	4.4	6.5	10.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.2
040	2.6	0.0	24.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.7
040 other	0.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	705.6	115.5	1,455.2	367.7	39.8	1.9	92.2	18.9	0.0	54.1	196.4	212.0	717.0	3,976.3

ALTERNATIVE 3 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
002I	5.0	0.0	4.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	12.4
002I other	7.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
002W	5.5	0.0	3.8	27.8	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	20.3	62.5
002W other	8.3	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
003I	6.5	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	23.6	37.0
003I other	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
003W	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	36.7	48.7
004I	7.8	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	0.0	76.5	103.0
004I other	6.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0
005	0.0	1.6	3.7	12.2	0.8	0.5	0.0	0.0	0.0	0.0	4.1	0.0	20.0	42.9
006	11.5	1.5	9.4	23.2	6.4	0.0	0.0	0.0	0.0	0.0	16.0	0.0	29.8	97.8
006 other	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
007/033	1.5	1.8	22.3	37.9	0.0	0.0	5.5	0.0	0.0	0.0	6.6	0.0	10.0	85.6
007 other	1.3	0.0	2.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
008	49.9	9.6	117.2	0.0	4.2	0.0	2.8	0.0	0.0	11.6	-1.3	33.9	50.6	278.5
008 other	34.3	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	113.1
009A	7.3	0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	38.0	37.4	18.6	144.3
009A other	7.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
009B	9.4	0.0	51.2	0.0	1.6	0.0	0.0	0.0	0.0	2.8	0.4	13.3	5.5	84.2
009B other	6.2	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.3	9.4
010	27.6	5.4	57.0	0.0	0.0	1.6	2.3	0.0	0.0	2.5	-6.5	32.8	10.3	133.0
010 other	16.1	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	22.0
011	39.8	1.6	165.6	0.0	0.0	0.0	0.0	0.0	0.0	35.0	3.4	20.7	22.6	288.7
011 other	21.3	0.0	4.2	0.3	0.0	0.0	0.0	0.0	0.0	15.3	0.0	0.7	5.3	47.1
012	0.0	15.9	65.5	0.0	0.0	0.0	0.0	0.0	0.0	2.4	-13.0	52.2	29.6	152.6
012 other	14.8	0.0	5.7	2.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	23.9
013I	0.0	0.0	50.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	24.1	0.0	75.5
013I other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
014/034	3.3	0.0	22.9	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	3.1	0.0	31.3
014 other	0.3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
015I	0.0	0.0	19.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	0.0	26.9
015I other	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
015W	0.7	0.0	12.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.2	17.9	37.9
015W other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
016I	2.5	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	3.8	0.0	23.4
016W	0.7	0.0	22.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	13.0	55.4

016W other	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
017I	2.6	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	4.3	10.4
017I other	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	2.1
017W	7.7	2.0	0.5	1.3	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	41.9	56.0
018	5.5	0.0	6.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	10.7	28.3
018 other	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
019	2.1	3.0	10.9	6.5	0.0	0.0	0.0	0.0	0.0	0.0	6.4	0.0	29.7	58.6
019 other	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
020	3.7	2.8	13.1	0.0	0.0	0.0	2.4	0.0	0.0	0.0	14.4	0.0	29.7	66.1
021I	0.0	0.0	24.9	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.3	7.7	8.4	43.8
021W	0.0	0.0	36.0	0.0	0.0	0.0	2.8	0.0	0.0	0.7	4.6	9.9	64.1	118.1
022	6.1	19.7	20.8	17.2	13.4	0.0	0.0	0.0	0.0	0.0	8.9	0.0	11.2	97.3
022 other	1.0	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	3.2
023/024	4.0	4.5	38.9	34.9	0.0	0.0	12.2	0.0	0.0	0.0	12.8	0.0	12.5	119.8
023 other	1.6	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
025	6.4	0.0	45.4	0.0	3.5	0.0	34.7	2.3	0.0	0.0	11.9	0.0	49.7	153.9
025 other	5.2	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	7.8
026A	15.7	0.0	24.9	0.0	0.0	0.0	2.9	0.0	0.0	0.0	4.9	0.0	22.1	70.5
026A other	8.9	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.7
026B	17.2	0.0	25.1	0.0	3.3	0.0	6.5	6.6	0.0	0.0	6.3	0.0	1.9	66.9
026B other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
027/028	2.1	3.7	36.9	22.6	0.0	0.0	0.0	0.0	0.0	0.0	6.4	0.0	20.5	92.2
027 other	1.4	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
029	5.2	4.5	41.9	6.8	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	59.5
029 other	1.6	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
030A	31.4	0.0	12.0	6.1	0.0	0.0	0.0	0.0	0.0	0.3	10.2	0.0	0.0	60.0
030A other	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
030B	6.7	1.1	20.3	9.1	0.0	0.0	2.9	0.0	0.0	0.0	5.6	0.0	6.4	52.1
030B other	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
031A	14.4	2.7	9.8	8.7	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	2.0	39.4
031B	7.2	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1
031B other	4.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
035I	1.2	0.0	4.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1
035I other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
035W	4.2	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
035W other	5.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
036	1.9	0.0	13.2	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	25.6
036 other	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
037	0.2	6.8	22.3	52.6	0.0	0.0	0.5	0.0	0.0	0.0	2.0	0.0	22.5	106.9
038	20.3	4.6	60.6	46.9	2.2	0.0	1.9	0.0	0.0	0.0	2.9	1.0	9.6	150.0
038 other	3.3	2.4	4.4	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	0.0	0.0	11.5
039	4.2	6.5	10.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0
040	1.5	0.0	25.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.8
040 other	0.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	620.8	103.3	1,265.8	342.3	35.9	2.1	80.2	8.9	0.0	92.1	208.4	252.1	752.4	3,764.3

ALTERNATIVE 4 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
002I	5.0	0.0	4.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	12.4
002I other	7.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
002W	5.2	0.0	5.4	19.4	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	28.7	63.8
002W other	8.3	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
003I	8.1	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	23.6	38.6
003I other	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9

003W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	40.7	48.7
004I	9.1	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	0.0	76.5	103.4
004I other	6.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0
005	0.8	1.6	3.7	12.2	0.0	0.5	0.0	0.0	0.0	0.0	4.1	0.0	20.0	42.9
006	11.8	0.4	6.7	17.6	6.1	0.0	2.6	0.0	0.0	0.0	17.1	0.0	35.4	97.7
006 other	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
007/033	1.0	1.8	22.4	37.9	0.0	0.0	5.5	0.0	0.0	0.0	6.6	0.0	10.0	85.2
007 other	1.3	0.0	2.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
008	43.8	9.6	85.7	0.0	5.2	0.0	4.5	0.0	0.0	5.1	-1.3	16.1	50.6	219.3
008 other	34.3	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	113.1
009A	7.4	0.0	20.7	0.0	0.0	0.0	0.0	0.0	0.0	6.8	38.0	25.9	18.6	117.4
009A other	7.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
009B	16.0	0.0	52.6	0.0	1.8	0.0	0.0	0.0	0.0	1.3	0.4	13.3	5.5	90.9
009B other	6.2	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.3	9.4
010	25.2	5.4	52.9	0.0	0.0	1.6	7.7	0.0	0.0	2.6	-6.5	4.9	10.3	104.1
010 other	16.1	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	22.0
011	34.0	1.6	150.2	0.0	0.0	0.0	0.0	0.0	0.0	34.9	3.4	33.9	22.6	280.6
011 other	21.3	0.0	4.2	0.3	0.0	0.0	0.0	0.0	0.0	15.3	0.0	0.7	5.3	47.1
012	0.0	15.3	53.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	-12.4	21.9	29.6	109.4
012 other	14.8	0.0	5.7	2.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	23.9
013I	0.0	0.0	48.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	11.6	0.0	60.1
013I other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
014/034	3.3	0.0	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4
014 other	0.3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
015I	0.4	0.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	19.2
015I other	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
015W	0.7	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	1.4	17.9	34.4
015W other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
016I	0.0	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	3.8	0.0	20.9
016W	0.7	0.0	22.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	13.0	55.4
016W other	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
017I	2.6	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	4.3	10.4
017I other	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	2.1
017W	8.0	2.0	0.9	1.3	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	41.9	56.7
018	5.5	0.0	6.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	9.6	28.3
018 other	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
019	2.9	3.0	10.7	6.5	0.0	0.0	0.0	0.0	0.0	0.0	6.4	0.0	29.7	59.2
019 other	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
020	3.7	4.8	11.5	0.0	0.0	0.9	3.0	0.0	0.0	0.0	11.5	0.0	29.7	65.1
021I	0.0	0.0	20.6	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.3	0.0	8.4	33.6
021W	0.0	0.0	22.4	0.0	0.7	0.0	11.7	0.0	0.0	0.0	4.6	0.0	64.1	103.5
022	6.0	25.7	20.5	17.2	12.9	0.0	0.0	0.0	0.0	0.0	2.9	0.0	11.2	96.4
022 other	1.0	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	3.2
023/024	3.7	2.7	38.7	34.9	0.0	0.0	6.5	0.0	0.0	0.0	14.6	5.7	12.5	119.3
023 other	1.6	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
025	4.8	0.0	45.0	0.0	2.3	0.0	21.2	1.5	0.0	0.0	11.9	0.0	50.5	137.2
025 other	5.2	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	7.8
026A	17.7	0.8	24.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	18.7	68.9
026A other	8.9	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.7
026B	14.2	0.0	27.2	0.0	2.0	0.0	5.6	2.3	0.0	0.0	6.3	0.0	6.2	63.8
026B other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
027/028	1.9	3.7	36.2	22.6	0.0	0.0	0.0	0.0	0.0	0.0	6.4	0.0	20.5	91.3
027 other	1.4	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
029	0.0	9.1	32.2	6.8	0.0	0.0	0.0	0.0	0.0	0.0	-3.5	0.0	0.0	44.6
029 other	1.6	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5

030A	2.8	0.0	0.3	6.1	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0	19.4
030A other	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
030B	0.2	1.1	12.5	9.1	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	6.4	34.9
030B other	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
031A	0.0	2.7	2.7	8.7	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	2.0	17.9
031B	1.6	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
031B other	4.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
035I	1.2	0.0	4.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1
035I other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
035W	4.2	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
035W other	5.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
036	1.9	0.0	13.2	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	25.6
036 other	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
037	0.2	3.3	22.3	51.6	0.0	0.0	0.5	0.0	0.0	0.0	5.5	0.0	23.5	106.9
038	21.1	2.9	58.3	45.1	2.2	0.0	1.9	0.0	0.0	0.0	4.6	1.0	11.4	148.5
038 other	3.3	2.4	4.4	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	0.0	0.0	11.5
039	4.0	6.5	10.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8
040	1.4	0.0	21.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0
040 other	0.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	552.4	108.0	1,117.0	326.0	33.7	3.0	75.3	3.8	0.0	79.5	202.8	143.3	773.8	3,418.6

ALTERNATIVE 5 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
002I	5.0	0.0	4.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	12.4
002I other	7.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
002W	5.2	0.0	4.1	16.2	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	31.9	62.5
002W other	8.3	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
003I	8.1	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	23.6	38.6
003I other	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
003W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	40.7	48.7
004I	7.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	0.0	76.5	101.3
004I other	6.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0
005	0.0	0.0	3.7	14.8	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.0	17.4	42.1
006	10.9	0.0	7.5	1.0	6.6	0.0	0.0	0.0	0.0	0.0	17.5	0.0	52.0	95.5
006 other	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
007/033	1.0	0.0	21.5	5.2	0.0	0.0	1.6	0.0	0.0	0.0	8.4	0.0	42.7	80.4
007 other	1.3	0.0	2.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
008	40.0	9.6	90.5	0.0	2.9	0.0	4.1	0.0	0.0	13.2	-1.3	16.0	50.6	225.6
008 other	34.3	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	113.1
009A	9.2	0.0	33.5	0.0	0.0	0.0	0.0	0.0	0.0	5.0	38.0	17.2	18.6	121.5
009A other	7.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
009B	16.9	0.0	51.7	0.0	1.8	0.0	0.0	0.0	0.0	1.3	0.4	13.5	5.5	91.1
009B other	6.2	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.3	9.4
010	26.8	5.4	44.4	0.0	0.0	1.6	3.9	0.0	0.0	5.6	-6.5	3.1	10.3	94.6
010 other	16.1	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	22.0
011	33.1	1.6	82.2	0.0	0.0	0.0	0.0	0.0	0.0	40.3	3.4	22.3	22.6	205.5
011 other	21.3	0.0	4.2	0.3	0.0	0.0	0.0	0.0	0.0	15.3	0.0	0.7	5.3	47.1
012	0.0	10.7	45.3	0.0	0.0	0.0	1.0	0.0	0.0	1.6	-7.8	22.1	29.6	102.5
012 other	14.8	0.0	5.7	2.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	23.9
013I	0.0	0.0	46.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	14.3	0.0	61.3
013I other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0

014/034	3.3	0.0	19.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.2
014 other	0.3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
015I	0.4	0.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	19.6
015I other	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
015W	0.7	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	1.8	17.9	34.7
015W other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
016I	0.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	7.6	0.0	20.1
016W	0.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	19.6	1.1	13.0	55.4
016W other	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
017I	2.6	0.0	2.2	0.0	1.9	0.0	0.0	0.0	0.0	0.0	1.7	0.0	4.3	12.7
017I other	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	2.1
017W	8.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	43.2	56.7
018	5.5	0.0	6.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	9.8	28.3
018 other	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
019	0.6	0.0	11.3	6.5	0.0	0.0	0.0	0.0	0.0	0.0	9.4	0.0	29.7	57.5
019 other	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
020	1.3	1.0	9.5	0.0	1.6	0.0	0.0	0.0	0.0	0.0	16.2	0.0	29.7	59.3
021I	0.0	0.0	25.4	0.0	0.0	0.0	5.8	0.0	0.0	0.0	0.3	0.0	8.4	39.9
021W	0.0	0.0	23.3	0.0	0.0	0.0	4.2	0.0	0.0	0.7	4.6	6.3	64.1	103.2
022	9.3	15.8	19.9	2.9	16.3	0.0	0.1	0.0	0.0	0.0	12.8	0.0	25.5	102.6
022 other	1.0	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	3.2
023/024	3.1	3.0	39.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.0	47.4	107.5
023 other	1.6	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
025	2.9	0.0	39.0	0.0	1.8	0.0	0.1	0.0	0.0	0.0	11.9	0.0	52.0	107.7
025 other	5.2	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	7.8
026A	17.1	0.8	24.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	18.7	68.2
026A other	8.9	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.7
026B	7.8	0.0	26.9	0.0	0.0	0.0	1.1	0.0	0.0	0.0	6.3	0.0	8.5	50.6
026B other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
027/028	0.4	0.0	25.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	43.1	79.3
027 other	1.4	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
029	0.0	0.0	30.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	6.8	42.7
029 other	1.6	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
030A	2.8	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	6.1	19.4
030A other	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
030B	0.2	0.0	5.8	0.0	2.8	0.0	0.0	0.0	0.0	0.0	6.7	0.0	15.5	31.0
030B other	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
031A	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	10.7	17.1
031B	1.2	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
031B other	4.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
035I	1.2	0.0	4.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1
035I other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
035W	4.2	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
035W other	5.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
036	1.9	0.0	13.2	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	25.6
036 other	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
037	0.2	3.3	22.3	50.6	0.0	0.0	0.5	0.0	0.0	0.0	5.5	0.0	24.5	106.9
038	20.1	1.9	56.1	50.9	2.2	0.0	1.9	0.0	0.0	0.0	5.6	1.0	5.6	145.3
038 other	3.3	2.4	4.4	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	0.0	0.0	11.5
039	4.2	6.5	10.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0
040	1.0	0.0	23.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.2
040 other	0.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	533.5	63.6	1,015.3	176.9	38.4	1.6	24.6	0.0	0.0	95.2	248.6	130.5	926.7	3,254.9

ALTERNATIVE 6 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
002I	5.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	12.2
002I other	7.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
002W	5.2	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	0.0	48.1	62.5
002W other	8.3	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
003I	9.1	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	23.6	39.2
003I other	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
003W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	40.7	48.7
004I	6.9	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	0.0	76.5	101.2
004I other	6.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0
005	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.0	32.2	42.1
006	9.4	0.0	6.7	0.0	6.9	0.0	0.0	0.0	0.0	0.0	17.5	0.0	53.0	93.5
006 other	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
007/033	1.0	0.0	21.5	0.0	0.0	0.0	2.5	0.0	0.0	0.0	8.4	0.0	47.9	81.3
007 other	1.3	0.0	2.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
008	36.5	9.6	98.4	0.0	4.5	0.0	11.2	0.0	0.0	9.6	-1.3	18.4	50.6	237.5
008 other	34.3	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	113.1
009A	9.2	0.0	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.0	17.7	18.6	111.5
009A other	7.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
009B	14.2	0.0	51.1	0.0	1.8	0.0	0.0	0.0	0.0	1.3	0.4	13.1	5.5	87.4
009B other	6.2	0.0	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.6	1.3	9.4
010	24.1	5.4	55.4	0.0	0.0	1.6	7.7	0.0	0.0	5.6	-6.5	3.4	10.3	107.0
010 other	16.1	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	22.0
011	35.7	1.6	123.0	0.0	0.0	0.0	8.6	0.0	0.0	29.3	3.4	23.2	22.6	247.4
011 other	21.3	0.0	4.2	0.3	0.0	0.0	0.0	0.0	0.0	15.3	0.0	0.7	5.3	47.1
012	0.0	15.3	46.5	0.0	0.0	0.0	0.0	0.0	0.0	1.6	-12.4	22.1	29.6	102.7
012 other	14.8	0.0	5.7	2.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	23.9
013I	0.0	0.0	46.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	9.5	0.0	56.1
013I other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
014/034	3.3	0.0	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4
014 other	0.3	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
015I	0.4	0.0	16.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	19.2
015I other	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
015W	0.2	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	1.8	17.9	34.2
015W other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
016I	0.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	7.6	0.0	20.1
016W	0.0	0.0	21.4	0.0	0.0	0.0	0.0	0.0	0.0	0.7	19.6	1.1	13.0	55.8
016W other	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
017I	2.6	0.0	2.2	0.0	1.9	0.0	0.0	0.0	0.0	0.0	1.7	0.0	4.3	12.7
017I other	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	2.1
017W	8.8	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	43.2	57.5
018	5.5	0.0	6.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	10.5	28.3
018 other	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
019	0.6	0.0	11.3	3.6	0.0	0.0	0.0	0.0	0.0	0.0	9.4	0.0	32.6	57.5
019 other	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
020	3.7	4.7	9.5	0.0	0.6	2.4	8.8	0.0	0.0	0.0	10.1	0.0	29.7	69.5
021I	0.0	0.0	25.4	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.3	0.0	8.4	36.0
021W	0.0	0.0	23.3	0.0	0.0	0.0	8.1	0.0	0.0	0.0	4.6	0.0	64.1	100.1
022	6.2	2.7	19.5	0.1	6.5	0.0	0.1	0.0	0.0	3.2	25.9	0.0	28.3	92.5
022 other	1.0	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	3.2
023/024	3.7	3.0	43.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.0	46.5	111.7
023 other	1.6	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
025	2.9	0.0	38.6	0.0	1.8	0.0	0.1	0.0	0.0	0.0	11.9	0.0	52.0	107.3
025 other	5.2	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	7.8

026A	15.6	0.8	10.7	3.4	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	18.7	53.3
026A other	8.9	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.7
026B	7.9	0.0	21.7	0.0	0.0	0.0	1.1	0.0	0.0	0.0	6.3	0.9	8.5	46.4
026B other	3.1	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
027/028	0.4	0.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	43.1	67.7
027 other	1.4	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
029	0.0	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	6.8	20.3
029 other	1.6	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
030A	2.8	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	6.1	19.4
030A other	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
030B	0.2	0.0	5.8	0.0	0.0	0.0	2.9	0.0	0.0	0.0	6.7	0.0	15.5	31.1
030B other	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
031A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	10.7	15.2
031B	1.2	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
031B other	4.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
035I	0.8	0.0	3.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6
035I other	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
035W	4.2	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
035W other	5.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
036	1.9	0.0	13.1	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	25.5
036 other	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
037	0.0	0.0	19.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0	8.8	0.0	75.1	103.6
038	15.1	2.3	49.3	2.1	2.2	0.0	0.0	0.0	0.0	0.0	5.2	1.0	54.4	131.6
038 other	3.3	2.4	4.4	0.0	0.0	0.0	0.1	0.0	0.0	1.3	0.0	0.0	0.0	11.5
039	4.4	6.5	10.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.2
040	1.7	0.0	19.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1
040 other	0.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	520.7	55.9	1,005.3	33.8	26.7	4.0	53.8	0.0	0.0	78.1	253.9	123.6	1,069.8	3,225.6

EXISTING CONDITION - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	7.80	3.40	0.20	0.00	1.00	0.00	0.00	0.00	12.40
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	8.10	43.50	0.80	0.00	0.00	9.70	0.00	0.00	62.10
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60
003I	7.00	5.10	0.00	0.00	0.00	20.80	0.00	0.00	32.90
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	11.30	0.00	0.00	0.00	37.40	0.00	0.00	48.70
004I	12.90	6.50	0.00	0.00	0.80	82.30	0.00	0.00	102.50
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	1.40	0.00	0.00	0.00	4.60	0.00	0.00	6.00
005	3.60	33.00	2.90	0.20	2.60	5.20	0.00	0.00	47.50
006	22.50	62.70	0.00	3.80	11.30	4.00	0.00	0.00	104.30
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	27.00	56.30	6.70	0.00	0.00	0.00	0.00	0.00	90.00
007 other	3.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	4.00
008	178.30	17.80	0.00	0.00	65.90	41.10	0.00	0.00	303.10
008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	47.30	0.00	0.00	0.00	51.30	56.60	0.00	0.00	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	77.30	0.00	7.80	0.00	13.40	5.90	0.00	0.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40
010	106.80	4.90	0.00	0.00	42.90	5.90	0.00	0.00	160.50
010 other	17.30	2.10	0.00	0.00	2.60	0.00	0.00	0.00	22.00
011	221.30	1.50	0.30	0.00	82.70	26.10	0.00	0.00	331.90
011 other	25.50	0.30	0.00	0.00	16.00	5.30	0.00	0.00	47.10
012	84.60	29.00	0.00	0.00	124.00	3.50	0.00	0.00	241.10
012 other	20.50	2.80	0.00	0.00	0.60	0.00	0.00	0.00	23.90
013I	57.60	0.50	0.00	0.00	85.60	0.00	0.00	0.00	143.70
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	1.50
014/034	32.10	0.00	5.10	0.00	3.20	0.00	0.00	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	25.00	0.00	0.00	0.00	21.60	0.00	0.00	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	15.20	10.30	0.00	0.00	13.60	10.90	0.00	0.00	50.00
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	26.20	0.00	0.00	0.00	8.90	0.00	0.00	0.00	35.10
016W	29.40	8.10	0.00	0.00	0.40	24.50	0.00	0.00	62.40
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
017I	5.90	5.30	0.00	0.00	2.30	0.70	0.00	0.00	14.20
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	13.60	7.70	0.00	0.00	0.00	40.10	0.00	0.00	61.40
018	10.10	2.20	0.80	0.00	0.00	14.60	0.00	0.00	27.70
018 other	0.60	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.70
019	13.80	12.90	0.50	0.00	0.00	32.70	0.00	0.00	59.90
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	17.70	12.40	0.00	0.00	13.70	34.50	0.00	0.00	78.30
021I	25.40	8.70	0.00	0.00	32.40	0.00	0.00	0.00	66.50
021W	41.00	12.20	0.00	0.00	35.50	56.50	0.00	0.00	145.20
022	46.90	50.00	0.00	0.00	8.50	7.00	0.00	0.00	112.40
022 other	2.50	0.30	0.00	0.00	0.40	0.00	0.00	0.00	3.20
023/024	80.40	63.80	12.80	0.00	11.00	0.90	0.00	0.00	168.90
023 other	2.10	0.80	0.00	0.00	0.00	0.00	0.00	0.00	2.90
025	73.90	23.70	17.00	0.00	54.80	40.20	0.00	0.00	209.60
025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	71.90	20.70	8.10	0.00	4.80	6.30	0.00	0.00	111.80
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	99.70	14.10	0.30	0.00	10.00	0.70	0.00	0.00	124.80
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	81.10	35.40	0.00	0.00	0.00	17.80	0.00	0.00	134.30
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	94.50	12.40	0.00	0.00	0.00	0.00	0.00	0.00	106.90
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
030A	49.00	8.00	0.00	0.00	1.50	8.30	0.00	0.00	66.80
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	49.20	16.50	0.00	0.00	0.70	5.70	0.00	0.00	72.10
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	25.10	11.80	0.00	0.00	0.00	3.40	0.00	0.00	40.30
031B	27.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.20
031B other	4.70	0.50	0.00	0.00	0.00	0.00	0.00	0.00	5.20
035I	6.70	1.20	0.00	0.00	0.00	0.00	0.00	0.00	7.90
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	16.70	10.30	0.60	0.00	0.00	0.20	0.00	0.00	27.80

036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	26.40	68.50	1.20	0.00	0.50	15.40	0.00	0.00	112.00
038	67.40	64.00	27.60	0.00	5.30	0.00	0.00	0.00	164.30
038 other	7.70	2.40	0.10	0.00	1.30	0.00	0.00	0.00	11.50
039	15.20	16.00	0.00	0.00	0.00	0.00	0.00	0.00	31.20
040	33.60	0.00	0.20	0.00	2.30	0.00	0.00	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
TOTAL	2322.50	782.80	93.70	4.00	738.00	630.60	0.00	0.00	4571.60

ALTERNATIVE 3M - MILES OF ROADS AND TRAILS IN EACH WATERSHED

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	10.10	1.00	0.00	0.00	0.00	2.30	-1.10	0.10	12.40
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	10.30	28.10	0.00	0.00	0.80	21.20	-2.20	3.90	62.10
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60
003I	11.10	0.00	0.00	0.00	1.60	26.60	-5.70	-0.70	32.90
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	4.00	0.00	0.00	0.00	42.80	0.00	1.90	48.70
004I	15.50	0.60	0.00	0.00	0.00	83.20	-1.80	5.00	102.50
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	0.00	0.00	0.00	0.00	5.90	0.00	0.10	6.00
005	4.60	14.50	0.00	0.00	0.80	24.00	3.70	-0.10	47.50
006	20.00	34.60	0.00	0.00	6.20	40.50	7.60	-4.60	104.30
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	26.80	47.20	2.70	0.00	2.40	5.00	1.80	4.10	90.00
007 other	3.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	4.00
008	138.00	12.60	1.60	0.00	39.50	35.90	65.10	10.40	303.10
008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	42.30	0.00	0.00	0.00	24.50	51.50	31.80	5.10	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	64.50	0.00	1.60	0.00	11.90	6.90	20.50	-1.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40
010	84.10	7.00	0.00	0.00	17.40	6.00	48.20	-2.20	160.50
010 other	17.30	2.10	0.00	0.00	2.60	0.00	0.00	0.00	22.00
011	196.10	1.60	0.00	0.00	62.50	31.70	45.70	-5.70	331.90
011 other	25.50	0.30	0.00	0.00	16.00	5.30	0.00	0.00	47.10
012	61.10	15.70	0.00	0.00	23.40	21.40	124.10	-4.60	241.10
012 other	20.50	2.80	0.00	0.00	0.60	0.00	0.00	0.00	23.90
013I	50.70	0.00	0.00	0.00	16.20	1.50	76.30	-1.00	143.70
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.50
014/034	26.30	0.00	0.00	0.00	3.20	0.00	10.90	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	16.60	0.00	0.00	0.00	2.30	0.00	27.70	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	12.70	2.70	0.00	0.00	1.40	16.70	14.70	1.80	50.00
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	16.20	0.00	0.00	0.00	7.20	0.00	11.70	0.00	35.10
016W	23.20	0.00	0.00	0.00	0.00	16.00	6.60	16.60	62.40
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
017I	4.60	1.90	0.00	0.00	0.00	6.10	3.60	-2.00	14.20
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	8.30	0.60	0.00	0.00	0.00	46.70	5.30	0.50	61.40
018	11.50	1.50	0.00	0.00	0.00	15.40	-0.60	-0.10	27.70
018 other	0.60	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.70
019	13.00	7.00	0.00	0.00	0.00	34.20	1.30	4.40	59.90
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	16.70	0.40	2.40	0.00	9.30	42.40	3.00	4.10	78.30
021I	22.50	0.30	0.00	0.00	13.20	8.40	22.10	0.00	66.50
021W	32.20	1.00	0.00	0.00	20.10	64.10	24.20	3.60	145.20
022	27.70	57.70	9.60	0.00	4.80	7.20	13.30	-7.90	112.40
022 other	2.50	0.30	0.00	0.00	0.40	0.00	0.00	0.00	3.20
023/024	45.50	57.20	5.00	0.00	26.30	5.40	27.40	2.10	168.90
023 other	2.10	0.80	0.00	0.00	0.00	0.00	0.00	0.00	2.90
025	50.00	0.70	9.60	0.00	25.90	59.50	60.20	3.70	209.60
025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	53.10	12.00	1.70	0.00	0.00	11.70	30.00	3.30	111.80
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	41.20	6.30	0.00	0.00	7.50	5.70	61.30	2.80	124.80
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	47.20	41.60	0.00	0.00	0.00	11.50	33.90	0.10	134.30
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	62.70	6.80	0.00	0.00	0.00	4.80	31.80	0.80	106.90
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50

030A	42.10	0.90	0.00	0.00	0.30	15.90	8.10	-0.50	66.80
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	28.00	14.60	0.00	0.00	0.00	7.70	21.90	-0.10	72.10
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	24.90	15.00	0.00	0.00	0.00	0.00	0.20	0.20	40.30
031B	9.70	0.00	0.00	0.00	0.00	0.00	17.50	0.00	27.20
031B other	4.70	0.50	0.00	0.00	0.00	0.00	0.00	0.00	5.20
035I	5.90	1.20	0.00	0.00	0.00	0.00	0.80	0.00	7.90
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	5.10	0.00	0.00	0.00	0.00	0.00	-3.60	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	15.10	5.80	0.00	0.00	1.20	4.70	1.00	0.00	27.80
036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	22.40	57.90	0.00	0.00	0.50	23.40	5.20	2.60	112.00
038	74.80	62.90	0.00	0.00	5.70	4.30	19.80	-3.20	164.30
038 other	7.70	2.40	0.10	0.00	1.30	0.00	0.00	0.00	11.50
039	15.00	15.50	0.00	0.00	0.00	1.20	0.20	-0.70	31.20
040	26.80	0.00	0.00	0.00	0.00	0.00	9.30	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
TOTAL	1874.80	548.10	35.00	0.00	361.10	826.50	883.30	42.80	4571.60

ALTERNATIVE 1 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	11.70	3.40	0.00	0.00	0.00	0.00	-2.70	0.00	12.40
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	13.80	25.90	0.00	0.00	0.00	27.30	-4.90	-0.00	62.10
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60
003I	14.20	3.10	0.00	0.00	0.00	22.80	-7.20	0.00	32.90
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	8.20	0.00	0.00	0.00	40.50	0.00	0.00	48.70
004I	16.70	0.50	0.00	0.00	0.00	88.30	-3.00	0.00	102.50
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	6.00
005	3.70	29.90	0.00	0.00	0.00	8.50	5.40	-0.00	47.50
006	33.40	36.20	0.00	0.00	0.00	34.30	0.40	0.00	104.30
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	29.20	53.30	6.10	0.00	0.00	3.00	-1.60	0.00	90.00
007 other	3.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	4.00
008	150.70	9.60	0.00	0.00	66.10	49.30	27.40	0.00	303.10
008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	40.20	0.00	2.20	0.00	40.20	56.60	16.00	0.00	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	60.90	0.00	1.60	0.00	14.60	5.90	21.40	0.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40
010	121.80	5.30	0.00	1.70	23.70	3.80	4.20	0.00	160.50
010 other	17.30	2.10	0.00	0.00	2.60	0.00	0.00	0.00	22.00
011	239.10	1.60	1.10	0.00	69.10	26.00	-5.00	0.00	331.90
011 other	25.50	0.30	0.00	0.00	16.00	5.30	0.00	0.00	47.10
012	92.20	27.60	0.00	0.00	110.30	4.90	6.10	0.00	241.10
012 other	20.50	2.80	0.00	0.00	0.60	0.00	0.00	0.00	23.90
013I	63.60	0.00	0.00	0.00	82.00	0.50	-2.40	0.00	143.70
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	1.50
014/034	36.90	0.00	2.00	0.00	3.10	0.00	-1.60	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	25.50	0.00	4.50	0.00	9.40	0.00	7.20	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	15.20	8.40	0.00	0.00	11.60	12.80	2.00	0.00	50.00
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	19.60	0.00	0.00	0.00	8.90	0.00	6.60	0.00	35.10
016W	30.50	0.00	0.00	0.00	0.40	32.60	-1.10	0.00	62.40
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
017I	4.60	2.80	1.90	0.00	0.00	3.20	1.70	0.00	14.20
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	9.70	5.90	0.00	0.00	0.00	41.90	3.90	0.00	61.40
018	11.50	2.40	0.00	0.00	0.00	14.40	-0.60	0.00	27.70
018 other	0.60	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.70
019	13.80	10.30	0.00	0.00	0.00	35.30	0.50	-0.00	59.90
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	14.00	9.00	16.00	0.00	0.00	37.90	1.40	0.00	78.30
021I	22.60	8.40	32.70	0.00	0.80	0.30	1.70	0.00	66.50
021W	20.40	3.60	52.20	0.00	0.00	65.10	3.90	0.00	145.20
022	36.10	40.70	13.40	0.00	0.00	16.30	5.90	0.00	112.40
022 other	2.50	0.30	0.00	0.00	0.40	0.00	0.00	0.00	3.20

023/024	62.30	47.80	37.70	4.60	0.00	12.30	4.20	-0.00	168.90
023 other	2.10	0.80	0.00	0.00	0.00	0.00	0.00	0.00	2.90
025	59.40	11.10	23.40	0.00	12.00	52.80	50.90	0.00	209.60
025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	54.40	4.20	2.50	0.00	0.00	22.80	27.90	0.00	111.80
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	55.40	6.60	4.20	0.00	0.00	8.20	50.40	0.00	124.80
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	54.00	16.50	0.00	0.00	0.00	36.70	27.10	0.00	134.30
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	63.10	6.80	0.80	4.50	0.00	1.10	30.60	0.00	106.90
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
030A	43.70	7.00	0.00	0.00	0.00	9.30	6.80	0.00	66.80
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	32.00	9.10	0.00	1.10	0.00	12.00	17.90	0.00	72.10
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	24.90	11.40	0.00	0.00	0.00	3.80	0.20	0.00	40.30
031B	12.70	0.00	0.00	0.00	0.00	0.00	14.50	0.00	27.20
031B other	4.70	0.50	0.00	0.00	0.00	0.00	0.00	0.00	5.20
035I	6.50	1.20	0.00	0.00	0.00	0.00	0.20	0.00	7.90
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	5.10	0.00	0.00	0.00	0.00	0.00	-3.60	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	16.40	10.50	1.60	0.00	0.00	0.00	-0.70	0.00	27.80
036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	25.90	63.10	0.50	0.00	0.00	20.80	1.70	0.00	112.00
038	100.40	66.40	4.10	0.50	1.00	-2.90	-5.20	0.00	164.30
038 other	7.70	2.40	0.10	0.00	1.30	0.00	0.00	0.00	11.50
039	15.20	16.00	0.00	0.00	0.00	0.00	0.00	0.00	31.20
040	36.60	0.00	0.00	0.00	0.00	0.00	-0.50	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
TOTAL	2158.20	583.50	209.30	12.40	478.70	821.50	308.00	-0.00	4571.60

ALTERNATIVE 2 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	11.70	3.40	0.00	0.00	0.00	0.00	-2.70	0.00	12.40
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	10.60	29.10	0.00	0.00	0.00	24.10	-1.70	-0.00	62.10
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60
003I	14.20	2.70	0.00	0.00	0.00	23.20	-7.20	0.00	32.90
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	4.00	0.00	0.00	0.00	44.70	0.00	0.00	48.70
004I	13.60	0.00	0.00	0.00	0.00	88.80	0.10	0.00	102.50
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	6.00
005	4.50	14.30	0.00	0.00	0.00	24.10	4.60	-0.00	47.50
006	19.50	25.40	6.40	0.00	0.00	45.10	7.90	0.00	104.30
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	22.20	39.80	2.40	0.00	0.00	16.50	9.10	-0.00	90.00
007 other	3.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	4.00
008	183.70	9.60	4.10	0.00	20.50	49.30	35.90	0.00	303.10
008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	52.30	0.00	0.00	0.00	23.80	56.60	22.50	0.00	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	78.60	0.00	1.60	0.00	4.30	5.90	14.00	0.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40
010	113.60	7.00	0.00	0.00	6.10	3.80	30.00	0.00	160.50
010 other	17.30	2.10	0.00	0.00	2.60	0.00	0.00	0.00	22.00
011	239.20	1.60	0.00	0.00	35.60	26.00	29.50	0.00	331.90
011 other	25.50	0.30	0.00	0.00	16.00	5.30	0.00	0.00	47.10
012	105.10	24.10	0.00	0.00	74.60	8.40	28.90	0.00	241.10
012 other	20.50	2.80	0.00	0.00	0.60	0.00	0.00	0.00	23.90
013I	65.70	0.00	0.00	0.00	48.30	0.50	29.20	0.00	143.70
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.50
014/034	37.20	0.00	0.00	0.00	0.00	0.00	3.20	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	21.60	0.00	0.00	0.00	8.30	0.00	16.70	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	13.80	0.00	0.00	0.00	8.80	21.20	6.20	0.00	50.00
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	18.40	0.00	0.00	0.00	8.00	0.00	8.70	0.00	35.10
016W	28.60	0.00	0.00	0.00	0.00	32.60	1.20	0.00	62.40
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60

017I	4.80	0.00	1.90	0.00	0.00	6.00	1.50	0.00	14.20
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	8.80	3.30	0.00	0.00	0.00	44.50	4.80	0.00	61.40
018	11.50	2.40	0.00	0.00	0.00	14.40	-0.60	0.00	27.70
018 other	0.60	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.70
019	12.80	6.50	0.00	0.00	0.00	39.10	1.50	0.00	59.90
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	16.80	2.40	3.30	0.00	0.00	44.50	11.30	0.00	78.30
021I	29.90	0.00	22.50	0.00	0.80	8.70	4.60	0.00	66.50
021W	54.60	0.00	19.80	0.00	0.00	68.70	2.10	0.00	145.20
022	27.50	46.70	19.00	0.80	0.00	9.50	8.90	0.00	112.40
022 other	2.50	0.30	0.00	0.00	0.40	0.00	0.00	0.00	3.20
023/024	39.40	35.50	5.00	10.80	0.70	18.40	59.10	0.00	168.90
023 other	2.10	0.80	0.00	0.00	0.00	0.00	0.00	0.00	2.90
025	48.80	2.30	35.30	9.20	0.00	52.40	61.60	0.00	209.60
025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	62.90	3.40	0.00	0.00	0.00	23.60	21.90	0.00	111.80
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	42.70	6.60	5.30	0.00	0.00	8.20	62.00	0.00	124.80
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	54.70	21.20	0.00	0.00	0.00	32.00	26.40	0.00	134.30
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	68.60	17.20	0.00	0.00	0.00	-4.80	25.90	0.00	106.90
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
030A	46.20	6.10	0.00	0.00	0.30	10.20	4.00	0.00	66.80
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	30.90	10.20	0.00	0.00	0.00	12.00	19.00	0.00	72.10
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	22.50	11.40	0.00	0.00	0.00	3.80	2.60	0.00	40.30
031B	8.30	0.00	0.00	0.00	0.00	0.00	18.90	0.00	27.20
031B other	4.70	0.50	0.00	0.00	0.00	0.00	0.00	0.00	5.20
035I	5.80	1.20	0.00	0.00	0.00	0.00	0.90	0.00	7.90
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	5.10	0.00	0.00	0.00	0.00	0.00	-3.60	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	16.00	5.80	0.00	0.00	0.00	4.70	1.30	0.00	27.80
036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	23.90	57.30	0.50	0.00	0.00	26.60	3.70	-0.00	112.00
038	83.70	57.00	4.10	0.00	1.00	7.00	11.50	0.00	164.30
038 other	7.70	2.40	0.10	0.00	1.30	0.00	0.00	0.00	11.50
039	15.20	16.00	0.00	0.00	0.00	0.00	0.00	0.00	31.20
040	26.70	0.00	0.00	0.00	0.00	0.00	9.40	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
TOTAL	2160.80	483.20	132.00	20.80	266.10	913.40	595.30	-0.00	4571.60

ALTERNATIVE 3 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	9.00	1.00	0.00	0.00	0.00	2.40	0.00	0.00	12.40
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	9.30	27.80	0.00	0.00	0.00	25.40	-0.40	-0.00	62.10
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60
003I	11.10	0.00	0.00	0.00	0.00	25.90	-4.10	0.00	32.90
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	4.00	0.00	0.00	0.00	44.70	0.00	0.00	48.70
004I	14.20	0.00	0.00	0.00	0.00	88.80	-0.50	0.00	102.50
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	6.00
005	3.70	13.80	0.80	0.50	0.00	24.10	4.60	-0.00	47.50
006	20.90	24.70	6.40	0.00	0.00	45.80	6.50	0.00	104.30
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	23.80	39.70	5.50	0.00	0.00	16.60	4.40	-0.00	90.00
007 other	3.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	4.00
008	167.10	9.60	7.00	0.00	45.50	49.30	24.60	0.00	303.10
008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	42.30	0.00	0.00	0.00	45.40	56.60	10.90	0.00	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	60.60	0.00	1.60	0.00	16.10	5.90	20.20	0.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40
010	84.60	5.40	2.30	1.60	35.30	3.80	27.50	0.00	160.50
010 other	17.30	2.10	0.00	0.00	2.60	0.00	0.00	0.00	22.00
011	205.40	1.60	0.00	0.00	55.70	26.00	43.20	0.00	331.90
011 other	25.50	0.30	0.00	0.00	16.00	5.30	0.00	0.00	47.10
012	65.50	15.90	0.00	0.00	54.60	16.60	88.50	0.00	241.10
012 other	20.50	2.80	0.00	0.00	0.60	0.00	0.00	0.00	23.90

013I	50.90	0.00	0.00	0.00	24.10	0.50	68.20	0.00	143.70
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.50
014/034	26.20	0.00	0.00	0.00	5.10	0.00	9.10	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	19.50	0.00	0.00	0.00	7.40	0.00	19.70	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	13.50	0.00	0.00	0.00	3.20	21.20	12.10	0.00	50.00
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	16.20	0.00	0.00	0.00	7.20	0.00	11.70	0.00	35.10
016W	22.80	0.00	0.00	0.00	0.00	32.60	7.00	0.00	62.40
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
017I	4.40	0.00	0.00	0.00	0.00	6.00	3.80	0.00	14.20
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	8.20	3.30	0.00	0.00	0.00	44.50	5.40	0.00	61.40
018	11.50	1.30	0.00	0.00	0.00	15.50	-0.60	0.00	27.70
018 other	0.60	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.70
019	13.00	9.50	0.00	0.00	0.00	36.10	1.30	0.00	59.90
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	16.80	2.80	2.40	0.00	0.00	44.10	12.20	0.00	78.30
021I	24.90	0.00	2.50	0.00	7.70	8.70	22.70	0.00	66.50
021W	36.00	0.00	2.80	0.00	10.60	68.70	27.10	0.00	145.20
022	26.90	36.90	13.40	0.00	0.00	20.10	15.10	0.00	112.40
022 other	2.50	0.30	0.00	0.00	0.40	0.00	0.00	0.00	3.20
023/024	42.90	39.40	12.20	0.00	0.00	25.30	49.10	0.00	168.90
023 other	2.10	0.80	0.00	0.00	0.00	0.00	0.00	0.00	2.90
025	51.80	0.00	38.20	2.30	0.00	61.60	55.70	0.00	209.60
025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	40.60	0.00	2.90	0.00	0.00	27.00	41.30	0.00	111.80
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	42.30	0.00	9.80	6.60	0.00	8.20	57.90	0.00	124.80
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	39.00	26.30	0.00	0.00	0.00	26.90	42.10	0.00	134.30
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	47.10	11.30	0.00	0.00	0.00	1.10	47.40	0.00	106.90
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
030A	43.40	6.10	0.00	0.00	0.30	10.20	6.80	0.00	66.80
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	27.00	10.20	2.90	0.00	0.00	12.00	20.00	0.00	72.10
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	24.20	11.40	0.00	0.00	0.00	3.80	0.90	0.00	40.30
031B	10.10	0.00	0.00	0.00	0.00	0.00	17.10	0.00	27.20
031B other	4.70	0.50	0.00	0.00	0.00	0.00	0.00	0.00	5.20
035I	5.90	1.20	0.00	0.00	0.00	0.00	0.80	0.00	7.90
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	5.10	0.00	0.00	0.00	0.00	0.00	-3.60	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	15.10	5.80	0.00	0.00	0.00	4.70	2.20	0.00	27.80
036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	22.50	59.40	0.50	0.00	0.00	24.50	5.10	-0.00	112.00
038	80.90	51.50	4.10	0.00	1.00	12.50	14.30	0.00	164.30
038 other	7.70	2.40	0.10	0.00	1.30	0.00	0.00	0.00	11.50
039	15.00	16.00	0.00	0.00	0.00	0.00	0.20	0.00	31.20
040	26.80	0.00	0.00	0.00	0.00	0.00	9.30	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
TOTAL	1886.60	445.60	116.10	11.00	344.20	960.80	807.30	-0.00	4571.60

ALTERNATIVE 4 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	9.00	1.00	0.00	0.00	0.00	2.40	0.00	0.00	12.40
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	10.60	19.40	0.00	0.00	0.00	33.80	-1.70	-0.00	62.10
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60
003I	12.70	0.00	0.00	0.00	0.00	25.90	-5.70	0.00	32.90
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	48.70
004I	14.60	0.00	0.00	0.00	0.00	88.80	-0.90	0.00	102.50
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	6.00
005	4.50	13.80	0.00	0.50	0.00	24.10	4.60	-0.00	47.50
006	18.50	18.00	8.70	0.00	0.00	52.50	6.60	0.00	104.30
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	23.40	39.70	5.50	0.00	0.00	16.60	4.80	-0.00	90.00
007 other	3.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	4.00
008	129.50	9.60	9.70	0.00	21.20	49.30	83.80	0.00	303.10

008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	28.10	0.00	0.00	0.00	32.70	56.60	37.80	0.00	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	68.60	0.00	1.80	0.00	14.60	5.90	13.50	0.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40
010	78.10	5.40	7.70	1.60	7.50	3.80	56.40	0.00	160.50
010 other	17.30	2.10	0.00	0.00	2.60	0.00	0.00	0.00	22.00
011	184.20	1.60	0.00	0.00	68.80	26.00	51.30	0.00	331.90
011 other	25.50	0.30	0.00	0.00	16.00	5.30	0.00	0.00	47.10
012	53.00	15.30	0.00	0.00	23.90	17.20	131.70	-0.00	241.10
012 other	20.50	2.80	0.00	0.00	0.60	0.00	0.00	0.00	23.90
013I	48.00	0.00	0.00	0.00	11.60	0.50	83.60	0.00	143.70
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.50
014/034	26.40	0.00	0.00	0.00	0.00	0.00	14.00	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	17.00	0.00	0.00	0.00	2.20	0.00	27.40	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	11.80	0.00	0.00	0.00	1.40	21.20	15.60	0.00	50.00
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	13.70	0.00	0.00	0.00	7.20	0.00	14.20	0.00	35.10
016W	22.80	0.00	0.00	0.00	0.00	32.60	7.00	0.00	62.40
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
017I	4.40	0.00	0.00	0.00	0.00	6.00	3.80	0.00	14.20
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	8.90	3.30	0.00	0.00	0.00	44.50	4.70	0.00	61.40
018	11.50	2.40	0.00	0.00	0.00	14.40	-0.60	0.00	27.70
018 other	0.60	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.70
019	13.60	9.50	0.00	0.00	0.00	36.10	0.70	0.00	59.90
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	15.20	4.80	3.00	0.90	0.00	41.20	13.20	0.00	78.30
021I	20.60	0.00	4.30	0.00	0.00	8.70	32.90	0.00	66.50
021W	22.40	0.00	12.40	0.00	0.00	68.70	41.70	0.00	145.20
022	26.50	42.90	12.90	0.00	0.00	14.10	16.00	0.00	112.40
022 other	2.50	0.30	0.00	0.00	0.40	0.00	0.00	0.00	3.20
023/024	42.40	37.60	6.50	0.00	5.70	27.10	49.60	0.00	168.90
023 other	2.10	0.80	0.00	0.00	0.00	0.00	0.00	0.00	2.90
025	49.80	0.00	23.50	1.50	0.00	62.40	72.40	0.00	209.60
025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	41.90	4.20	0.00	0.00	0.00	22.80	42.90	0.00	111.80
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	41.40	0.00	7.60	2.30	0.00	12.50	61.00	0.00	124.80
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	38.10	26.30	0.00	0.00	0.00	26.90	43.00	0.00	134.30
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	32.20	15.90	0.00	0.00	0.00	-3.50	62.30	0.00	106.90
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
030A	3.10	6.10	0.00	0.00	0.00	10.20	47.40	0.00	66.80
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	12.70	10.20	0.00	0.00	0.00	12.00	37.20	0.00	72.10
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	2.70	11.40	0.00	0.00	0.00	3.80	22.40	0.00	40.30
031B	3.10	0.00	0.00	0.00	0.00	0.00	24.10	0.00	27.20
031B other	4.70	0.50	0.00	0.00	0.00	0.00	0.00	0.00	5.20
035I	5.90	1.20	0.00	0.00	0.00	0.00	0.80	0.00	7.90
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	5.10	0.00	0.00	0.00	0.00	0.00	-3.60	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	15.10	5.80	0.00	0.00	0.00	4.70	2.20	0.00	27.80
036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	22.50	54.90	0.50	0.00	0.00	29.00	5.10	-0.00	112.00
038	79.40	48.00	4.10	0.00	1.00	16.00	15.80	0.00	164.30
038 other	7.70	2.40	0.10	0.00	1.30	0.00	0.00	0.00	11.50
039	14.80	16.00	0.00	0.00	0.00	0.00	0.40	0.00	31.20
040	23.00	0.00	0.00	0.00	0.00	0.00	13.10	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
TOTAL	1669.40	434.00	109.00	6.80	222.80	976.60	1153.00	-0.00	4571.60

ALTERNATIVE 5 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	9.00	1.00	0.00	0.00	0.00	2.40	0.00	0.00	12.40
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	9.30	16.20	0.00	0.00	0.00	37.00	-0.40	-0.00	62.10
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60

003I	12.70	0.00	0.00	0.00	0.00	25.90	-5.70	0.00	32.90
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	48.70
004I	12.50	0.00	0.00	0.00	0.00	88.80	1.20	0.00	102.50
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	6.00
005	3.70	14.80	0.00	0.00	0.00	23.60	5.40	-0.00	47.50
006	18.40	1.00	6.60	0.00	0.00	69.50	8.80	0.00	104.30
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	22.50	5.20	1.60	0.00	0.00	51.10	9.60	0.00	90.00
007 other	3.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	4.00
008	130.50	9.60	7.00	0.00	29.20	49.30	77.50	0.00	303.10
008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	42.70	0.00	0.00	0.00	22.20	56.60	33.70	0.00	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	68.60	0.00	1.80	0.00	14.80	5.90	13.30	0.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40
010	71.20	5.40	3.90	1.60	8.70	3.80	65.90	0.00	160.50
010 other	17.30	2.10	0.00	0.00	2.60	0.00	0.00	0.00	22.00
011	115.30	1.60	0.00	0.00	62.60	26.00	126.40	0.00	331.90
011 other	25.50	0.30	0.00	0.00	16.00	5.30	0.00	0.00	47.10
012	45.30	10.70	1.00	0.00	23.70	21.80	138.60	0.00	241.10
012 other	20.50	2.80	0.00	0.00	0.60	0.00	0.00	0.00	23.90
013I	46.50	0.00	0.00	0.00	14.30	0.50	82.40	0.00	143.70
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.50
014/034	23.20	0.00	0.00	0.00	0.00	0.00	17.20	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	17.00	0.00	0.00	0.00	2.60	0.00	27.00	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	11.70	0.00	0.00	0.00	1.80	21.20	15.30	0.00	50.00
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	9.10	0.00	0.00	0.00	11.00	0.00	15.00	0.00	35.10
016W	21.00	0.00	0.00	0.00	1.80	32.60	7.00	0.00	62.40
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
017I	4.80	0.00	1.90	0.00	0.00	6.00	1.50	0.00	14.20
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	8.90	0.00	0.00	0.00	0.00	47.80	4.70	0.00	61.40
018	11.50	2.20	0.00	0.00	0.00	14.60	-0.60	0.00	27.70
018 other	0.60	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.70
019	11.90	6.50	0.00	0.00	0.00	39.10	2.40	0.00	59.90
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	10.80	1.00	1.60	0.00	0.00	45.90	19.00	0.00	78.30
021I	25.40	0.00	5.80	0.00	0.00	8.70	26.60	0.00	66.50
021W	23.30	0.00	4.20	0.00	7.00	68.70	42.00	0.00	145.20
022	29.20	18.70	16.40	0.00	0.00	38.30	9.80	0.00	112.40
022 other	2.50	0.30	0.00	0.00	0.40	0.00	0.00	0.00	3.20
023/024	42.80	3.00	0.00	0.00	0.00	61.70	61.40	0.00	168.90
023 other	2.10	0.80	0.00	0.00	0.00	0.00	0.00	0.00	2.90
025	41.90	0.00	1.90	0.00	0.00	63.90	101.90	0.00	209.60
025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	41.20	4.20	0.00	0.00	0.00	22.80	43.60	0.00	111.80
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	34.70	0.00	1.10	0.00	0.00	14.80	74.20	0.00	124.80
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	26.10	0.00	0.00	0.00	0.00	53.20	55.00	0.00	134.30
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	30.30	0.00	0.00	0.00	0.00	12.40	64.20	0.00	106.90
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
030A	3.10	0.00	0.00	0.00	0.00	16.30	47.40	0.00	66.80
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	6.00	0.00	2.80	0.00	0.00	22.20	41.10	0.00	72.10
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	1.90	0.00	0.00	0.00	0.00	15.20	23.20	0.00	40.30
031B	2.20	0.00	0.00	0.00	0.00	0.00	25.00	0.00	27.20
031B other	4.70	0.50	0.00	0.00	0.00	0.00	0.00	0.00	5.20
035I	5.90	1.20	0.00	0.00	0.00	0.00	0.80	0.00	7.90
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	5.10	0.00	0.00	0.00	0.00	0.00	-3.60	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	15.10	5.80	0.00	0.00	0.00	4.70	2.20	0.00	27.80
036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	22.50	53.90	0.50	0.00	0.00	30.00	5.10	-0.00	112.00
038	76.20	52.80	4.10	0.00	1.00	11.20	19.00	0.00	164.30
038 other	7.70	2.40	0.10	0.00	1.30	0.00	0.00	0.00	11.50
039	15.00	16.00	0.00	0.00	0.00	0.00	0.20	0.00	31.20
040	24.20	0.00	0.00	0.00	0.00	0.00	11.90	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00

TOTAL	1548.80	240.50	63.00	1.60	225.70	1175.30	1316.70	-0.00	4571.60

ALTERNATIVE 6 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	8.80	0.00	0.00	0.00	0.00	3.40	0.20	0.00	12.40
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	9.30	0.00	0.00	0.00	0.00	53.20	-0.40	-0.00	62.10
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60
003I	13.30	0.00	0.00	0.00	0.00	25.90	-6.30	0.00	32.90
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	48.70
004I	12.40	0.00	0.00	0.00	0.00	88.80	1.30	0.00	102.50
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	6.00
005	3.70	0.00	0.00	0.00	0.00	38.40	5.40	-0.00	47.50
006	16.10	0.00	6.90	0.00	0.00	70.50	10.80	0.00	104.30
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	22.50	0.00	2.50	0.00	0.00	56.30	8.70	0.00	90.00
007 other	3.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	4.00
008	134.90	9.60	15.70	0.00	28.00	49.30	65.60	0.00	303.10
008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	37.20	0.00	0.00	0.00	17.70	56.60	43.70	0.00	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	65.30	0.00	1.80	0.00	14.40	5.90	17.00	0.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40
010	79.50	5.40	7.70	1.60	9.00	3.80	53.50	0.00	160.50
010 other	17.30	2.10	0.00	0.00	2.60	0.00	0.00	0.00	22.00
011	158.70	1.60	8.60	0.00	52.50	26.00	84.50	0.00	331.90
011 other	25.50	0.30	0.00	0.00	16.00	5.30	0.00	0.00	47.10
012	46.50	15.30	0.00	0.00	23.70	17.20	138.40	-0.00	241.10
012 other	20.50	2.80	0.00	0.00	0.60	0.00	0.00	0.00	23.90
013I	46.10	0.00	0.00	0.00	9.50	0.50	87.60	0.00	143.70
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.50
014/034	26.40	0.00	0.00	0.00	0.00	0.00	14.00	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	17.00	0.00	0.00	0.00	2.20	0.00	27.40	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	11.20	0.00	0.00	0.00	1.80	21.20	15.80	0.00	50.00
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	9.10	0.00	0.00	0.00	11.00	0.00	15.00	0.00	35.10
016W	21.40	0.00	0.00	0.00	1.80	32.60	6.60	0.00	62.40
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
017I	4.80	0.00	1.90	0.00	0.00	6.00	1.50	0.00	14.20
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	9.70	0.00	0.00	0.00	0.00	47.80	3.90	0.00	61.40
018	11.50	1.50	0.00	0.00	0.00	15.30	-0.60	0.00	27.70
018 other	0.60	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.70
019	11.90	3.60	0.00	0.00	0.00	42.00	2.40	0.00	59.90
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	13.20	4.70	9.40	2.40	0.00	39.80	8.80	0.00	78.30
021I	25.40	0.00	1.90	0.00	0.00	8.70	30.50	0.00	66.50
021W	23.30	0.00	8.10	0.00	0.00	68.70	45.10	0.00	145.20
022	25.70	2.80	6.60	0.00	3.20	54.20	19.90	0.00	112.40
022 other	2.50	0.30	0.00	0.00	0.40	0.00	0.00	0.00	3.20
023/024	47.00	3.90	0.00	0.00	0.00	60.80	57.20	0.00	168.90
023 other	2.10	0.80	0.00	0.00	0.00	0.00	0.00	0.00	2.90
025	41.50	0.00	1.90	0.00	0.00	63.90	102.30	0.00	209.60
025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	26.30	4.20	0.00	0.00	0.00	22.80	58.50	0.00	111.80
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	29.60	0.00	1.10	0.00	0.90	14.80	78.40	0.00	124.80
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	14.50	0.00	0.00	0.00	0.00	53.20	66.60	0.00	134.30
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	7.90	0.00	0.00	0.00	0.00	12.40	86.60	0.00	106.90
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
030A	3.10	0.00	0.00	0.00	0.00	16.30	47.40	0.00	66.80
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	6.00	0.00	2.90	0.00	0.00	22.20	41.00	0.00	72.10
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	0.00	0.00	0.00	0.00	0.00	15.20	25.10	0.00	40.30
031B	2.20	0.00	0.00	0.00	0.00	0.00	25.00	0.00	27.20
031B other	4.70	0.50	0.00	0.00	0.00	0.00	0.00	0.00	5.20

035I	4.40	1.20	0.00	0.00	0.00	0.00	2.30	0.00	7.90
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	5.10	0.00	0.00	0.00	0.00	0.00	-3.60	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	15.00	5.80	0.00	0.00	0.00	4.70	2.30	0.00	27.80
036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	19.20	0.00	0.50	0.00	0.00	83.90	8.40	-0.00	112.00
038	64.40	4.40	2.20	0.00	1.00	59.60	32.70	0.00	164.30
038 other	7.70	2.40	0.10	0.00	1.30	0.00	0.00	0.00	11.50
039	15.20	16.00	0.00	0.00	0.00	0.00	0.00	0.00	31.20
040	21.10	0.00	0.00	0.00	0.00	0.00	15.00	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
TOTAL	1526.00	89.70	80.50	4.00	201.70	1323.70	1346.00	-0.00	4571.60

Note: this includes the lake! Without the lake, sq. miles = 45.27 and OROMTRD = 2.48 mi/sq. mi.

EXISTING CONDITION - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	15.20	3.40	1.39	15.00	3.40	1.38	1.47	18.60	18.40	002I
002I other											
002W	41.69	17.50	43.50	1.46	16.50	43.50	1.44	1.46	61.00	60.00	002W
002W other											
003I	34.47	16.90	5.10	0.64	16.90	5.10	0.64	0.64	22.00	22.00	003I
003I other											
003W	38.35	0.00	11.30	0.29	0.00	11.30	0.29	0.29	11.30	11.30	003W
004I&W	79.85	19.10	7.90	0.34	19.10	7.90	0.34	0.35	27.00	27.00	004I&W
004I other											
004W											
005	42.60	6.50	33.20	0.93	3.60	33.00	0.86	0.99	39.70	36.60	005
006	70.12	23.60	66.50	1.28	23.60	62.70	1.23	1.45	90.10	86.30	006
006 other											
007/033	67.51	37.30	56.70	1.39	30.60	56.70	1.29	1.39	94.00	87.30	007/033
007 other											
008	184.53	219.80	17.80	1.29	219.80	17.80	1.29	1.65	237.60	237.60	008
008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	55.40	0.00	0.58	55.40	0.00	0.58	1.11	55.40	55.40	009A
009A other											
009B	62.92	92.50	0.00	1.47	84.20	0.00	1.34	1.69	92.50	84.20	009B
009B other											
010	68.59	124.10	7.00	1.91	124.10	7.00	1.91	2.57	131.10	131.10	010
010 other											
011	185.27	247.10	1.80	1.34	246.80	1.80	1.34	1.88	248.90	248.60	011
011 other											
012	130.94	105.10	31.80	1.05	105.10	31.80	1.05	2.00	136.90	136.90	012
012 other											
013I&W	72.66	62.90	0.50	0.87	62.90	0.50	0.87	2.06	63.40	63.40	013I&W
013I other											
013W											
014/034	48.20	38.70	0.00	0.80	33.60	0.00	0.70	0.87	38.70	33.60	014/034
014 other											
015I	25.57	25.60	0.00	1.00	25.60	0.00	1.00	1.85	25.60	25.60	015I
015I other											
015W	32.91	15.40	10.30	0.78	15.40	10.30	0.78	1.19	25.70	25.70	015W
015W other											
016I	26.25	26.20	0.00	1.00	26.20	0.00	1.00	1.34	26.20	26.20	016I
016W	66.46	30.00	8.10	0.57	30.00	8.10	0.57	0.58	38.10	38.10	016W
016W other											
017I	10.70	7.60	5.30	1.21	7.60	5.30	1.21	1.46	12.90	12.90	017I
017I other											
017W	52.03	13.60	7.70	0.41	13.60	7.70	0.41	0.41	21.30	21.30	017W
018	37.00	11.50	2.30	0.37	10.70	2.30	0.35	0.37	13.80	13.00	018
018 other											
019	51.84	15.10	12.90	0.54	14.60	12.90	0.53	0.54	28.00	27.50	019
019 other											
020	45.82	17.70	12.40	0.66	17.70	12.40	0.66	0.96	30.10	30.10	020
021I	27.53	25.40	8.70	1.24	25.40	8.70	1.24	2.42	34.10	34.10	021I
021W	90.85	41.00	12.20	0.59	41.00	12.20	0.59	0.98	53.20	53.20	021W
022	66.68	49.40	50.30	1.50	49.40	50.30	1.50	1.63	99.70	99.70	022
022 other											
023/024	69.55	95.30	64.60	2.30	82.50	64.60	2.12	2.46	159.90	147.10	023/024
023 other											
025	105.86	98.40	23.70	1.15	81.40	23.70	0.99	1.67	122.10	105.10	025
025 other											
026A	69.22	91.40	20.70	1.62	83.30	20.70	1.50	1.69	112.10	104.00	026A
026A other											
026B	63.86	104.30	14.10	1.85	104.00	14.10	1.85	2.01	118.40	118.10	026B
026B other											
027/028	121.99	85.10	35.40	0.99	85.10	35.40	0.99	0.99	120.50	120.50	027/028
027 other											
029	113.45	97.00	12.40	0.96	97.00	12.40	0.96	0.96	109.40	109.40	029
029 other											
030A	67.27	49.70	8.00	0.86	49.70	8.00	0.86	0.88	57.70	57.70	030A
030A other											
030B	76.26	50.40	16.50	0.88	50.40	16.50	0.88	0.89	66.90	66.90	030B
030B other											
031A	75.84	25.10	11.80	0.49	25.10	11.80	0.49	0.49	36.90	36.90	031A
031B	23.14	31.90	0.50	1.40	31.90	0.50	1.40	1.40	32.40	32.40	031B
031B other											
035I&W	15.42	14.20	1.20	1.00	14.20	1.20	1.00	1.00	15.40	15.40	035I&W
035I other											
035W											
035W other											
036	27.51	19.50	10.30	1.08	18.90	10.30	1.06	1.08	29.80	29.20	036

other - roads and trails in the 'other' category are included in the top line for each watershed.

036 other											
037	102.05	27.60	68.50	0.94	26.40	68.50	0.93	0.95	96.10	94.90	037
038	123.97	102.80	66.40	1.36	75.10	66.40	1.14	1.42	169.20	141.50	038
038 other											
039	24.09	15.20	16.00	1.30	15.20	16.00	1.30	1.30	31.20	31.20	039
040	29.41	35.80	0.00	1.22	35.60	0.00	1.21	1.30	35.80	35.60	040
040 other											
TOTAL		2416.20	786.80		2322.50	782.80					

ALTERNATIVE 3M - MILES OF ROADS AND TRAILS IN EACH WATERSHED

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	17.30	1.00	1.37	17.30	1.00	1.37	1.37	18.30	18.30	002I
002I other											
002W	41.69	18.90	28.10	1.13	18.70	28.10	1.12	1.15	47.00	46.80	002W
002W other											
003I	34.47	21.00	0.00	0.61	21.00	0.00	0.61	0.66	21.00	21.00	003I
003I other											
003W	38.35	0.00	4.00	0.10	0.00	4.00	0.10	0.10	4.00	4.00	003W
004I	79.85	21.70	0.60	0.28	21.70	0.60	0.28	0.28	22.30	22.30	004I&W
004I other											
004W											
005	42.60	4.60	14.50	0.45	4.60	14.50	0.45	0.47	19.10	19.10	005
006	70.12	21.10	34.60	0.79	21.10	34.60	0.79	0.88	55.70	55.70	006
006 other											
007/033	67.51	33.10	47.60	1.20	30.40	47.60	1.16	1.23	80.70	78.00	007/033
007 other											
008	184.53	181.10	12.60	1.05	179.50	12.60	1.04	1.27	193.70	192.10	008
008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	50.40	0.00	0.52	50.40	0.00	0.52	0.78	50.40	50.40	009A
009A other											
009B	62.92	73.50	0.00	1.17	71.40	0.00	1.13	1.37	73.50	71.40	009B
009B other											
010	68.59	101.40	9.10	1.61	101.40	9.10	1.61	1.90	110.50	110.50	010
010 other											
011	185.27	221.60	1.90	1.21	221.60	1.90	1.21	1.63	223.50	223.50	011
011 other											
012	130.94	81.60	18.50	0.76	81.60	18.50	0.76	0.95	100.10	100.10	012
012 other											
013I	72.66	56.00	0.00	0.77	56.00	0.00	0.77	1.00	56.00	56.00	013I&W
013I other											
013W											
014/034	48.20	27.80	0.00	0.58	27.80	0.00	0.58	0.64	27.80	27.80	014/034
014 other											
015I	25.57	17.20	0.00	0.67	17.20	0.00	0.67	0.76	17.20	17.20	015I
015I other											
015W	32.91	12.90	2.70	0.47	12.90	2.70	0.47	0.52	15.60	15.60	015W
015W other											
016I	26.25	16.20	0.00	0.62	16.20	0.00	0.62	0.89	16.20	16.20	016I
016W	66.46	23.80	0.00	0.36	23.80	0.00	0.36	0.36	23.80	23.80	016W
016W other											
017I	10.70	6.30	1.90	0.77	6.30	1.90	0.77	0.80	8.20	8.20	017I
017I other											
017W	52.03	8.30	0.60	0.17	8.30	0.60	0.17	0.17	8.90	8.90	017W
018	37.00	12.10	1.60	0.37	12.10	1.60	0.37	0.37	13.70	13.70	018
018 other											
019	51.84	13.80	7.00	0.40	13.80	7.00	0.40	0.40	20.80	20.80	019
019 other											
020	45.82	19.10	0.40	0.43	16.70	0.40	0.37	0.63	19.50	17.10	020
021I	27.53	22.50	0.30	0.83	22.50	0.30	0.83	1.31	22.80	22.80	021I
021W	90.85	32.20	1.00	0.37	32.20	1.00	0.37	0.59	33.20	33.20	021W
022	66.68	39.80	58.00	1.47	30.20	58.00	1.32	1.54	97.80	88.20	022
022 other											
023/024	69.55	52.60	58.00	1.59	47.60	58.00	1.52	1.97	110.60	105.60	023/024
023 other											
025	105.86	67.10	0.70	0.64	57.50	0.70	0.55	0.89	67.80	58.20	025
025 other											
026A	69.22	66.20	12.00	1.13	64.50	12.00	1.11	1.13	78.20	76.50	026A
026A other											
026B	63.86	45.50	6.30	0.81	45.50	6.30	0.81	0.93	51.80	51.80	026B
026B other											
027/028	121.99	51.20	41.60	0.76	51.20	41.60	0.76	0.76	92.80	92.80	027/028
027 other											
029	113.45	65.20	6.80	0.63	65.20	6.80	0.63	0.63	72.00	72.00	029
029 other											

030A	67.27	42.80	0.90	0.65	42.80	0.90	0.65	0.65	43.70	43.70	030A
030A other											
030B	76.26	29.20	14.60	0.57	29.20	14.60	0.57	0.57	43.80	43.80	030B
030B other											
031A	75.84	24.90	15.00	0.53	24.90	15.00	0.53	0.53	39.90	39.90	031A
031B	23.14	14.40	0.50	0.64	14.40	0.50	0.64	0.64	14.90	14.90	031B
031B other											
035I	15.42	17.00	1.20	1.18	17.00	1.20	1.18	1.18	18.20	18.20	035I&W
035I other											
035W											
035W other											
036	27.51	17.30	5.80	0.84	17.30	5.80	0.84	0.88	23.10	23.10	036
036 other											
037	102.05	22.40	57.90	0.79	22.40	57.90	0.79	0.79	80.30	80.30	037
038	123.97	82.60	65.30	1.19	82.50	65.30	1.19	1.25	147.90	147.80	038
038 other											
039	24.09	15.00	15.50	1.27	15.00	15.50	1.27	1.27	30.50	30.50	039
040	29.41	28.80	0.00	0.98	28.80	0.00	0.98	0.98	28.80	28.80	040
040 other											
TOTAL		1909.80	548.10		1874.80	548.10					

ALTERNATIVE 1 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	18.90	3.40	1.67	18.90	3.40	1.67	1.67	22.30	22.30	002I
002I other											
002W	41.69	22.40	25.90	1.16	22.20	25.90	1.15	1.16	48.30	48.10	002W
002W other											
003I	34.47	24.10	3.10	0.79	24.10	3.10	0.79	0.79	27.20	27.20	003I
003I other											
003W	38.35	0.00	8.20	0.21	0.00	8.20	0.21	0.21	8.20	8.20	003W
004I	79.85	22.90	0.50	0.29	22.90	0.50	0.29	0.29	23.40	23.40	004I&W
004I other											
004W											
005	42.60	3.70	29.90	0.79	3.70	29.90	0.79	0.79	33.60	33.60	005
006	70.12	34.50	36.20	1.01	34.50	36.20	1.01	1.01	70.70	70.70	006
006 other											
007/033	67.51	38.90	53.70	1.37	32.80	53.70	1.28	1.37	92.60	86.50	007/033
007 other											
008	184.53	192.20	9.60	1.09	192.20	9.60	1.09	1.46	201.80	201.80	008
008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	50.50	0.00	0.53	48.30	0.00	0.50	0.94	50.50	48.30	009A
009A other											
009B	62.92	69.90	0.00	1.11	67.80	0.00	1.08	1.35	69.90	67.80	009B
009B other											
010	68.59	139.10	9.10	2.16	139.10	7.40	2.14	2.54	148.20	146.50	010
010 other											
011	185.27	265.70	1.90	1.44	264.60	1.90	1.44	1.90	267.60	266.50	011
011 other											
012	130.94	112.70	30.40	1.09	112.70	30.40	1.09	1.94	143.10	143.10	012
012 other											
013I	72.66	68.90	0.00	0.95	68.90	0.00	0.95	2.09	68.90	68.90	013I&W
013I other											
013W											
014/034	48.20	40.40	0.00	0.84	38.40	0.00	0.80	0.90	40.40	38.40	014/034
014 other											
015I	25.57	30.60	0.00	1.20	26.10	0.00	1.02	1.56	30.60	26.10	015I
015I other											
015W	32.91	15.40	8.40	0.72	15.40	8.40	0.72	1.08	23.80	23.80	015W
015W other											
016I	26.25	19.60	0.00	0.75	19.60	0.00	0.75	1.09	19.60	19.60	016I
016W	66.46	31.10	0.00	0.47	31.10	0.00	0.47	0.47	31.10	31.10	016W
016W other											
017I	10.70	8.20	2.80	1.03	6.30	2.80	0.85	1.07	11.00	9.10	017I
017I other											
017W	52.03	9.70	5.90	0.30	9.70	5.90	0.30	0.30	15.60	15.60	017W
018	37.00	12.10	2.50	0.39	12.10	2.50	0.39	0.39	14.60	14.60	018
018 other											
019	51.84	14.60	10.30	0.48	14.60	10.30	0.48	0.48	24.90	24.90	019
019 other											
020	45.82	30.00	9.00	0.85	14.00	9.00	0.50	0.85	39.00	23.00	020
021I	27.53	55.30	8.40	2.31	22.60	8.40	1.13	2.34	63.70	31.00	021I
021W	90.85	72.60	3.60	0.84	20.40	3.60	0.26	0.84	76.20	24.00	021W
022	66.68	52.00	41.00	1.39	38.60	41.00	1.19	1.40	93.00	79.60	022
022 other											

023/024	69.55	102.10	53.20	2.23	64.40	48.60	1.62	2.23	155.30	113.00	023/024
023 other											
025	105.86	90.30	11.10	0.96	66.90	11.10	0.74	1.07	101.40	78.00	025
025 other											
026A	69.22	68.30	4.20	1.05	65.80	4.20	1.01	1.05	72.50	70.00	026A
026A other											
026B	63.86	63.90	6.60	1.10	59.70	6.60	1.04	1.10	70.50	66.30	026B
026B other											
027/028	121.99	58.00	16.50	0.61	58.00	16.50	0.61	0.61	74.50	74.50	027/028
027 other											
029	113.45	66.40	11.30	0.68	65.60	6.80	0.64	0.68	77.70	72.40	029
029 other											
030A	67.27	44.40	7.00	0.76	44.40	7.00	0.76	0.76	51.40	51.40	030A
030A other											
030B	76.26	33.20	10.20	0.57	33.20	9.10	0.55	0.57	43.40	42.30	030B
030B other											
031A	75.84	24.90	11.40	0.48	24.90	11.40	0.48	0.48	36.30	36.30	031A
031B	23.14	17.40	0.50	0.77	17.40	0.50	0.77	0.77	17.90	17.90	031B
031B other											
035I	15.42	17.60	1.20	1.22	17.60	1.20	1.22	1.22	18.80	18.80	035I&W
035I other											
035W											
035W other											
036	27.51	20.20	10.50	1.12	18.60	10.50	1.06	1.12	30.70	29.10	036
036 other											
037	102.05	26.40	63.10	0.88	25.90	63.10	0.87	0.88	89.50	89.00	037
038	123.97	112.30	69.30	1.46	108.10	68.80	1.43	1.48	181.60	176.90	038
038 other											
039	24.09	15.20	16.00	1.30	15.20	16.00	1.30	1.30	31.20	31.20	039
040	29.41	38.60	0.00	1.31	38.60	0.00	1.31	1.31	38.60	38.60	040
040 other											
TOTAL		2367.50	595.90		2158.20	583.50					

ALTERNATIVE 2 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	18.90	3.40	1.67	18.90	3.40	1.67	1.67	22.30	22.30	002I
002I other											
002W	41.69	19.20	29.10	1.16	19.00	29.10	1.15	1.16	48.30	48.10	002W
002W other											
003I	34.47	24.10	2.70	0.78	24.10	2.70	0.78	0.78	26.80	26.80	003I
003I other											
003W	38.35	0.00	4.00	0.10	0.00	4.00	0.10	0.10	4.00	4.00	003W
004I	79.85	19.80	0.00	0.25	19.80	0.00	0.25	0.25	19.80	19.80	004I&W
004I other											
004W											
005	42.60	4.50	14.30	0.44	4.50	14.30	0.44	0.44	18.80	18.80	005
006	70.12	27.00	25.40	0.75	20.60	25.40	0.66	0.75	52.40	46.00	006
006 other											
007/033	67.51	28.20	40.20	1.01	25.80	40.20	0.98	1.01	68.40	66.00	007/033
007 other											
008	184.53	229.30	9.60	1.29	225.20	9.60	1.27	1.41	238.90	234.80	008
008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	60.40	0.00	0.63	60.40	0.00	0.63	0.88	60.40	60.40	009A
009A other											
009B	62.92	87.60	0.00	1.39	85.50	0.00	1.36	1.47	87.60	85.50	009B
009B other											
010	68.59	130.90	9.10	2.04	130.90	9.10	2.04	2.17	140.00	140.00	010
010 other											
011	185.27	264.70	1.90	1.44	264.70	1.90	1.44	1.72	266.60	266.60	011
011 other											
012	130.94	125.60	26.90	1.16	125.60	26.90	1.16	1.74	152.50	152.50	012
012 other											
013I	72.66	71.00	0.00	0.98	71.00	0.00	0.98	1.65	71.00	71.00	013I&W
013I other											
013W											
014/034	48.20	38.70	0.00	0.80	38.70	0.00	0.80	0.80	38.70	38.70	014/034
014 other											
015I	25.57	22.20	0.00	0.87	22.20	0.00	0.87	1.19	22.20	22.20	015I
015I other											
015W	32.91	14.00	0.00	0.43	14.00	0.00	0.43	0.69	14.00	14.00	015W
015W other											
016I	26.25	18.40	0.00	0.70	18.40	0.00	0.70	1.01	18.40	18.40	016I
016W	66.46	29.20	0.00	0.44	29.20	0.00	0.44	0.44	29.20	29.20	016W
016W other											

017I	10.70	8.40	0.00	0.79	6.50	0.00	0.61	0.82	8.40	6.50	017I
017I other											
017W	52.03	8.80	3.30	0.23	8.80	3.30	0.23	0.23	12.10	12.10	017W
018	37.00	12.10	2.50	0.39	12.10	2.50	0.39	0.39	14.60	14.60	018
018 other											
019	51.84	13.60	6.50	0.39	13.60	6.50	0.39	0.39	20.10	20.10	019
019 other											
020	45.82	20.10	2.40	0.49	16.80	2.40	0.42	0.49	22.50	19.20	020
021I	27.53	52.40	0.00	1.90	29.90	0.00	1.09	1.93	52.40	29.90	021I
021W	90.85	74.40	0.00	0.82	54.60	0.00	0.60	0.82	74.40	54.60	021W
022	66.68	49.00	47.80	1.45	30.00	47.00	1.15	1.46	96.80	77.00	022
022 other											
023/024	69.55	46.50	47.10	1.35	41.50	36.30	1.12	1.36	93.60	77.80	023/024
023 other											
025	105.86	91.60	11.50	0.97	56.30	2.30	0.55	0.98	103.10	58.60	025
025 other											
026A	69.22	74.30	3.40	1.12	74.30	3.40	1.12	1.12	77.70	77.70	026A
026A other											
026B	63.86	52.30	6.60	0.92	47.00	6.60	0.84	0.92	58.90	53.60	026B
026B other											
027/028	121.99	58.70	21.20	0.65	58.70	21.20	0.65	0.65	79.90	79.90	027/028
027 other											
029	113.45	71.10	17.20	0.78	71.10	17.20	0.78	0.78	88.30	88.30	029
029 other											
030A	67.27	46.90	6.10	0.79	46.90	6.10	0.79	0.79	53.00	53.00	030A
030A other											
030B	76.26	32.10	10.20	0.55	32.10	10.20	0.55	0.55	42.30	42.30	030B
030B other											
031A	75.84	22.50	11.40	0.45	22.50	11.40	0.45	0.45	33.90	33.90	031A
031B	23.14	13.00	0.50	0.58	13.00	0.50	0.58	0.58	13.50	13.50	031B
031B other											
035I	15.42	16.90	1.20	1.17	16.90	1.20	1.17	1.17	18.10	18.10	035I&W
035I other											
035W											
035W other											
036	27.51	18.20	5.80	0.87	18.20	5.80	0.87	0.87	24.00	24.00	036
036 other											
037	102.05	24.40	57.30	0.80	23.90	57.30	0.80	0.80	81.70	81.20	037
038	123.97	95.60	59.40	1.25	91.40	59.40	1.22	1.27	155.00	150.80	038
038 other											
039	24.09	15.20	16.00	1.30	15.20	16.00	1.30	1.30	31.20	31.20	039
040	29.41	28.70	0.00	0.98	28.70	0.00	0.98	0.98	28.70	28.70	040
040 other											
TOTAL		2292.80	504.00		2160.80	483.20					

ALTERNATIVE 3 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	16.20	1.00	1.29	16.20	1.00	1.29	1.29	17.20	17.20	002I
002I other											
002W	41.69	17.90	27.80	1.10	17.70	27.80	1.09	1.10	45.70	45.50	002W
002W other											
003I	34.47	21.00	0.00	0.61	21.00	0.00	0.61	0.61	21.00	21.00	003I
003I other											
003W	38.35	0.00	4.00	0.10	0.00	4.00	0.10	0.10	4.00	4.00	003W
004I	79.85	20.40	0.00	0.26	20.40	0.00	0.26	0.26	20.40	20.40	004I&W
004I other											
004W											
005	42.60	4.50	14.30	0.44	3.70	13.80	0.41	0.44	18.80	17.50	005
006	70.12	28.40	24.70	0.76	22.00	24.70	0.67	0.76	53.10	46.70	006
006 other											
007/033	67.51	32.90	40.10	1.08	27.40	40.10	1.00	1.08	73.00	67.50	007/033
007 other											
008	184.53	215.60	9.60	1.22	208.60	9.60	1.18	1.47	225.20	218.20	008
008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	50.40	0.00	0.52	50.40	0.00	0.52	1.00	50.40	50.40	009A
009A other											
009B	62.92	69.60	0.00	1.11	67.50	0.00	1.07	1.37	69.60	67.50	009B
009B other											
010	68.59	104.20	9.10	1.65	101.90	7.50	1.59	2.20	113.30	109.40	010
010 other											
011	185.27	230.90	1.90	1.26	230.90	1.90	1.26	1.64	232.80	232.80	011
011 other											
012	130.94	86.00	18.70	0.80	86.00	18.70	0.80	1.22	104.70	104.70	012
012 other											

013I	72.66	56.20	0.00	0.77	56.20	0.00	0.77	1.11	56.20	56.20	013I&W
013I other											
013W											
014/034	48.20	27.70	0.00	0.57	27.70	0.00	0.57	0.68	27.70	27.70	014/034
014 other											
015I	25.57	20.10	0.00	0.79	20.10	0.00	0.79	1.08	20.10	20.10	015I
015I other											
015W	32.91	13.70	0.00	0.42	13.70	0.00	0.42	0.51	13.70	13.70	015W
015W other											
016I	26.25	16.20	0.00	0.62	16.20	0.00	0.62	0.89	16.20	16.20	016I
016W	66.46	23.40	0.00	0.35	23.40	0.00	0.35	0.35	23.40	23.40	016W
016W other											
017I	10.70	6.10	0.00	0.57	6.10	0.00	0.57	0.61	6.10	6.10	017I
017I other											
017W	52.03	8.20	3.30	0.22	8.20	3.30	0.22	0.22	11.50	11.50	017W
018	37.00	12.10	1.40	0.36	12.10	1.40	0.36	0.36	13.50	13.50	018
018 other											
019	51.84	13.80	9.50	0.45	13.80	9.50	0.45	0.45	23.30	23.30	019
019 other											
020	45.82	19.20	2.80	0.48	16.80	2.80	0.43	0.48	22.00	19.60	020
021I	27.53	27.40	0.00	1.00	24.90	0.00	0.90	1.27	27.40	24.90	021I
021W	90.85	38.80	0.00	0.43	36.00	0.00	0.40	0.54	38.80	36.00	021W
022	66.68	42.80	37.20	1.20	29.40	37.20	1.00	1.21	80.00	66.60	022
022 other											
023/024	69.55	57.20	40.20	1.40	45.00	40.20	1.23	1.40	97.40	85.20	023/024
023 other											
025	105.86	97.50	2.30	0.94	59.30	0.00	0.56	0.95	99.80	59.30	025
025 other											
026A	69.22	54.90	0.00	0.79	52.00	0.00	0.75	0.79	54.90	52.00	026A
026A other											
026B	63.86	56.40	6.60	0.99	46.60	0.00	0.73	0.99	63.00	46.60	026B
026B other											
027/028	121.99	43.00	26.30	0.57	43.00	26.30	0.57	0.57	69.30	69.30	027/028
027 other											
029	113.45	49.60	11.30	0.54	49.60	11.30	0.54	0.54	60.90	60.90	029
029 other											
030A	67.27	44.10	6.10	0.75	44.10	6.10	0.75	0.75	50.20	50.20	030A
030A other											
030B	76.26	31.10	10.20	0.54	28.20	10.20	0.50	0.54	41.30	38.40	030B
030B other											
031A	75.84	24.20	11.40	0.47	24.20	11.40	0.47	0.47	35.60	35.60	031A
031B	23.14	14.80	0.50	0.66	14.80	0.50	0.66	0.66	15.30	15.30	031B
031B other											
035I	15.42	17.00	1.20	1.18	17.00	1.20	1.18	1.18	18.20	18.20	035I&W
035I other											
035W											
035W other											
036	27.51	17.30	5.80	0.84	17.30	5.80	0.84	0.84	23.10	23.10	036
036 other											
037	102.05	23.00	59.40	0.81	22.50	59.40	0.80	0.81	82.40	81.90	037
038	123.97	92.80	53.90	1.18	88.60	53.90	1.15	1.20	146.70	142.50	038
038 other											
039	24.09	15.00	16.00	1.29	15.00	16.00	1.29	1.29	31.00	31.00	039
040	29.41	28.80	0.00	0.98	28.80	0.00	0.98	0.98	28.80	28.80	040
040 other											
TOTAL		2002.70	456.60		1886.60	445.60					

ALTERNATIVE 4 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	16.20	1.00	1.29	16.20	1.00	1.29	1.29	17.20	17.20	002I
002I other											
002W	41.69	19.20	19.40	0.93	19.00	19.40	0.92	0.93	38.60	38.40	002W
002W other											
003I	34.47	22.60	0.00	0.66	22.60	0.00	0.66	0.66	22.60	22.60	003I
003I other											
003W	38.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	003W
004I	79.85	20.80	0.00	0.26	20.80	0.00	0.26	0.26	20.80	20.80	004I&W
004I other											
004W											
005	42.60	4.50	14.30	0.44	4.50	13.80	0.43	0.44	18.80	18.30	005
006	70.12	28.30	18.00	0.66	19.60	18.00	0.54	0.66	46.30	37.60	006
006 other											
007/033	67.51	32.50	40.10	1.08	27.00	40.10	0.99	1.08	72.60	67.10	007/033
007 other											
008	184.53	180.70	9.60	1.03	171.00	9.60	0.98	1.15	190.30	180.60	008

008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	36.20	0.00	0.38	36.20	0.00	0.38	0.72	36.20	36.20	009A
009A other											
009B	62.92	77.80	0.00	1.24	75.50	0.00	1.20	1.48	77.80	75.50	009B
009B other											
010	68.59	103.10	9.10	1.64	95.40	7.50	1.50	1.78	112.20	102.90	010
010 other											
011	185.27	209.70	1.90	1.14	209.70	1.90	1.14	1.60	211.60	211.60	011
011 other											
012	130.94	73.50	18.10	0.70	73.50	18.10	0.70	0.89	91.60	91.60	012
012 other											
013I	72.66	53.30	0.00	0.73	53.30	0.00	0.73	0.90	53.30	53.30	013I&W
013I other											
013W											
014/034	48.20	27.90	0.00	0.58	27.90	0.00	0.58	0.58	27.90	27.90	014/034
014 other											
015I	25.57	17.60	0.00	0.69	17.60	0.00	0.69	0.77	17.60	17.60	015I
015I other											
015W	32.91	12.00	0.00	0.36	12.00	0.00	0.36	0.41	12.00	12.00	015W
015W other											
016I	26.25	13.70	0.00	0.52	13.70	0.00	0.52	0.80	13.70	13.70	016I
016W	66.46	23.40	0.00	0.35	23.40	0.00	0.35	0.35	23.40	23.40	016W
016W other											
017I	10.70	6.10	0.00	0.57	6.10	0.00	0.57	0.61	6.10	6.10	017I
017I other											
017W	52.03	8.90	3.30	0.23	8.90	3.30	0.23	0.23	12.20	12.20	017W
018	37.00	12.10	2.50	0.39	12.10	2.50	0.39	0.39	14.60	14.60	018
018 other											
019	51.84	14.40	9.50	0.46	14.40	9.50	0.46	0.46	23.90	23.90	019
019 other											
020	45.82	18.20	5.70	0.52	15.20	4.80	0.44	0.52	23.90	20.00	020
021I	27.53	24.90	0.00	0.90	20.60	0.00	0.75	0.90	24.90	20.60	021I
021W	90.85	34.80	0.00	0.38	22.40	0.00	0.25	0.38	34.80	22.40	021W
022	66.68	41.90	43.20	1.28	29.00	43.20	1.08	1.28	85.10	72.20	022
022 other											
023/024	69.55	51.00	38.40	1.29	44.50	38.40	1.19	1.37	89.40	82.90	023/024
023 other											
025	105.86	80.80	1.50	0.78	57.30	0.00	0.54	0.78	82.30	57.30	025
025 other											
026A	69.22	53.30	4.20	0.83	53.30	4.20	0.83	0.83	57.50	57.50	026A
026A other											
026B	63.86	53.30	2.30	0.87	45.70	0.00	0.72	0.87	55.60	45.70	026B
026B other											
027/028	121.99	42.10	26.30	0.56	42.10	26.30	0.56	0.56	68.40	68.40	027/028
027 other											
029	113.45	34.70	15.90	0.45	34.70	15.90	0.45	0.45	50.60	50.60	029
029 other											
030A	67.27	3.80	6.10	0.15	3.80	6.10	0.15	0.15	9.90	9.90	030A
030A other											
030B	76.26	13.90	10.20	0.32	13.90	10.20	0.32	0.32	24.10	24.10	030B
030B other											
031A	75.84	2.70	11.40	0.19	2.70	11.40	0.19	0.19	14.10	14.10	031A
031B	23.14	7.80	0.50	0.36	7.80	0.50	0.36	0.36	8.30	8.30	031B
031B other											
035I	15.42	17.00	1.20	1.18	17.00	1.20	1.18	1.18	18.20	18.20	035I&W
035I other											
035W											
035W other											
036	27.51	17.30	5.80	0.84	17.30	5.80	0.84	0.84	23.10	23.10	036
036 other											
037	102.05	23.00	54.90	0.76	22.50	54.90	0.76	0.76	77.90	77.40	037
038	123.97	91.30	50.40	1.14	87.10	50.40	1.11	1.16	141.70	137.50	038
038 other											
039	24.09	14.80	16.00	1.28	14.80	16.00	1.28	1.28	30.80	30.80	039
040	29.41	25.00	0.00	0.85	25.00	0.00	0.85	0.85	25.00	25.00	040
040 other											
TOTAL		1778.40	440.80		1669.40	434.00					

ALTERNATIVE 5 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	16.20	1.00	1.29	16.20	1.00	1.29	1.29	17.20	17.20	002I
002I other											
002W	41.69	17.90	16.20	0.82	17.70	16.20	0.81	0.82	34.10	33.90	002W
002W other											

003I	34.47	22.60	0.00	0.66	22.60	0.00	0.66	0.66	22.60	22.60	003I
003I other											
003W	38.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	003W
004I	79.85	18.70	0.00	0.23	18.70	0.00	0.23	0.23	18.70	18.70	004I&W
004I other											
004W											
005	42.60	3.70	14.80	0.43	3.70	14.80	0.43	0.43	18.50	18.50	005
006	70.12	26.10	1.00	0.39	19.50	1.00	0.29	0.39	27.10	20.50	006
006 other											
007/033	67.51	27.70	5.60	0.49	26.10	5.60	0.47	0.49	33.30	31.70	007/033
007 other											
008	184.53	179.00	9.60	1.02	172.00	9.60	0.98	1.19	188.60	181.60	008
008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	50.80	0.00	0.53	50.80	0.00	0.53	0.76	50.80	50.80	009A
009A other											
009B	62.92	77.80	0.00	1.24	75.50	0.00	1.20	1.48	77.80	75.50	009B
009B other											
010	68.59	92.40	9.10	1.48	88.50	7.50	1.40	1.64	101.50	96.00	010
010 other											
011	185.27	140.80	1.90	0.77	140.80	1.90	0.77	1.19	142.70	142.70	011
011 other											
012	130.94	66.80	13.50	0.61	65.80	13.50	0.61	0.80	80.30	79.30	012
012 other											
013I	72.66	51.80	0.00	0.71	51.80	0.00	0.71	0.92	51.80	51.80	013I&W
013I other											
013W											
014/034	48.20	24.70	0.00	0.51	24.70	0.00	0.51	0.51	24.70	24.70	014/034
014 other											
015I	25.57	17.60	0.00	0.69	17.60	0.00	0.69	0.79	17.60	17.60	015I
015I other											
015W	32.91	11.90	0.00	0.36	11.90	0.00	0.36	0.42	11.90	11.90	015W
015W other											
016I	26.25	9.10	0.00	0.35	9.10	0.00	0.35	0.77	9.10	9.10	016I
016W	66.46	21.60	0.00	0.33	21.60	0.00	0.33	0.35	21.60	21.60	016W
016W other											
017I	10.70	8.40	0.00	0.79	6.50	0.00	0.61	0.82	8.40	6.50	017I
017I other											
017W	52.03	8.90	0.00	0.17	8.90	0.00	0.17	0.17	8.90	8.90	017W
018	37.00	12.10	2.30	0.39	12.10	2.30	0.39	0.39	14.40	14.40	018
018 other											
019	51.84	12.70	6.50	0.37	12.70	6.50	0.37	0.37	19.20	19.20	019
019 other											
020	45.82	12.40	1.00	0.29	10.80	1.00	0.26	0.29	13.40	11.80	020
021I	27.53	31.20	0.00	1.13	25.40	0.00	0.92	1.13	31.20	25.40	021I
021W	90.85	27.50	0.00	0.30	23.30	0.00	0.26	0.38	27.50	23.30	021W
022	66.68	48.10	19.00	1.01	31.70	19.00	0.76	1.01	67.10	50.70	022
022 other											
023/024	69.55	44.90	3.80	0.70	44.90	3.80	0.70	0.70	48.70	48.70	023/024
023 other											
025	105.86	51.30	0.00	0.48	49.40	0.00	0.47	0.49	51.30	49.40	025
025 other											
026A	69.22	52.60	4.20	0.82	52.60	4.20	0.82	0.82	56.80	56.80	026A
026A other											
026B	63.86	40.10	0.00	0.63	39.00	0.00	0.61	0.63	40.10	39.00	026B
026B other											
027/028	121.99	30.10	0.00	0.25	30.10	0.00	0.25	0.25	30.10	30.10	027/028
027 other											
029	113.45	32.80	0.00	0.29	32.80	0.00	0.29	0.29	32.80	32.80	029
029 other											
030A	67.27	3.80	0.00	0.06	3.80	0.00	0.06	0.06	3.80	3.80	030A
030A other											
030B	76.26	10.00	0.00	0.13	7.20	0.00	0.09	0.13	10.00	7.20	030B
030B other											
031A	75.84	1.90	0.00	0.03	1.90	0.00	0.03	0.03	1.90	1.90	031A
031B	23.14	6.90	0.50	0.32	6.90	0.50	0.32	0.32	7.40	7.40	031B
031B other											
035I	15.42	17.00	1.20	1.18	17.00	1.20	1.18	1.18	18.20	18.20	035I&W
035I other											
035W											
035W other											
036	27.51	17.30	5.80	0.84	17.30	5.80	0.84	0.84	23.10	23.10	036
036 other											
037	102.05	23.00	53.90	0.75	22.50	53.90	0.75	0.75	76.90	76.40	037
038	123.97	88.10	55.20	1.16	83.90	55.20	1.12	1.17	143.30	139.10	038
038 other											
039	24.09	15.00	16.00	1.29	15.00	16.00	1.29	1.29	31.00	31.00	039
040	29.41	26.20	0.00	0.89	26.20	0.00	0.89	0.89	26.20	26.20	040
040 other											

TOTAL		1611.80	242.10		1548.80	240.50					

ALTERNATIVE 6 - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	16.00	0.00	1.20	16.00	0.00	1.20	1.20	16.00	16.00	002I
002I other											
002W	41.69	17.90	0.00	0.43	17.70	0.00	0.42	0.43	17.90	17.70	002W
002W other											
003I	34.47	23.20	0.00	0.67	23.20	0.00	0.67	0.67	23.20	23.20	003I
003I other											
003W	38.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	003W
004I	79.85	18.60	0.00	0.23	18.60	0.00	0.23	0.23	18.60	18.60	004I&W
004I other											
004W											
005	42.60	3.70	0.00	0.09	3.70	0.00	0.09	0.09	3.70	3.70	005
006	70.12	24.10	0.00	0.34	17.20	0.00	0.25	0.34	24.10	17.20	006
006 other											
007/033	67.51	28.60	0.40	0.43	26.10	0.40	0.39	0.43	29.00	26.50	007/033
007 other											
008	184.53	192.10	9.60	1.09	176.40	9.60	1.01	1.25	201.70	186.00	008
008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	45.30	0.00	0.47	45.30	0.00	0.47	0.66	45.30	45.30	009A
009A other											
009B	62.92	74.50	0.00	1.18	72.20	0.00	1.15	1.42	74.50	72.20	009B
009B other											
010	68.59	104.50	9.10	1.66	96.80	7.50	1.52	1.83	113.60	104.30	010
010 other											
011	185.27	192.80	1.90	1.05	184.20	1.90	1.00	1.42	194.70	186.10	011
011 other											
012	130.94	67.00	18.10	0.65	67.00	18.10	0.65	0.84	85.10	85.10	012
012 other											
013I	72.66	51.40	0.00	0.71	51.40	0.00	0.71	0.85	51.40	51.40	013I&W
013I other											
013W											
014/034	48.20	27.90	0.00	0.58	27.90	0.00	0.58	0.58	27.90	27.90	014/034
014 other											
015I	25.57	17.60	0.00	0.69	17.60	0.00	0.69	0.77	17.60	17.60	015I
015I other											
015W	32.91	11.40	0.00	0.35	11.40	0.00	0.35	0.40	11.40	11.40	015W
015W other											
016I	26.25	9.10	0.00	0.35	9.10	0.00	0.35	0.77	9.10	9.10	016I
016W	66.46	22.00	0.00	0.33	22.00	0.00	0.33	0.36	22.00	22.00	016W
016W other											
017I	10.70	8.40	0.00	0.79	6.50	0.00	0.61	0.82	8.40	6.50	017I
017I other											
017W	52.03	9.70	0.00	0.19	9.70	0.00	0.19	0.19	9.70	9.70	017W
018	37.00	12.10	1.60	0.37	12.10	1.60	0.37	0.37	13.70	13.70	018
018 other											
019	51.84	12.70	3.60	0.31	12.70	3.60	0.31	0.31	16.30	16.30	019
019 other											
020	45.82	22.60	7.10	0.65	13.20	4.70	0.39	0.65	29.70	17.90	020
021I	27.53	27.30	0.00	0.99	25.40	0.00	0.92	0.99	27.30	25.40	021I
021W	90.85	31.40	0.00	0.35	23.30	0.00	0.26	0.35	31.40	23.30	021W
022	66.68	34.80	3.10	0.57	28.20	3.10	0.47	0.62	37.90	31.30	022
022 other											
023/024	69.55	49.10	4.70	0.77	49.10	4.70	0.77	0.77	53.80	53.80	023/024
023 other											
025	105.86	50.90	0.00	0.48	49.00	0.00	0.46	0.48	50.90	49.00	025
025 other											
026A	69.22	37.70	4.20	0.61	37.70	4.20	0.61	0.61	41.90	41.90	026A
026A other											
026B	63.86	35.00	0.00	0.55	33.90	0.00	0.53	0.56	35.00	33.90	026B
026B other											
027/028	121.99	18.50	0.00	0.15	18.50	0.00	0.15	0.15	18.50	18.50	027/028
027 other											
029	113.45	10.40	0.00	0.09	10.40	0.00	0.09	0.09	10.40	10.40	029
029 other											
030A	67.27	3.80	0.00	0.06	3.80	0.00	0.06	0.06	3.80	3.80	030A
030A other											
030B	76.26	10.10	0.00	0.13	7.20	0.00	0.09	0.13	10.10	7.20	030B
030B other											
031A	75.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	031A
031B	23.14	6.90	0.50	0.32	6.90	0.50	0.32	0.32	7.40	7.40	031B
031B other											

035I	15.42	15.50	1.20	1.08	15.50	1.20	1.08	1.08	16.70	16.70	035I&W
035I other											
035W											
035W other											
036	27.51	17.20	5.80	0.84	17.20	5.80	0.84	0.84	23.00	23.00	036
036 other											
037	102.05	19.70	0.00	0.19	19.20	0.00	0.19	0.19	19.70	19.20	037
038	123.97	74.40	6.80	0.65	72.10	6.80	0.64	0.67	81.20	78.90	038
038 other											
039	24.09	15.20	16.00	1.30	15.20	16.00	1.30	1.30	31.20	31.20	039
040	29.41	23.10	0.00	0.79	23.10	0.00	0.79	0.79	23.10	23.10	040
040 other											
TOTAL		1606.50	93.70		1526.00	89.70					

ATTACHMENT J

Additional Goshawk Information

United States Department of Agriculture | Forest Service | Targhee NF

Reply to: 1920 Date: Dec. 9, 1994

Subject: Draft Goshawk S£G's

To: Core Plus
Planning Files

I have expressed concerns about the draft goshawk standard for open road density, which is 0.5 miles per square mile. This memo will document how the draft standard was developed, why I currently have concerns about it, and the recommendations which Dan Delany, Walt Grows and I have developed.

The draft goshawk standards were developed from the publication: "Management Recommendations for the Northern Goshawk in the Southwestern United States" (USDA Forest Service, Gen. Tech. Report RM-217, 1992). This report recommends managing for a "minimum density" of roads in the nest area, post fledging family area (PFA), and foraging area. "Minimum density" is not defined in the publication.

I was uncomfortable with the term "minimum density," and thought we needed to define it. I recommended in July 1993 that "minimum density" be defined as 0.5 miles per square mile based on the Forest Travel Plan open road densities in the Centennials. I used the Centennials because of the goshawk monitoring the Forest has done for many years in this area.

Since my original recommendation, the Forest has twice done a reinventory of roads, and we now know that there are more open roads than what was originally calculated from the Forest Travel Plan. Also, we have other active goshawk territories on other parts of the Forest which may have higher or lower road densities. Therefore, using 0.5 miles per square mile for all goshawk territories may not be a supportable standard.

In April 1994, Susan Patla sent the Forest a letter with a recommendation for no open roads in the nest areas and the PFA. Susan did not provide any analysis in support of this recommendation.

On December 9, 1994, I called Dr. Richard Reynolds (scientist and goshawk expert working at the Rocky Mountain Forest & Range Experiment Station in Fort Collins, Colorado) to ask him if there are any studies which document effects of roads on goshawks. He did not know of any studies which document effects of roads on goshawks. He also said that doing such a study would be near to impossible, because one would have to have a variety of goshawk territories with a variety of road densities and road use, and all of the other variables which effect goshawks would have to be accounted for so the effects of roads could be clearly isolated.

On December 9, 1994, Walt Grows, Dan Delany and I met to review this information. At this meeting, we developed some recommended changes to the existing draft goshawk S&G's. The recommended changes are shown on the attached two tables. Any recommendations or comments you have about this will be considered and appreciated.

Mark Orme
Wildlife Biologist, Planning Team

attachments: 2 tables

United States Department of Agriculture | Forest Service | Targhee NF

Reply to: 1920 | Date: Sept. 25, 1995

Subject: Northern Goshawk Management in the Southern and Northern Rocky Mountains

To: Planning Files

The following are notes that I took at the workshop on Northern Goshawk Management in the Southern and Northern Rocky Mountains, Sept. 20-22, 1995, Jackson, Wyoming. (These are not meant to be the official notes of the workshop; official notes will be coming in the future from Joan Friedlander, TES Program Leader in the Rocky Mountain Region.)

Dr. Sandy Boyce:

Dr. Boyce presented a brief overview on the history of the goshawk issue. This issue arose in the SW Region in the 1980's. Kaibab Plateau has a large population of goshawks; vegetation characteristics today are similar to early 1900's. Forest Service biologist Cole Crocker-Bedford published a paper on goshawk monitoring associated with timber management. This paper was used by the Wilderness Society to appeal/litigate timber sales in the SW Region. SW Region developed a goshawk panel which reviewed literature and additional research, and developed guidelines for managing goshawk territories in the SW Region.

At the present time, the Mexican spotted owl takes precedence over goshawks in the SW Region because the owl is a listed species. The only place goshawk guidelines now apply in the SW Region is in the ponderosa pine habitats.

There is still debate/controversy over the goshawk guidelines. Comment was made that the SW Region gets appeals and litigation over using the goshawk guidelines, while the Rocky Mountain Region gets appeals and litigation for not using the goshawk guidelines.

Dr. Richard Reynolds:

Dr. Reynolds gave an overview on the biology of goshawks. Currently there is debate over the status of 3-subspecies in North America. To date, genetics work has found no differences between the 3-subspecies.

In 1992, on NF lands in the western US, there were about 1,800 known territories and about 700 active pairs. There are about 100 to 120 pairs on the Kaibab N.F.; intensive research project in progress on the Kaibab. N.F.

The goshawk is a foraging habitat generalist. Food habit studies have documented over 50 species in its diet. Tree squirrels, ground squirrels, grouse, hares, rabbits, woodpeckers are some of the more common species in its diet. Foraging strategy is short sit & wait periods looking for prey, then moving to a new site. Although a foraging habitat generalist, the goshawk is probably food limited since it is at the top of the food chain.

The goshawk is a nest habitat specialist. The nest area is defined primarily by structure - dense canopy in overstory with an open understory. They seem to like small openings (1/4 to 1/2 acre in size) near the nest. They use a wide variety of forest types for nesting, therefore tree densities in nest stands vary considerably. Cited one study where goshawks were nesting in 5-10 acres aspen patches and foraging in mountain shrub communities on ground squirrels.

Post-family fledging areas - 300 to 600 acres in size.

Foraging area - 6,000 to 10,000 acres in size (probably depends on abundance of prey species)

Little is known about winter biology. Some goshawks are resident year-around birds, and some migrate. Some research studies currently in progress to look at winter habitat (some of the winter habitat research is discussed later in these notes).

Any habitat conservation strategy needs to be based on prey species. Suggested a landscape mix for sustaining important habitat elements as follows: large trees, large snags, large downed logs, interspersion of forest vegetation structural stages with 60 percent in the mid to mature to old aged forest.

Historic ponderosa pine habitat included patch sizes from 1/4 to 1/2 acre in size. All structural stages were present in a relatively small area. Maximum patch size of 4 acres in ponderosa pine. Recommendation in ponderosa pine is for 1/4 to 3/4 acre patch sizes for all structural stages. Must grow large trees in these small patches, so requires thinning of early structural stages. The recommended 30 acre nest area in ponderosa pine means the nest area is an aggregation of all structural stages.

Excessive amount of small diameter stems would be a detriment to goshawks - they cannot see prey and forage in dense stands. Overstocking of stands, ladder fuels which lead to catastrophic fires

today are detrimental to goshawks. Closing up of ponderosa pine forests is a detriment to the goshawk.

Currently working on a Habitat Conservation Assessment for goshawks which will cover all forest habitat types; may be done in next 6 months. Many questions about other forest ecosystems. Other forest ecosystems have a different natural disturbance regime - such as large stand replacing fires in lodgepole pine. What should management be like in these areas?

Dr. John Squires:

Dr. Squires gave an overview of current goshawk research in lodgepole pine habitats on the Medicine Bow N.F. Study area is in areas which have had lodgepole pine timber harvesting, predominantly clearcutting. 50 identified territories.

39 nest sites studied; nests in aspen and lodgepole trees. No nest sites found in spruce-fir forests. Nest trees ranged from 17 cm dbh (6.7 inches) to 50 cm dbh (19.7 inches). Nest locations showed no preference for aspect.

Nest stands had lower tree densities than random, but a higher density of larger diameter trees than random. Seedlings were almost nonexistent in nest stands. Nest stands had similar basal areas compared to random. Nest stands had slightly taller trees than random. There was lower woody debris on the forest floor than random. Nest stands were not old growth; they were evenaged, mature stands, single storied with closed canopies.

Foraging habitat includes open sage steppe to dense forests to riparian areas. 30 different species documented; red squirrels, ground squirrels, chipmunks, flickers, and robins most abundant items. Some pairs used larger forest patches for most of their foraging; other pairs used aspen patches scattered through sage habitats for most of their foraging.

Winter habitat use study was begun in 1992. One bird moved to cottonwood along a river; appeared to be killed by a larger predator - probably an eagle. Some birds moved south (up to 100 kilometers) and then returned to summer areas. Some birds used pinyon/juniper habitats and sagebrush. One bird moved north and died. One bird wintered entirely in tall sagebrush and juniper - was killed by an eagle. One bird moved to ponderosa pine for the winter. One bird wintered in spruce-fir stringers with aspen and was killed by an eagle. One bird wintered in a livestock feedlot, ate pigeons, but it died. 3 birds wintered within 10 to 15 miles of nesting territories; 1 of these died of starvation; a marten may have killed one goshawk. Most of this population is migratory to some extent during winter;

winter mortality is really high - about 60 percent of adult birds died!

Summary: Nest sites are mature trees; timber harvesting may be removing suitable nest sites, but overall density of nest pairs may not have changed. No data as yet on how goshawks historically handled the large natural disturbance regimes which occur in lodgepole pine habitats. Still a big unknown about winter habitat - where it is and what it is??

Ron Rodriguez:

Ron lead a discussion on the issue of falconry - falconers taking young birds from active goshawk nests. What effect does this have on goshawk populations? If we don't know how well goshawk populations are doing and have questions about viability, how can we approve falconry? Opinion of some biologists that falconry is not a widespread abundant activity and therefore probably has no effect on the population. The State's are responsible for managing falconry. In some instances, Forest Service has modified timber sales to protect nest sites, then a falconer has come in and taken young birds from the nest. How does this look to the public?

John Schaefer - Region 3 Silviculturalist:

Gave an overview of current (1990) forest conditions compared to some historical (1910) conditions in Region 3.

More small dbh trees in the understory today than in 1910; nearly same number of large dbh trees. More trees per acre today; stands are more dense today.

Losing aspen and meadows to conifers.

More total woody debris on the ground today.

Growing 700+ mmbf per year today; only harvesting 100 mmbf per year. How long can this occur?

Forests today more susceptible to large stand replacing fires.

Total area of forest is increasing; more late seral species today.

Millions of acres need to be thinned. Reintroducing fire will not completely resolve the problem. Mechanical treatment will be needed.

Jack Amundson - Region 4 Silviculturalist:

Today we have overstocked stands that are not sustainable. Some fledgling efforts to control stand densities and structure. Region 3 goshawk guidelines are very complex to implement on the ground. We need to have some implementable procedures. We are not going to have budgets and skill levels to do complex things in the future.

Christie Gordon - Silviculturalist - Pike & San Isabel N.F.:

Front range in Colorado - more high density forests with ladder fuels today. Loss of more open forests. Numerous insect epidemics in last few years; dense forests with multiple canopy layers is heaven for insect outbreaks.

Dr. Clayton White - Brigham Young University Professor

Dr. White lead a discussion on population viability. Mortality varies considerably over time; many factors involved; concept of a minimum viable population is impossible to prove/calculate.

Dr. White suggested that goshawks may display characteristics of metapopulations. This is because of the seemingly wide difference in habitat use displayed by goshawks in local populations throughout the west. Need to recognize these differences in managing habitat for this species; one size does not fit all.

However, Dr. Reynolds suggested that goshawks do not display characteristics of metapopulations because there is no genetic difference between any of the populations. They are a very adaptable bird, and that is why they use such a wide variety of habitats.

To assess viability, you have to have marked birds, especially so you can obtain information on adult survivorship. Without adult survivorship, productivity data does not mean anything.

Dr. Reynolds hypothesis is: they are very mobile, that is why no difference has been found in genetics. There is a lot of morphological difference, even within the Kaibab population. They are vary adaptable, can use a variety of habitats. They need nest sites and abundant prey.

Mark Fuller - National Biological Service, Boise, Idaho:

Goshawks are found in every forest cover type in Idaho. 300 confirmed areas with goshawk nesting in the UCRB assessment area; only a fraction of the assessment area has been surveyed for goshawks. 22 new sites found on the Boise and Payette N.F.'s this

year from inventory work. No historical database; cannot tell if there has been any trends in the population. Hayward & Escano (late 1980's) - this is the only publication on goshawks in Idaho.

40 species of prey have been identified from on-going studies and falconers.

8,000 ft elevation seems to be upper limit for goshawk territories in Idaho.

Biggest threat may be loss of nest site habitat through timber harvesting. Lesser threats may be general loss of habitat from timber harvesting and fire. Grazing is an issue in Nevada.

Due to great amount of wilderness and National Recreation Areas in Idaho, there may not be a viability problem.

Work is currently in progress for a habitat conservation assessment and strategy for Idaho (currently in draft). Also, R4 is currently working on an assessment and strategy. Alto, there is a national assessment and strategy in progress. (How do all of these fit together?)

Dr. Greg Hayward - Queen Charlotte Goshawk:

Dr. Hayward filled in for Chris Iverson, who could not attend this meeting. Presented a brief overview of the goshawk issue on the Tongass National Forest.

30-35 known pairs; about an 8,500 acre summer use area; about a 31,000 acre winter use area. 25 to 95 percent old forest in territories. Unproductive forest and scrub forest get high use. Species not likely in peril at this time. Clearcuts are probably detrimental. Unevenaged management may be OK. Current recommendation is for an 8 mile no timber harvest zone around known nest sites!

Kathy Paulin - Ashley National Forest:

Kathy reviewed the mountain pine beetle epidemic in 1,000's of acres of lodgepole pine on the Ashley N. F. and the work they are doing with goshawks and timber harvesting in this area.

55 percent of goshawk nests are in dead lodgepole pine. Spruce-fir is not being used. Mistletoe is important for some nest sites (Dr. Squires noted that on the Medicine Bow N. F. that mistletoe is not important for nest sites; the goshawks are nesting on normal (small) lodgepole pine limbs).

A vegetation inventory was done for this area, using the following vegetation structural states (VSS):

VSS	dbh lodgepole	dbh mixed conifer
1	0-1 inch	0-1 inch
2	1-3 inches	1-4 inches
3	3-6 inches	4-8 inches
4	6-9 inches	8-12 inches
5	9-12 inches	12-16 inches
6	12 + inches	16 + inches

Most nest stands were in VSS 4.

Some documentation of natural patch sizes has been done: 1,000's of acres patch sizes for lodgepole pine; 10's of acres patch sizes for mixed conifer. Data suggests that there was a lot of fire near the turn of the century (1900). 60 years ago, maybe there were not as many goshawks as today.

Dead lodgepole pine stands are not going to remain indefinitely, even if no timber harvesting is done. Maintaining dead lodgepole pine stands for nesting & foraging habitat will provide some habitat for short term, but what about long term changes that will still naturally occur?

Rick Metzger - Rio Grande & San Juan National Forests:

Gave an overview of some historical landscape analysis they have been doing in spruce-fir habitats. Looked at 14 undeveloped landscapes as reference areas. Used these 14 landscapes with the assumption the fire suppression probably has not had that big of impact in these areas because of long fire return intervals. Used existing data for cover type and successional stages. Used 2 computer models: Display and Fragstats. Used 1/10th acre minimum mapping scale. Looked at the following parameters:

1. Landtype distribution of cover types and successional stages.

2. Patch size distribution.

3. Distance between patches (edge to edge distance) - especially distance between mature matches.

Assumption is, if managed landscapes can be managed to be within the parameters of these 14 reference landscapes, then goshawk (and other critters) are going to be OK.

Barry Parish - Black Hills National Forest:

Gave overview of their Forest Plan Revision and goshawk management in ponderosa pine habitat:

For each territory, manage for three 30 acre nest stands and three 30 acre replacement nest stands.

No vegetation treatment in 42Q acre zone around the nest area between March to September.

5 percent of landscape in late succession (based on historical photos). RNV data for ponderosa pine indicates this habitat was a patchy mosaic. (Environmental groups do not believe RNV data; they want large core area reserves with linkages.)

10 percent expansion in hardwood acres.

10 percent expansion in meadow acres.

retain 108 snags per 100 acres.

retain 5-10 tons per acre down woody material.

Use variable thinning.

Dave Sticklan & Jay Gore - General Discussion:

There are several examples of goshawks nesting in campgrounds (on the Uinta NF, Dixie NF, Rio Grande & San Juan NF's & maybe some others). Goshawks are very tenacious to their nest tree; will stick with it even when the nest stand is deteriorating.

What do you do about short term protection of a nest stand versus long term habitat management? With R3 guidelines, 20 percent of the territory or landscape will be in VSS stages 1 and 2 at any given time, so if your habitat is saturated with goshawks, you will have to lose some nest trees and nest stands some of the time.

Is goshawk a sensitive species? Is the goshawk a good management indicator? For example, there is concern about livestock grazing effects on goshawk habitat in Nevada; there is no aspen regeneration because of grazing, but the goshawk is still doing well. Is it a management indicator for overgrazing by livestock? What about the mountain pine beetle epidemic on the Ashley N. F.? The mountain pine beetle killed thousands of acres of lodgepole pine forest, completely removed the overstory canopy, but goshawks have continued to use the habitat and nest in dead trees.

Goshawk is a very mobile species. Will move very long distances.

Viability analysis - we won't ever have enough information to do a viability analysis. We are still arguing over the spotted owl, and more money and research has gone into viability analysis for the owl than any other raptor.

Summary and Questions on the Last Day:

Falconry generally is not considered to be a problem with species viability. Some local problems with public perception.

Goshawk will probably not show immediate response with changes in habitat because it is adaptable. It is probably a long term management indicator.

Because it is a top carnivore, managing for it involves management of many species. So it may be a good management indicator from that view point.

Occupancy of territories is greater with more alternate nests available (Susan Patla observation).

Must have marked birds to make it a good MI. How do you fund this intensity? May be a good MI where large clearcutting it being done.

It is not a sensitive species in R1; other forest carnivores are of more concern.

Goshawk territories can overlap, but probably not the PFA's. Spacing in west has ranged from 1 mile to 3 miles apart.

Do we need to inventory for all pairs and nests before project work? Do we need to protect all nest sites? Common sense suggests that we will never find all pairs and nests, even with intensive inventory work. Budgets are not going to allow for continued intensive inventory work. Need to somehow work with landscape level analysis in the future, and try to reduce the need to keep inventorying for individual species.

At present time, we do not have data to do adequate long term landscape level analysis; so we still have to do goshawk surveys and protect known nest areas and territories.

Need to use consistent protocol for surveys so results can be compared between Forests and Regions.

Viability calls should not be made and cannot be made at the project scale. Viability must be made at the proper scale for each species. Yet our own regulations require BA's and BE's to be done at the project level. No one knows if goshawks are viable or not. Use the approach that we are maintaining habitat over time. Develop sound

habitat management strategies - sustainable ecosystems. There is no data to do a quantitative viability analysis.

Region 1 has been developing species models; using a primary and secondary habitat concept and GIS mapping.

There is a need to develop "systems" models and then to see how species fit into the systems.

For all raptors, densities are highly dependent upon food resources.

/s/ Mark Orme

Mark Orme
Wildlife Biologist, Planning Team

Ashley National Forest
Forest Habitat Model
(aka The VSS Thing)

Introduction

The management recommendations for the northern goshawk in the southwestern U.S. (hereafter, the R3 recommendations; Reynolds et al. 1992) have been implemented to varying degrees on forests outside of the southwest. Inconsistencies in these applications have led to controversy. In particular, the literal application of quantitative elements of the recommendations on Forests outside of Region 3 has been legitimately questioned by local resource managers. On the Ashley, for example, few of our nest stands have all the structural attributes of suitable nesting habitat as defined in the recommendations, yet we see nest success rates which are comparable to those in the literature (including studies in the southwest; Kennedy and Dewey in prep.). We clearly needed to develop a locally appropriate interpretation of the recommendations which we could apply consistently across our Forest.

Initially, we thought of our adaptation of the R3 recommendations specifically as a goshawk management tool. However, as we worked with the process and gained an appreciation for the range of species and forest processes the R3 team had included in their work, we began to think of it in much broader terms. This same approach could be used to manage habitat for almost any forest-dependent species. To the extent that specific habitat information was available for other species of management interest (e.g. pine marten or flammulated owl), we could incorporate that information on an equal basis with goshawks and goshawk prey.

Later, when we looked at VSS as a way of describing existing and desired forest conditions in an interdisciplinary landscape assessment, we saw that it had utility for more than just wildlife. The desired VSS mix, and the size and arrangement of forest patches on the landscape, can be adapted to a variety of objectives (some examples are provided in the discussion of Step 3). Although we focus on wildlife in this document, we encourage project managers to consider other applications as well.

There were basically three steps to our adaptation of the R3 recommendations:

- define VSS classes appropriate to our tree species and growing conditions
- define desired percentages of each VSS based on local stand longevity
- define some guidelines for patch size and arrangement at the territory and landscape level

This document will describe how we approached each of these three steps. It will not repeat information presented in the original R3 publication; familiarity with that work is presumed (and is necessary to understand our adaptation). We will present some specific numbers that were developed for local use, but we do not mean to suggest that any of these numbers are applicable outside of the Uinta Mountains of northern Utah, any more than the R3 numbers are applicable to Utah or Idaho. They are only presented as examples of our thought process. To develop a similar model for mapping and managing forest habitat in another geographic location, the three steps described here should be repeated with local data, and with consideration of local resource issues, objectives and species of interest.

This is an ongoing process. A number of universities and National Forests are working on habitat models, prey habitat descriptions, studies of environmental factors limiting goshawk production, and so on.

Results of these studies (and of studies involving other forest species, such as pine marten) will need to be incorporated as they

become available. The basic approach used in Steps 1 and 2 probably won't change, but the guidelines in Step 3 will certainly grow and be modified over time.

STEP 1: Defining VSS appropriately

VSS (vegetative structural stage) is a generalized description of the structural stages a stand passes through as it ages. Classification into one VSS or another is based on the diameter class containing the greatest basal area (Reynolds et al. 1992). The R3 recommendations divided stands into six stages, ranging from grass/forb to old forest. We sought to do the same for lodgepole forests (defined as those in which lodgepole and its precursor, aspen, contributed 80% or more of the total basal area), and for forests where lodgepole was codominant for long periods of time with Engelmann spruce and subalpine fir (referred to as mixed conifer forests in this document; in these cases lodgepole exists as a majority or plurality of the basal area stocking). These definitions are based on forest cover type descriptions developed by the Society of American Foresters for lodgepole (Type 218).

First, we considered what diameter represented a mature to old lodgepole pine, under good growing conditions. Using Alexander et al.'s (1983) estimate of a 200-300 year pathological age for lodgepole*, we simulated growth via a computer model (FVS) and examined local stand data to establish the upper limits of lodgepole diameter classes on the Ashley. We then worked backwards from this "typical maximum" to describe six relatively equal size classes that spanned the development of lodgepole and mixed conifer stands from seedlings to old forest.

The result was two draft scenarios; one in which old forest began at 12" dbh, and one in which it began at 16" dbh. We used both scenarios to classify existing stands, and to classify computer simulated stands. The purpose of this exercise was to see which scenario was most realistic; specifically, to see how difficult it was to achieve old forest status (VSS 6) under each. Based on the results of this classification exercise, we subjectively determined that the 12" scenario best described the structural stages of lodgepole stands, but that mixed conifer structural stages were better represented by the 16" scenario (in part because of the contribution of spruce, which generally achieves larger diameters than lodgepole on this Forest). Definitions for each VSS under these two scenarios are as follows:

VSS	Description	Lodgepole definition	Mixed conifer definition
1	grass/forb	0" - l" dbh	0" - l" dbh
2	seedling/sapling	l" - 3" dbh	l" - 4" dbh
3	young forest	3" - 6" dbh	4" - 8" dbh
4	mid-aged forest	6" - 9" dbh	8" - 12" dbh
5	mature forest	9" - 12" dbh	12" - 16" dbh
6	old forest	12" + dbh	16" + dbh

The diameters listed for old forests are NOT the largest trees we can expect to grow. They are simply starting points which will result in most chronologically old stands rating out as VSS 6. Remember that VSS is determined by the diameter class with the greatest basal area; there will have to be quite a few trees greater than 12" or 16" for this condition to be true. In practice, we will want to manage for the full range of tree diameters

---

The 200-300 year rotation length was used solely to describe the diameters lodgepole was capable of achieving, given enough time. It is NOT a practical management rotation length on every lodgepole site. This was very apparent when we applied this model to a landscape with which we were familiar (and which had a history of pine

beetle outbreaks and fire). Some sites on this landscape could not be expected to persist more than 120-150 years. We used fire groups as defined in Bradley et al. 1992 to develop practical management rotation lengths. See Step 2 for more information on using fire ecology to define desired vegetative conditions.

possible on a given site. This is important for both goshawk prey and overall diversity, since many wildlife species depend on larger trees for nesting or denning.

Old growth criteria are described for most intermountain forest types by Hamilton (1993). Engelmann spruce/subalpine fir and lodgepole pine are both discussed in detail; mixed conifer criteria can be inferred by averaging or selecting the most appropriate criteria from spruce and lodgepole, based on local conditions and management objectives. We did not require a stand to meet all these criteria before being classed as VSS 6. Instead, we incorporated them as an alternative to the basal area method. For example, if a stand rated out as VSS 5 on basal area, but met all the old growth criteria in Hamilton (1993), we "upgraded" it to VSS 6. Stands could also rate out as VSS 6 on basal area alone, even if some of the attributes listed in Hamilton (1993) were missing.

The only other rule we applied to individual stand classifications was a minimum basal area requirement. In order for a stand to be classified higher than VSS 1, there had to be at least 20 sq ft of basal area present (based on RMSTAND rules for calculating VSS; see page 60-75 of the RMSTAND User's Guide). This avoids classifying a clearcut with a few residual trees as a mature forest. The habitat values of thinned or partially cut stands, with basal areas greater than 20 but less than 100, is an issue that should be considered on a case-by-cas basis. Low basal areas will decrease habitat suitability for some forest species, including goshawks.

STEP 2: Defining desired VSS mixes

Each of the structural stages described above has different habitat values for forest wildlife. Providing a mix of all stages results in a greater variety of prey for predators like the goshawk, and greater species richness and diversity at the landscape level. More importantly for forest-dependent wildlife, it is necessary to have all these stages present in order to provide a steady supply of mature forest habitat over time (especially when the unmanaged forest would follow a more "boom and bust" pattern of habitat availability). Conversations with the authors of the R3 recommendations indicate that they were really making a set of recommendations for maintaining forest pattern, structure and processes, with emphasis on providing as much mid-aged to old forest as possible.

The R3 recommendations used a simple sustained yield model to prescribe the percentages of each VSS to manage for within goshawk home ranges. Basically, stand development was modelled over a specified rotation interval and the number of years it spent in each VSS was calculated. The proportion of the rotation spent in each VSS can be expressed as a percentage; e.g., VSS 3 = 20% if a stand spends 20 years of a 100 year rotation in VSS 3. Each VSS will account for a different percentage of the total rotation, due to differences in growth rates as the stand ages. This percentage corresponds to the proportion of the goshawk home range (or post-fledgling area, or management landscape) that should be in each VSS at any given time, in order to provide continual replacement of mature and old stands affected by insects, fire, harvest, etc.

This model was based on typical seedling establishment and growth rates at the stand level, and on a stand rotation interval inferred from average longevity of the dominant tree species. Since all of these things vary with management, the R3 recommendations provided VSS mixes for three different scenarios: minimal management (slowest development into large diameter classes), moderate management, and intensive management (fastest development into large diameter classes).

We repeated this process for lodgepole and mixed conifer stands on the Ashley, using the computer program FVS (Forest Vegetation Simulator) to predict stand structures. In all cases, we assumed a moderate level of management (one precommercial thinning to 360 tpa when the trees were approximately 15 years old), average seedling densities (1500 tpa, based on data from 10% of the existing

clearcuts), 0% slope, and a five year interval between harvest and establishment of new seedlings. Using these input variables, we modelled stand

growth under several scenarios[2]:

- 100% lodgepole pine at 8500' elevation
- 80% lodgepole, 15% Engelmann spruce, 5% subalpine fir at 9000' and 9500' elevation
- 60% lodgepole, 25% Engelmann spruce, 15% subalpine fir at 9500' and 10,000' elevation
- 50% lodgepole, 50% Engelmann spruce at 10,000' elevation

Increasing elevation without changing the tree species mix did not affect stand growth, so the duplicate runs of 80% lodgepole and 60% lodgepole were combined. However, changing the species mix did affect growth rates and stand structures, so we treated each mix as a separate forest type. Although the four mixes shown here were selected because they represented the range of conditions present in the Trout Slope Assessment area, they should apply equally well to lodgepole and mixed conifer forests throughout the eastern Uinta Mountains.

FVS "grew" a stand under each scenario for 360 years, which is a longer rotation than we expect to see on most sites. We therefore had to cut off the model output for each scenario at a realistic rotation length. To help us make that decision, we compared each scenario to the fire groups described in Bradley et al. (1992). Pure lodgepole stands at 8500' elevation, for example, correspond to the habitat types listed as typical of Fire Group 8. Fire return intervals in this group are 50-200 years, so we chose a rotation length roughly mid-way through that range (120 years). At the other extreme, mixed conifer stands at 10,000' fit best in Fire Group 11, which has a fire return interval of 300 years or more (they rarely experience stand-replacing fire). We chose a management rotation length of 300 years for such stands. Rotation lengths for the other scenarios were derived in the same manner. Desired percentages of each VSS were then calculated as described above.

So far, all the calculations had been done at the stand level. To apply the desired VSS mix to a landscape, we needed to map out broad areas with relatively homogeneous forest types, then select the calculations most representative of that forest type. In the Trout Slope Landscape Assessment, we used landtype associations and fire groups to classify 68,000 acres on which lodgepole was common into the four forest categories we had modelled. We then developed separate desired condition descriptions, including rotation lengths and VSS mixes, for each category. This approach gave us realistic, defensible management objectives than were based on specific characteristics of the forest in each category. The results were as follows:

Forest type:	100% lodgepole at 8500'	80% lodgepole, 15% spruce, 5% fir at 9000-9500'	60-80% lodgepole, 15-25% spruce, 5-15% fir at 9500-10,000'	50% lodgepole, 50% spruce at 10,000'
Landtype Assoc.	Parks Plateau	Trout Slope	Trout Slope	Alpine Moraine
Fire Group	8	8	10	11
Rotation length	120 years	150 years	200 years	300 years
VSS 1/2	42%	27%	20%	10%
VSS 3	17%	13%	12%	17%
VSS 4a	33%	13%	16%	20%
VSS 4b		27%	12%	
VSS 5	8%	13%	18%	30%
VSS 6	0%	7%	22%	23%

Notes: The VSS mix shown for Fire Group 10 is a weighted average of the mixes for 60% and 80% lodgepole scenarios, where the weighting factor was acres of existing forest with greater or less than 80% lodgepole. This was done because of the variability in percent lodgepole across Fire Group 10 in the assessment area. See text for explanation

of VSS 1/2,4a and 4b.

[2]The commands used to run each scenario in FVS are on file at the Vernal Ranger District.

We have no practical way of detecting VSS 2 stands with our current timber database. We typically do regeneration exams following harvest, then collect no further data until the stand is ready for thinning (usually VSS 3) or even later. We could probably predict VSS 2 stands based on years since harvest, but rather than introduce another step into this process (and another source of error) we decided to lump VSS 1 and 2 instead. It may make the VSS method of describing forest conditions more useful (e.g., for watershed models and big game cover maps) if we can find a way to split these two classes out in the future.

When we modelled stand growth for the 80% lodgepole scenario, we did not see a linear progression through the six VSS classes. Instead, these stands tended to progress to VSS 5, then cycle back into VSS 4 for several years, then grow back into 5 and finally 6. This appeared to be due to uneven growth rates toward the end of the rotation. Some trees grew into VSS 5 quickly, while other, slower-growing trees were left behind in VSS 4. Eventually the faster growing trees would be split between VSS 5 and 6, resulting in lower basal areas in each of these classes than was left in VSS 4 and causing the overall stand classification to drop back one stage. Eventually, the VSS 4 trees would catch up and the overall stand VSS would increase again.

The two stages of VSS 4 seen in this model (4a, with no trees present in the older VSS classes; and 4b, with some trees present in both VSS 5 and 6) seemed likely to have different habitat values for wildlife. We used goshawks to test this assumption, by collecting stand data at 45 goshawk nests and calculating the VSS for each nest stand. We found that 27 of 45 nests (60%) occurred in VSS 4b stands, while none were found in 4a stands Based on this, we chose to treat 4a and 4b as a separate VSS. Where the model does not predict a VSS 4b, we still look for and classify such stands separately. Existing acreage in VSS 4b can be counted as (or managed to become) either VSS 4 or VSS 5 in these cases, depending on which class is currently deficit on the landscape.

Together, Steps 1 and 2 give us an effective tool for describing existing and desired forest conditions at the landscape level. In the Trout Slope Landscape Assessment, for example, we had stand exam data for 40-50% c the assessment area. We used this data to classify as many stands as possible according to Step 1. We then extrapolated from VSS mix in this 40-50% sample to a VSS mix for the whole assessment area. Acres in each VSS were summed by fire group and landtype association, as shown in the above table, and compared to the desired mix as defined by our sustained yield model. Differences between existing and desired percentages of each VSS were translated into management opportunities, and will be used to guide timber stand improvement and timber harvest projects. The sustained yield VSS mix also provides us with a tool for estimating timber volumes we will be able to offer in future years, which gives both the Forest Service and the local timber industry a chance to do some long-range planning.

This VSS approach is also proving helpful as a guide for timber salvage. We currently have a great deal of beetle killed lodgepole in the eastern Uintas, and are pursuing an active salvage program. Using existing stand exam data, we can classify individual stands into a VSS on the basis of total standing volume (the stand structure available to wildlife right now) and on the basis of the live volume only (the stand structure that we will be left with in 10-20 years, when the dead trees have fallen and/or been removed). When the stand VSS data is plotted over a large area, we can visually compare the current VSS mix to the future (live tree) mix. This lets us see where our next habitat shortages will be, both in terms of total available habitat and spatially (via GIS), and begin working now to compensate for them.

It is worth repeating that the above process for determining what percentages of each VSS are desirable on a landscape is based entirely on long-term sustainability, not on any predetermined objectives for old growth or harvest opportunities. The user chooses the rotation length, and the computer decides how much of each VSS can be provided. If more mature forest is desired, the rotation length can be increased and the model rerun; but only up to the maximum rotation practical for the forest system being managed, given the dominant tree specie and the disturbance ecology typical of the area. That's why there is little or no old growth forest in the mix for Fire Group 8. The return interval for insects and fire is so short that stands are unlikely to persist long enough

to reach the upper diameter classes. If we were to make old growth a management objective in such a landscape, we'd be facing an uphill battle. We are better off managing for old growth habitats and species somewhere else (such as Fire Groups 10 and 11).

It's also worth repeating that applying a sustained yield model to a lodgepole pine dominated system is not a particularly "natural" approach. It's a compromise with the normal boom and bust ecology of lodgepole pine, designed to provide a somewhat more stable and predictable flow of goods, services, recreation opportunities and wildlife habitat than we would otherwise get from this forest system.

We currently have someone working on a computer program that can search RMSTAND for data on all stands in a specified geographic area, calculate VSS for each stand with data, and display the results as a VSS map using Arc View. The program runs from the Forest Service's new IBM computer system, with an electronic link to the old timber database on the Data General system. If we are successful in getting this program set up, it will be easy to apply this VSS process to any landscape of interest, from a 6000 acre goshawk home range to a subwatershed to management areas covering several watersheds.

STEP 3; Developing Implementation Guidelines

Once we know how much of each VSS we want, there are still many decisions to be made about the configuration of VSS patches on the landscape - e.g., what size each patch should be, and how they should
be arranged.

Patch size has many implications for wildlife. Species-specific guidelines for opening and forest cover patch size exist for big game, flammulated owl, goshawk, pine marten and many more species of interest. At the ecosystem level, the positive relationship between overall species diversity and patch size is a basic tenet of ecology. Habitat fragmentation is therefore one of the main issues forest managers are struggling with right now. We've found the discussions and examples of how species/area relationships apply to forest management in Harris 1984, Hunter 1990, Morrison et al. 1992 and Primack 1993 useful; there are many other texts and articles on the subject available as well. Opening size also has implications for watershed integrity, fire management, and forest pest management.

Patch arrangement can also be a complicated issue. Factors such as viewsheds from campgrounds or popular roads, fire risk to high value sites such as summer homes or historic structures, cover values along big game migration corridors or in calving/fawning areas, sensitive plant habitats, thick timber that is used to help control livestock movements, or active goshawk territories all influence decisions about where to maintain late succession forest and where to place new openings. There will also differences in site potential that must be recognized - some sites regenerate well, others poorly; some sites can grow big trees, and others will never be very productive; some sites can grow stands with good nest stand attributes, but will probably never be used by a goshawk because they are on steep slopes.

This is the step where all these site-specific details need to be considered. Usually this will occur at the project level, in an integrated resource team environment (although some mid-scale planning projects have the potential to set site-specific objectives). Since implementation depends so much on local resource issues, capabilities, and management objectives, a discussion of this phase of the process must necessarily be general. Instead of prescribing specific guidelines, we offer the following examples of things to consider when working through the implementation process:

- Try to match patch size and fire ecology - create larger openings where fires tend to be large (e.g., lodgepole dominated forests) and smaller openings where fire is rarely stand replacing (e.g. moist subalpine forests where lodgepole is a plurality with spruce and fir).

- Consider the regeneration needs of the tree species you'd like or expect to get back following harvest. Lodgepole may need large openings; spruce/fir may do better in very small (0.5 or 1 acre) openings.

- Identify wildlife species to be featured in the landscape being analyzed and design patches around their needs. Since we can't maximize habitat for all species at the same time, make this a conscious choice and make it early in the process. The same is true for other resource areas - identify the issues and set the objectives early. Use the inherent capabilities of the landscape to help with the objectives - find out what the landscape is best at producing, and feature that if at all possible.

- List the sensitive or limiting factors (such as equivalent clearcut acre ceilings, soils that are sensitive to tractor logging, cultural resource sites, popular dispersed recreation sites, etc.) before developing project proposals to avoid conflicts later in the process.

- Plan for connectivity between patches of similar habitat. If there will be two large patches of mature to old forest in the landscape for pine marten, make sure there is a way for marten to get from one to the other.

- Identify features that are rare or unique in the landscape, arid if they are important to achieving your management objectives, maintain or enhance them. This won't always be an unusual habitat type. In an intensively managed forest, a block of mature forest over a certain size may be a rare and valuable feature. Mature forest may also be valuable if it is associated with a big game migration route or active goshawk nest. If your landscape is a goshawk territory, current and replacement nest stands may need to be mapped first and patches of other VSSs filled in around them.

- Look for opportunities to manage insect and disease risk. We are accustomed to assessing and managing such risk at the stand level. However, any desired VSS mix that has a significant percentage of mature to old forest will involve managing for high risk stands. Is there a way to buffer these stands from one another, to reduce the extent or intensity of outbreaks to acceptable levels?

- Manage edge effects. Avoid creating forest patches that are all or mostly all edge (e.g., leave strips that are less than 6 tree lengths wide), since they will contribute to your desired percentage of mature forest without actually providing any forest habitat. Edge effects can also be reduced by avoiding high contrast edges, such as. clearcuts next to old growth stands.

This is obviously not a complete list; nor will all these things apply to every landscape. It's just meant to generate some ideas that might be helpful in other analyses. This will necessarily be a flexible, adaptive process. In fact, the ease with which it can be modified to apply to different locations and management objectives may be its best feature. The Ashley National Forest is currently trying all or parts of this process on two other mid-scale projects besides the Trout Slope Assessment mentioned here. We are still learning how to make it work, but so far it seems to be a helpful and practical tool. Any comments or suggestions on what we're doing, or insight from others who may be trying similar approaches, will be appreciated.

Authors

Initial adaptation of the R3 process: Dave Wilson (silviculturalist), Sarah Dewey (wildlife technician) and Kathy Paulin (wildlife biologist), Vernal Ranger District, Ashley National Forest, Vernal, Utah.

Using VSS to develop desired condition statements and identify management opportunities: the Trout Slope Landscape Assessment Team, Vernal Ranger District, Ashley National Forest.

Contact person for both:\ Kathy Paulin (801-781-5160, R04F01A)

Literature Cited

Alexander, R. R.; Lotan, J. E.; Larson, M. J. and L. A. Volland. 1983. Lodgepole pine. Pp. 63-66 in R. M. Burns, tech. comp. Silvicultural systems for the major forest types of the United States. Agricultural Handbook 445. Washington, D.C.: U.S. Dept. of Agriculture, Forest Service.

Bradley, A. F.; Noste, W. C. and W. C. Fischer. 1992. Fire ecology of forests and woodlands in Utah. Gen. Tech. Rep. INT-287. Ogden, UT: U.S. Dept. of Agriculture, Forest Service, Intermountain Research Station. 128 p.

Hamilton, R. C. 1993. Characteristics of old-growth forests in the Intermountain Region. Ogden, UT: U.S. Dept. of Agriculture, Forest Service, Intermountain Region. 86 p.

Harris, L. D. 1984. The fragmented forest: island biogeography theory and the preservation of biotic diversity. University of Chicago Press, Chicago, IL. 211 p.

Hunter, M. L. 1990. Wildlife, forests and forestry: principles of managing forests for biological diversity. Prentice-Hall, Inc., Englewood Cliffs, NJ. 370 p.

Kennedy, P. L. and S. R. Dewey, in prep. Productivity analysis of Ashley National Forest goshawk territories.

Morrison, M. L.; Marcot, B. G. and R. W. Mannan. 1992. Wildlife-habitat relationships: concepts and applications. University of Wisconsin Press, Madison, WI. 343 p.

Primack, R. B. 1993. Essentials of conservation biology. Sinauer Associates, Inc., Sunderland, MA. 564 p.

Reynolds, R. T.; Graham, R. T.; Reiser, M. H. and others. 1992. Management recommendations for the northern goshawk in the southwestern United States. Gen. Tech. Rep. RM-217. Ft. Collins, CO: U.S. Dept. of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 90 p.

To: Forest Leadership Team

Subject: Goshawk S&G's From:

Mark Orme Date: July 10, 1996

The Ashley N. F. recently documented an approach for adapting the Region 3 goshawk management recommendations/guidelines to their local situation (Draft Paper dated March 1, 1996). Their approach was recommended to me (by Jerry Reese and the R. O. Wildlife Staff) as a way to fine tune our Forest-wide goshawk S&G's. I have been working on this, and the following presentation briefly describes the steps and the results.

STEPS

There are three steps:

1. Define vegetation structural stage (VSS) classes appropriate to the local trees species and growing conditions.

2. Define desired percentages of each VSS class based on local stand longevity.

3. Define some guidelines for patch size and arrangement at the territory and landscape level.

STEP 1

VSS is a generalized description of the structural stages a stand passes through as it ages. Classification into one VSS or another is based on the diameter class containing the greatest basal area (Reynolds et al. 1992). Using the vegetation database for the Targhee National Forest, the following VSS classes can be identified:

VSS Class	Corresponding Size-Class	Lodgepole Definition	Douglas-fir Definition
1	5 - grass/forb/ nonstocked	seedlings < 6" height	seedlings < 6" height
2	6 - seedling	6" height to .99" dbh	6" height to .99" dbh
3	7 - sapling	1" to 2.9" dbh	1" to 2.9" dbh
4	8 - poles	3" to 7" dbh	3" to 8" dbh
5&6	9 - mature & older	> 7" dbh	> 8" dbh

VSS classes 5 and 6 are combined because at the present time our vegetation

database does not provide us with the ability to separate them. This does not mean we are going to liquidate all of the older forests and only manage for VSS 5.

STEP 2

The R3 guidelines (and Ashley N.F.) used a simple sustained yield model to prescribe the percentages of each VSS to manage for within goshawk home ranges. Basically, stand development was modelled over s specified rotation interval and the number of years it spent in each VSS was calculated. The proportion of the rotation spent in each VSS can be expressed as a percentage; e.g., VSS 3 = 20% if a stand spends 20 years of a 100 year rotation in VSS 3. Each VSS will account for a different percentage of the total rotation, due to differences in growth rates as the stand ages. This percentage corresponds to the proportion of the goshawk home range (or post-fledging family area, or management landscape) that should be in each VSS at any given time, in order to provide continual replacement of mature and old stands.

Lynn Ballard provided information on typical seedling establishment and growth rates for lodgepole pine and Douglas-fir as follows:

VSS Class	Lodgepole Pine	Doualas-fir
1	5 years	5 years
2	10 years	18 years
3	8 years	6 years
4	42 years	66 years
5&6	65+ years	95+ years

The proportion of the rotation spent in each VSS depends on the rotation age. For lodgepole pine, we used rotation ages ranging from 80 to 120 years, which corresponds to the time and age when lodgepole pine becomes susceptible to mountain beetle attacks and fire on the Targhee. For Douglas-fir, we used ages ranging from 160 years to 230 years, which spans the time of culmination of mean annual increment. The following tables display the results:

LODGEPOLE PINE

VSS Class	80 Years	100 Years	120 Years
1	6%	5%	4%
2	13%	10%	8%
3	10%	8%	7%
4	53%	42%	35%
5&6	19%	35%	46%

DOUGLAS-FIR

VSS Class	160 Years	180 Years	190 Years	230 Years	320 Years
1	3%	3%	3%	2%	2%
2	11%	10%	9%	8%	6%
3	4%	3%	3%	3%	2%
4	41%	37%	35%	29%	21%
5&6	41%	47%	50%	59%	70%

The most important variable in step 2 is the choice of rotation length. If more mature forest is desired, the rotation length can be increased, but only up to the maximum rotation practical for the forest system being managed, given the dominant tree species and the disturbance ecology typical of the area.

STEP 3

The Ashley N. F. did not recommend a patch size. They said this decision would need to occur at the project level, and would involve many resource considerations. The Ashley provided the following list of things to consider at the project level:

> Try to match patch size and fire ecology - create larger openings where fires tend to be large (e.g., lodgepole dominated forests) and smaller openings where fire is rarely stand replacing.
>
> Consider the regeneration needs of the tree species you'd like or expect to get back following harvest.
>
> Identify wildlife species to be featured in the landscape being analyzed and design patches around their needs. Since we can't maximize habitat for all species at the same time, make this a conscious choice and make it early in the process. The same is true for other resource areas - identify the issues and set the objectives early. Use the inherent capabilities of the landscape to help with the objectives - find out what the landscape is best at producing and feature that if at all possible.
>
> List the sensitive or limiting factors before developing project proposals to avoid conflicts later in the process.
>
> Plan for connectivity between patches of similar habitat.
>
> Identify features that are rare or unique in the landscape, and if they are important to achieving your management objectives, maintain or enhance them. In a goshawk territory, current and replacement nest stands may need to be mapped first and patches of other VSS's filled in around them.
>
> Look for opportunities to manage insect and disease risk.
>
> Manage edge effects. Avoid creating forest patches that are all or

mostly all edge (e.g., leave strips) since they will contribute to your desired percentage of mature forest without actually providing any forest habitat.

HOW DOES THIS COMPARE WITH OUR DRAFT GOSHAWK S&G'S

In the Draft Forest Plan, we currently have the following VSS (in the goshawk table we use the term 'size-class') distribution percentages for the post-fledging family area and the foraging area:

VSS 1&2	nonstocked/seedling	≤ 20%
VSS 3	sapling	< 20%
VSS 4	pole	< 20%
VSS 5&6	mature/old growth	≥ 40%

Based on this analysis, we should consider having two goshawk tables, one for goshawk territories dominated by lodgepole pine forests, and one for goshawk territories dominated by Douglas-fir forests. The size class distribution percentages for these two tables would be the following:

Lodgepole Pine Dominated

VSS 1&2	nonstocked/seedling	12-19%
VSS 3	sapling	7-10%
VSS 4	pole	35-53%
VSS 5&6	mature/old growth	19-46%

Douglas-fir Dominated

VSS 1&2	nonstocked/seedling	10-14%
VSS 3	sapling	3-4%
VSS 4	pole	29-41%
VSS 5&6	mature/old growth	41-59%

In the Draft Forest Plan we currently have a guideline for maximum created opening size of < 40 acres. Based on this analysis, the maximum created opening size would be variable depending on site specific conditions and needs.

HOW DOES THIS COMPARE WITH HABITATS USED BY GOSHAWKS ON THE TARGHEE

We did a GIS analysis for 28 goshawk territories which have been documented as being active and successfully producing young at some time (refer to the large attached table). In this analysis, we looked at a 200 acre area around nest sites, the 600 acre post-fledging family area, and the 6,000 acre foraging area.

For the 200 acre nest area:

the percent of the area that was forested ranged from 51 to 100 percent (average was 93%); percent of area nonforested ranged from 0 to 49 percent (average was 7%).

The percent of area in VSS 5&6 ranged from 24 to 100 percent (average was 84 percent); percent of area in VSS 1&2 ranged from 0 to 74 percent (average was 10%).

For the 600 acre post=fledging family area:

the percent of the area that was forested ranged from 53 to 100 percent (average was 92%); percent of area nonforested ranged from 0 to 47 percent (average was 8%).

The percent of area in VSS 5&6 ranged from 28 to 100 percent (average was 83 percent); percent of area in VSS 1&2 ranged from 0 to 59 percent (average was 11%).

For the 6,000 acre foraging area:

the percent of the area that was forested ranged from 49 to 100 percent (average was 83%); percent of area nonforested ranged from 0 to 51 percent (average was 17%).

The percent of area in VSS 5&6 ranged from 34 to 100 percent (average was 84 percent); percent of area in VSS 1&2 ranged from 0 to 47 percent (average was 11%).

RECOMMENDATIONS

Based on the support R3 guidelines have received, and the support being given to the Ashley N. F., I would recommend the following changes to the goshawk S&G's in the Forest Plan:

Make two goshawk tables, one for lodgepole pine dominated territories and one for Douglas-fir dominated territories.

Use these VSS (size-class) percentages for the post-fledging family area and the foraging area:

Lodgepole Pine Dominated

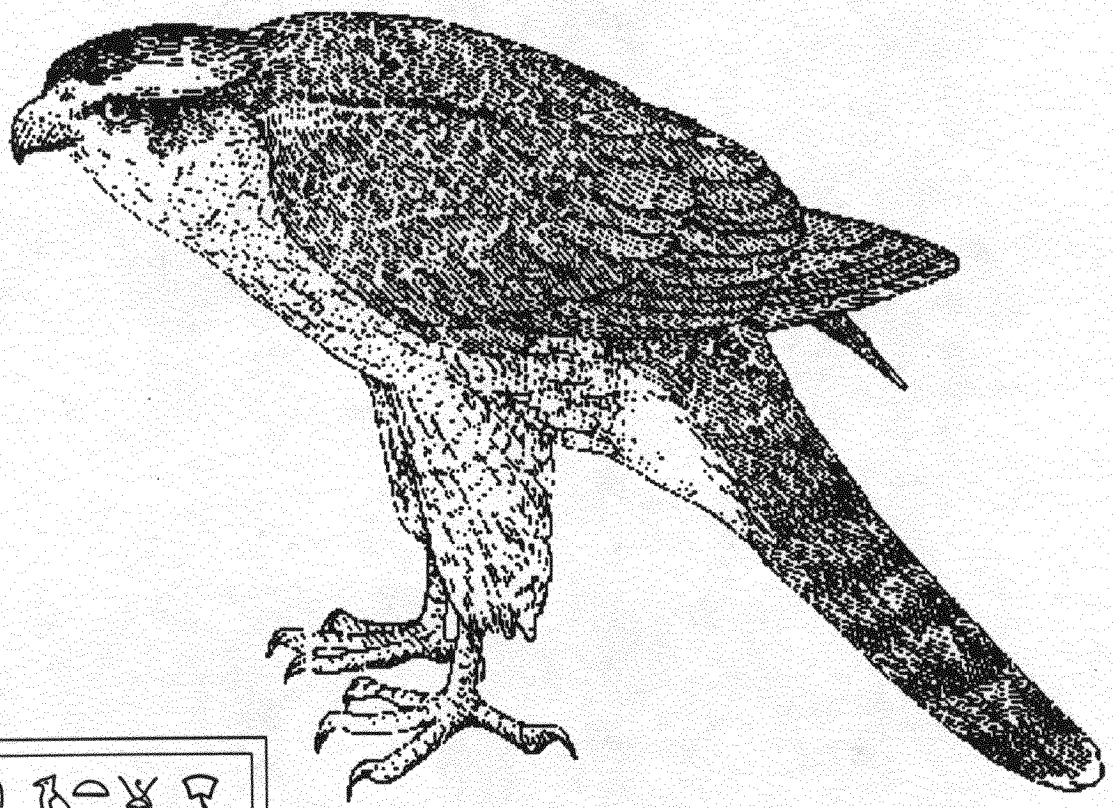
VSS 1&2	nonstocked/seedling	12-19%
VSS 3	sapling	7-10%
VSS 4	pole	35-53%
VSS 5&6	mature/old growth	19-46%

Douglas-fir Dominated

vss 1&2	nonstocked/seedling	10-14%
vss 3	sapling	3-4%
vss 4	pole	29-41%
vss 5&6	mature/old growth	41-59%

Change the maximum created opening guideline in the tables to say that it would be variable based on site specific conditions and needs.

NORTHERN GOSHAWK AND FOREST MANAGEMENT IN THE SOUTHWESTERN UNITED STATES



THE WILDLIFE SOCIETY
Technical Review 96-2
March 1996

NORTHERN GOSHAWK AND FOREST MANAGEMENT IN THE SOUTHWESTERN UNITED STATES

The Wildlife Society
and
American Ornithologists' Union
Technical Review Team on Northern Goshawks

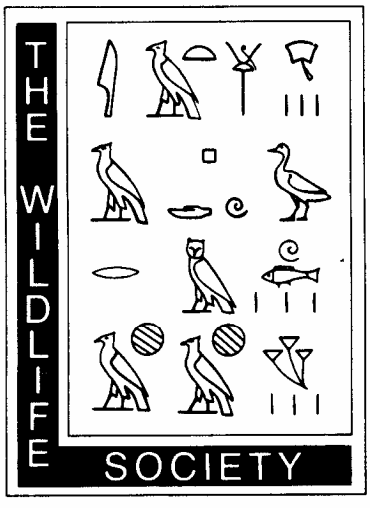
Clait E. Braun, Chair
Wildlife Research Center
317 W. Prospect Road
Fort Collins, Colorado 80526

James H. Enderson
Department of Biology
Colorado College
Colorado Springs, Colorado 80903

Yan B. Linhart
Department E.P.O. Biology
University of Colorado
Boulder, Colorado 80309

Carl D. Marti
Department of Zoology
Weber State University
Ogden, Utah 84408

Mark R. Fuller
Raptor Research and Technical Assistance Center
U.S.D.I., NBS
3948 Development Avenue
Boise, Idaho 83705



Edited by **David E. Capen**

The Wildlife Society
5410 Grosvenor Lane
Bethesda, MD 20814

Technical Review 96-2
March 1996

Foreword

Presidents of The Wildlife Society occasionally appoint ad hoc committees to study and report on selected conservation issues. The reports ordinarily appear as either a Technical Review or a Position Statement. Review papers present technical information and the views of the appointed committee members, but not necessarily the views of their employers. Position statements are based on the review papers, and the preliminary versions are published in **The Wildlifer** for comment by Society members. Following the comment period, revision, and Council's approval, the statements are published as official positions of The Wildlife Society.

Both types of reports are copyrighted by the Society, but individuals are granted permission to make single copies for noncommercial purposes. Otherwise, copies may be requested from:

The Wildlife Society
5410 Grosvenor Lane
Bethesda, MD 20814
(301) 897-9770
Fax: (301) 530-2471

This report may be cited as: Braun, C.E., J.H. Enderson, M.R. Fuller, Y.B. Linhart, and C.D. Marti. 1996. Northern Goshawk and Forest Management in the Southwestern United States. Wildl. Soc. Tech. Rev. 96-2. 19pp.

Acknowledgments

This report is a product of discussions and correspondence with many individuals. We especially thank employees of the U.S. Forest Service and the Arizona Game and Fish Department for candid comments and suggestions. Personnel of the Albuquerque Regional Office of the U.S. Forest Service were helpful in providing access to reports. R. T. Reynolds of the Rocky Mountain Forest and Range Experiment Station, U.S. Forest Service, Fort Collins helpfully reviewed the intent of the Goshawk Scientific Committee, and T. J. Tibbits of the U.S. National Park Service, Organ Pipe Cactus National Monument greatly enhanced our perspectives on issues. The U.S. Forest Service and Arizona Game and Fish Department provided assistance in the field. We extend special thanks to members of the Arizona Chapter, The Wildlife Society, particularly C. E. Pregler and H. G. Shaw for their support, general knowledge, and counsel. Finally, we thank our employing agencies and institutions for their support of this activity. The draft report was reviewed by J. C. Bednarz, P. Beier, D. E. Blockstein, C. E. Bock. L. H. Carpenter, D. C. Crocker-Bedford, T. M. Franklin, T. Hull, D. B. Marshall, D. H. Rusch, H. Salwasser, M. A. Snyder, P. J. Zwank, members of the Arizona Chapter of The Wildlife Society, Arizona Game and Fish Department, New Mexico Chapter of The Wildlife Society, New Mexico Department of Game and Fish, U. S. Fish and Wildlife Service (Regional Office, Albuquerque), and the U. S. Forest Service (Regional Office, Albuquerque) including D. A. Boyce, Jr., P. L. Kennedy, M. H. Reiser, and R. T. Reynolds of the Northern Goshawk Scientific Committee. Graphics are courtesy of U.S. Forest Service, Southwest Region.

Table of Contents

Foreword ..... *i*
Acknowledgments ..... *i*
Table of Contents ..... *ii*
SYNOPSIS ..... *iii*
INTRODUCTION 1
METHODS 1
NORTHERN GOSHAWK 1

- Distribution 1
- Habitats 2
- Status 2
- Foraging Strategy and Diet 2
- Population Dynamics 2
- Reproduction 2
- Survivorship 3
- Population Modeling and Viability Analysis 3
- Population Performance and Stability 3
- Synthesis of Available Information About Northern Goshawks 3

FORESTS OF THE SOUTHWEST 4

- Ponderosa Pine Forest 5
  - Importance of Ponderosa Pine 5
  - Early Impressions of Ponderosa Pine Forests 5
  - Scientific Evidence About Forest Conditions 5
  - Pre-settlement Ponderosa Pine Forests 6
  - Post-settlement Changes 6
  - Health of Ponderosa Pine and Its Importance to Forest Residents 7
  - Synthesis of Available Information About Ponderosa Pine Forests 7

OTHER ISSUES 8

- Single Species Management vs. Ecosystem Management 8
- Disturbance 9
- Esthetics 9

MONITORING OF GOSHAWKS AND FOREST MANAGEMENT 9
CONCLUSIONS 10
LITERATURE CITED 12
APPENDIX 17

- Description of Southwestern Forests 17
  - Subalpine Conifer Forest 17
  - Mixed-conifer Forest 17
  - Pinyon-Juniper Woodland 17
- Views of Early Foresters 17
- Impressions of Pre-settlement Ponderosa Pine Forests 19

SYNOPSIS

The Northern Goshawk/Southwestern Forest Management Review Team analyzed the scientific basis of the interim management guidelines resulting from the *Management Recommendations for the Northern Goshawk in the Southwestern United States* developed by the Northern Goshawk Scientific Committee of the U.S. Forest Service. The Review Team evaluated regional Forest Service policy implementing the interim guidelines and field application of those guidelines.

Two related issues emerged: management to create northern goshawk (Accipiter gentilis) habitats and to benefit goshawk populations, and management of southwestern forests, especially ponderosa pine (Pinus ponderosa) forests. These aspects were inextricably linked. Finally, public misconceptions about pre-settlement condition of ponderosa pine forests and the desire by some individuals and groups for different forest conditions confounded these issues.

The scientific basis for the *Management Recommendations*, and the recommendations themselves are sound. Implementation of the *Management Recommendations* should benefit the northern goshawk and many other animal and plant species. Implementation will change the structure of the forest and the relative abundance of many plant and animal species.

Pre-settlement ponderosa pine forests were mostly open and park-like with sparse canopies. Because of fire prevention, overgrazing, timber management, and other cultural activities, the character of southwestern ponderosa pine forests has been modified. Implementation of the interim guidelines for northern goshawks may reverse the trend to younger age classes of ponderosa pine, but recommended densities of large old trees are sometimes less than one-half that documented in certain pre-settlement periods.

The U.S. Forest Service has interim policy that implements the *Management Recommendations*. Implementation is recent and objective evaluation of effects has not been conducted. Further, no evaluation is recommended in the guidelines or implementation policy. Our brief visits to the field and discussions with forest managers revealed no consensus upon how to apply interim guidelines. Some local managers are making changes in their practices based on experience. Some managers are thought to emphasize minimal, not maximal, retention of old large ponderosa pines. Use of the interim guidelines appears varied because of different interpretations. Most training for implementation has been in northern Arizona, and much implementation has been on the North Kaibab plateau, where the forest differs from most national forests in the Southwest. The heterogeneity of stand conditions and growth rates in the Southwest are diverse, therefore blanket application of methods tested on the North Kaibab is inappropriate. Implementations on the North Kaibab should be evaluated to understand why certain practices were implemented, and if the desired effects were achieved.

Review of northern goshawk biology and habitat use by the Northern Goshawk Scientific Committee was excellent. No evidence was presented to indicate that northern goshawk populations are declining, threatened or endangered in the Southwest or anywhere within its range, and we found no evidence of a long-term decline in goshawk breeding populations. However, the U.S. Forest Service has taken a proactive position to reduce the loss of mature and old tree habitat that usually is associated with goshawk nesting. Furthermore, the *Management Recommendations* and the interim policies for implementing *Management Recommendations* are designed to manage for a variety of plant and animal species. Management for a goshawk food web is an important step toward ecosystem management, as well as an important step to keep goshawks from becoming threatened or endangered. The Forest Service must be sensitive to the concerns for other species in the forest systems. Further, the complexity of forest management prescriptions for the *Management Recommendations* requires precision that takes considerable effort. This effort should benefit as many species as possible. National forests should be managed for a diversity of species and habitat types with retention of large areas, at least at the watershed level, characterized by large, old trees. Pre-settlement conditions or the desired forest conditions of the *Management Recommendations* are uncommon on national forests but can be managed for by manipulation of forests over significant areas of national forest lands in the long term. These manipulations include mechanical thinning of younger trees and use of ground fires. *Management Recommendations for the Northern Goshawk in the Southwestern United States* provides the basis for adaptive management that strives for a naturally functioning ecosystem.

INTRODUCTION

Aggressive management of public lands is increasingly contentious because users articulate and promote different values. These conflicts are very evident in the western United States where issues range from costs of grazing fees to intensity of forest management. Protection of long-term timber supplies on public forest lands was a primary management objective for creation of the National Forest System. Timber harvest in the United States generally exceeded annual growth before 1950; since 1950 growth has consistently exceeded harvest (Powell et al. 1993). However, most growth is in younger age classes of trees and there is no large reserve of high quality, old trees for harvest (Powell et al. 1993). Because of the shortage of large old trees, further cutting of remaining old trees is increasingly opposed by some agency personnel and much of the public in the Southwest and elsewhere.

Opposition to the harvest of old trees in the Southwest rests on potential negative effects on certain species of wildlife and interest in restoring pre-settlement forest conditions (Dodd 1992, Ariz. Game and Fish Dep. 1993). Research conducted in the Kaibab National Forest in northern Arizona identified negative effects of timber harvest on northern goshawk breeding success (Crocker-Bedford 1990), which in turn led to an increased interest in reducing timber harvest in the North Kaibab. Later in the year, the U.S. Forest Service responded to the findings and established the Northern Goshawk Scientific Committee (Scientific Committee) "to develop a credible management strategy to conserve the goshawk in the United States" (Reynolds et al. 1992). The committee's report, *Management Recommendations for the Northern Goshawk in the Southwestern United States* (Reynolds et al. 1992) and the subsequent U.S. Forest Service policies for "Interim Management Guidelines for the Northern Goshawk in the Southwest" have received wide publicity and been critiqued by resource management agencies and environmental groups.

Out of concern for the remaining mature forests in the Southwest and a fear that implementation of the Forest Service's management guidelines for the northern goshawk might be ineffective or even detrimental to some wildlife habitats, the Arizona Chapter of The Wildlife Society requested the formation of a panel of scientists to review the interim guidelines and related forest management activities in the Southwest. The Northern Goshawk/ Southwestern Forest Management Review Team was formed jointly by The Wildlife Society and the American Ornithologists' Union and asked to review the scientific basis of the goshawk interim management guidelines; to determine whether appropriate regional Forest Service policy is in effect for guideline implementation, and to determine whether the interim guidelines are being applied appropriately in the field. Specific charges were to: (1) review the scientific literature concerning northern goshawk biology and management in the Southwest; (2) evaluate the scientific basis and policy guidance for the interim guidelines; (3) perform an on-the-ground inspection of forest management conditions in the Southwest relative to implementation of the interim guidelines; and (4) prepare a report outlining the Review Team's findings and recommendations.

METHODS

The Review Team was formed in November 1993 by action of The Wildlife Society and the American Ornithologists' Union. A public meeting was held in Phoenix, Arizona on 11 December 1993 where issues were identified and discussed. The team visited sites in the Coconino and Kaibab National forests, including the Gus Pearson Natural Area and the North Kaibab Ranger District,on 12-13 December 1993. The Team reviewed scientific literature, non-peer-reviewed publications, correspondence, and bibliographic information on northern goshawks and southwestern forests, especially ponderosa pine forests.

NORTHERN GOSHAWK

Distribution --- The goshawk has a circumpolar distribution north of 30° north latitude (AOU 1957, 1983) in deciduous and coniferous forest habitats including woodlands interspersed with cultivated areas. In North America, it occurs from central California, Arizona, northern Mexico, north and northeast through New Mexico, Colorado, and South Dakota east across the southern Lake States and south into the Appalachian Mountains to North Carolina. This range includes suitable habitats through Alaska and Canada. In Eurasia, the species occurs from the United Kingdom east through Scandinavia, northern Russia, and south to the Mediterranean region, Asia Minor, Iran, and east into China and Japan. Goshawks breed and winter throughout much of the same region (AOU 1957, 1983). Because of its position as a top predator, the goshawk is not numerous, but it occurs in many forest and forest edge communities.

Habitats --- In North America, goshawks nest from the northern limit of the boreal forest south to the mountain woodlands of Mexico. Nesting habitats are diverse, including expanses of contiguous boreal forest, coastal temperate forests, the mixed deciduous-coniferous forests and woodlots of New England, pine and aspen forests (*Populus* spp.) in the Great Lakes Region, ponderosa pine and mixed coniferous forests of the Rockies and Sierra Nevada, and aspen stands of less than 1 ha in the Great Basin (Younk and Bechard 1994). Goshawks are secretive and special methods are required to find these birds or their nests. However, the species is not rare in major portions of its distribution. In central Europe it appears to have adapted to the rural mix of woodlands and agricultural areas and appears to be doing the same in the northeastern United States. In northern Europe goshawks are common in forests in Finland and Sweden, where the species has been considered a pest because of predation on domestic-reared ring-necked pheasants (*Phasianus colchicus*), and a bounty was offered, resulting in thousands being killed each year (Kenward et al. 1981).

Status --- The northern goshawk in the United States is not designated as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS). The goshawk has Category 2 status under the Endangered Species Act indicating that more information is required to make a final status assignment. Nowhere in North America are there long-term indices of trends or estimates of goshawk breeding population size derived from standardized, widespread surveys. Because of this lack of data and its poorly known biology, the goshawk has been described as a "sensitive species" (in the Southwest Region of the U.S. Forest Service). Because there is evidence that some forestry practices could have detrimental effects on goshawk nesting habitat, the U.S. Forest Service (USFS), state natural resource agencies, and concerned public groups have initiated research on the biology of goshawks and evaluation of forest management practices on goshawks. Most prominently, the USFS developed and initiated implementation of *Management Recommendations For The Northern Goshawk In The Southwestern United States* (Reynolds et al. 1992).

Foraging Strategy and Diet --- Goshawks are fast and maneuverable and often hunt by perching in cover followed by short, sudden attacks on prey or by fast flights through forest openings or along forest edges (Palmer 1988, Johnsgard 1990). The perch-hunting method is the most commonly observed technique (Kenward 1982, Widén 1984), but Kenward (1982) stressed that this is not sit-and-wait hunting. The hawks quickly scan an area and move to another perch if no prey is detected. Widén (1989) found that goshawks in Sweden preferred large patches of mature forest for hunting and showed no hunting habitat segregation by sex.

Goshawks feed almost exclusively on birds and mammals (Sutton 1927, Schnell 1958, Meng 1959, Grzybowski and Eaton 1976, Reynolds and Meslow 1984, Kennedy 1991, Bosakowski and Smith 1992). Goshawk diets in North America contain 21-59% mammals and 18-69% birds by number (summarized by Sherrod 1978). Most prey is moderate to large in size; geometric mean prey weight was 248 g and ranged from 10 to 3,000 g in a compilation of North American diet studies (Marti et al. 1993). Goshawks are opportunistic, taking an extremely wide variety of birds and mammals (Johnsgard 1990). Dietary diversity of goshawks (measured by a standardized index) in western North America ranked fourth highest among 30 raptor species and second highest continent-wide among 34 species (Marti et al. 1993). Some individuals appear to specialize on 1-2 kinds of prey (Palmer 1988); Lindén and Wikman (1983) observed a functional response by goshawks in Finland with respect to their main prey, hazel grouse (*Bonasa bonasia*).

Population Dynamics --- Goshawk population densities usually have been estimated on the basis of number of breeding pairs because non-breeding birds are difficult to count. Reproductive activity depends on prey availability, weather, nest site quality, ages of the adults, and other factors. Mortality of immatures, fledglings, and older birds depends on weather, food, cover, and human activities. Much of the annual mortality occurs during non-breeding seasons and is not easily detected. Predictions of population increases or declines based on reproductive activity alone, or survivorship alone, have little validity. Although attempts to model population changes based on inadequate data do not represent reliable predictions of population trends, they can indicate which components of reproduction, mortality, and dispersal are effective in causing changes in numbers.

Reproduction --- Goshawk studies report about 3.3 - 3.8 eggs per clutch on average, but several factors cause variation (Huhtala and Sulkava 1981, Thissen et al. 1982). Huhtala and Sulkava (1981) reported small clutches were produced when the laying period was delayed by cold weather. Further, not all territorial pairs produce eggs in a given year. In Fennoscandia, about half of the territorial pairs produced no eggs the year following a deep low in hazel grouse numbers, a favorite prey (Lindén and Wikman 1983).

The most commonly available statistic quantifying reproduction is the number of young fledged per territorial pair (Newton 1979). Records of fledglings for goshawks vary between means of 1.5 and 2.5 young per

pair, the former for Finland (Huhtala and Sulkava 1981), the latter for Alaska during a high in hare abundance (McGowan 1975). In general, 1.7 young per pair is average for this species, but annual variation is great among some populations and among sites (Reynolds and Wight 1978, Huhtala and Sulkava 1981). A strong positive correlation between this statistic and the percentage of food remains containing grouse was found in Finland (Wikman and Lindén 1981).

Survivorship --- Like most hawks, survivorship of goshawks is lowest in the first year of life and increases markedly in the next. Haukioja and Haukioja (1970) analyzed band recoveries and estimated mortality of 63, 33, and 19% for years 1-3, respectively, in Finland. These estimates are probably high because young birds are more vulnerable to death from shooting (Haukioja and Haukioja 1970). These authors reported a 52% first-year mortality for a much smaller sample of birds found dead from non-shooting causes. Newton (1979) estimated that adult goshawks would have an annual mortality rate of 15-40% based on body size. In Holland, annual adult turnover at nests, based on feather color-pattern analysis, varied between 21 and 51% (Thissen et al. 1982). High turnover, presumably the result of mortality, perhaps was caused by pesticide contamination and, more recently, by increased human persecution or increased competition for food or nests at high population levels. In this study, as in others, annual changes in mortality were masked as the result of combining data for several years.

Failure of adults to return to a territory can be assumed to be caused by mortality if the birds are faithful to their territory as long as they live. However, some individuals nest undetected at alternate sites causing mortality estimates determined by the return rates of marked birds to be biased high. Woodbridge and Detrich (1994) found that adult goshawks in California usually moved to new nests within their territory from one year to the next. Detrich and Woodbridge (1994) reported that 18.2% of females and 23.1% of males were in new territories (4-13 km from where marked) in subsequent years. Recently, a mortality rate of 14% was estimated for the North Kaibab plateau based on return of banded adults in 1991-92 (Reynolds et al. 1994). This rate may represent a high estimate of mortality because adults that were not reobserved were assumed dead. This estimate is similar to that for peregrine falcons (*Falco peregrinus*), of roughly the same body weight, using a similar method (Enderson and Craig 1988).

Population Modeling and Viability Analysis --- A recent attempt to model the North Kaibab plateau goshawk "population" demonstrated the lack of adequate information on survivorship and dispersal (Maguire 1993). This analysis suggested that 2 factors are most critical for predicting population change. First, if mortality is about 40, 25, and 15% for the first 3 years, and if breeding begins by the third year at rates observed on the North Kaibab plateau, the population should remain viable. Second, immigration could be powerful in offsetting any negative influence of other factors within the area. Immigration of 5 pairs of adults per year could prevent a rapid decline simulated by grossly unfavorable values of reproduction and survivorship.

Population Performance and Stability --- Data available for factors relating to goshawk population size are few and come from quite disjunct regions of North America and Europe. Breeding pairs may vary greatly in number over a few years in northern regions (Höglund 1964, McGowan 1975) due to dependence on 1-2 prey species whose populations vary markedly. Southern populations of goshawks are clearly more stable (Pielowski 1968). On the North Kaibab, reproduction and survivorship data for goshawks do not indicate a failing population. Discovery of previously unknown occupied goshawk nests in that area occurred at high rates in 1991-92 (Fletcher and Sheppard 1994) suggesting the full extent and size of the population remains unknown.

Goshawks are capable of dramatic population increases. In 1970, the Dutch population was estimated at about 30 pairs; by 1980 it was probably over 400 pairs (Thissen et al. 1982). This change followed bans on certain pesticides and, perhaps, reduction of human persecution. The evidence also suggests this species is not especially sensitive to changes in reproductive activity or first-year survivorship. At least 5,000 goshawks, mostly first-year birds, were killed annually in Finland without apparent long-term negative impacts on the number of breeding pairs (Saurola 1976). Reproduction is less important than other factors governing population dynamics (I. Newton, pers. commun.). The far more important aspects of mortality and dispersal occur mainly outside the nesting period. Further insights into goshawk population dynamics will require additional study because "the most important things are happening in winter" (Wikman and Lindén 1981:113).

Synthesis of Available Information About Northern Goshawks --- The Scientific Committee drafted a reasonable set of management recommendations that should enhance northern goshawk habitat and population size if numbers of goshawks were reduced by previous forest management. The Scientific Committee, in effect, assumed such a reduction had occurred. There is evidence that harvest of some mature and old-growth forest stands has destroyed nesting habitats of goshawks (Reynolds et al. 1992.) Nowhere in the *Management*

Recommendations or in the other material we reviewed is there presentation of data or a substantive discussion of the rationale for assuming the northern goshawk population(s), in the context of the Endangered Species Act, is declining. Therefore, our review of the *Management Recommendations* and the associated issues and concerns about its implementation proceeded on the basis that data are not available to indicate that the long-term trend in the northern goshawk breeding population in the Southwest or elsewhere in North America is decreasing or that the species has been demonstrated to be threatened or endangered. This finding influenced our conclusions about how the *Management Recommendations* should be implemented.

We are impressed by the magnitude of the effort that has been devoted to developing a relatively broad, comprehensive strategy for southwestern forest management on behalf of the northern goshawk. We also are impressed by the scientific quality and scope of the *Management Recommendations*, and by the contributions, reviews, and critiques of the development and implementation of the USFS guidelines by interested parties. We liked the perspective that a simultaneous focus on the goshawk, its prey, and the plants upon which they depend permits forest managers to recognize the importance of ecological processes at the community and ecosystem scales. However, we found little detailed, data-based evidence for the assumption that recent forest management threatens the northern goshawk population. The evidence that harvesting mature and old forest stands destroys nesting habitat created interest and momentum to conduct specific research upon the biology of goshawks, prey species, and management issues associated with these species.

The bulk of the *Management Recommendations* deals with goshawk and goshawk prey biology, habitat descriptions, and habitat management recommendations. We found that authors of the *Management Recommendations* have thoroughly reviewed the literature about goshawk habitat, and indeed, the prevailing expertise on North American goshawk habitat was well represented on the Northern Goshawk Scientific Committee. There is a lack of information about winter habitats in the *Management Recommendations*. This period especially needs additional research. The focus of the *Management Recommendations* is on nest area and foraging area habitat for individual goshawk pairs. It is assumed that management that enhances habitat for pairs will be beneficial for the population. We encourage evaluation of this assumption.

We were impressed by the integration of goshawk habitat information and prey habitat information into innovative recommendations for goshawk management in the *Management Recommendations*. However, we found that many questions have been raised by other agencies and public groups about the ultimate effects of implementation of the *Management Recommendations* on goshawks, on other wildlife, and on the forest systems. These questions should be addressed by the USFS so that other agencies and interested public groups understand the purpose and goals of the *Management Recommendations*. The recommendations for habitat management for the purpose of creating certain conditions for goshawks and their prey are useful as a basis for tests of treatments among areas. We hesitate to advocate the widespread implementation of the recommendations when they might be differently interpreted by managers, or implemented without evaluation of their effects on goshawks and other components of the forest system. Because the *Management Recommendations* have far-reaching implications for forest conservation and management, and because the recommendations likely will be implemented on a broad scale, they must be carefully evaluated.

In summary, because the goshawk is the impetus for an ambitious management strategy that can have far-reaching effects on other plant and wildlife populations and other uses of forests, there is need for (1) inventory and long-term monitoring to establish the status of the goshawk and other selected species; (2) research to learn key population parameters (e.g., prey availability in managed forests, survival and dispersal of goshawks) in the Southwest; and (3) experimental designs to carefully evaluate the consequences of the options in the *Management Recommendations* strategy on the status and population dynamics of goshawks, their prey, and other selected species.

FORESTS OF THE SOUTHWEST

Reynolds et al. (1992) were asked to develop management recommendations for the northern goshawk. To achieve this goal, they also considered general forest health as a requisite for managing forest habitats to benefit goshawks and their prey. They were not asked to address forest management for pre-settlement conditions. However, our review of the critiques of the *Management Recommendations* indicated that desired future conditions of southwestern forests were linked with forest management for goshawks. Consequently we reviewed the available literature on pre- and post-settlement structure of southwestern forests focusing on ponderosa pine forests.

The forests of this region show a strong zonation, affected primarily by elevation, precipitation, and slope aspect. The overall patterns of this zonation were described by C.

Hart Merriam (1890, 1899) when he studied the vegetation of the San Francisco Mountains, Arizona. Four primary zones of woodland and forest are relevant to this discussion: (1) the subalpine conifer forest in which dominant trees are subalpine fir (*Abies lasiocarpa*)and Engelmann spruce (*Picea engelmanni*); (2) an upper montane mixed-conifer forest that consists primarily of Douglas-fir (*Pseudotsuga menziesii*) and white fir (*Abies concolor*); (3) a lower montane forest in which the dominant species is ponderosa pine (*Pinus ponderosa var. scopulorum*); and (4) the pinyon-juniper woodland composed primarily of pinyon pine (*Pinus edulis*) and Rocky Mountain juniper (*Juniperus scopulorum*). Descriptions of 3 of these forest zones (described by Brown 1982a) are in the appendix, but ponderosa pine forests will be discussed in detail because the *Management Recommendations* focuses on them, and because 74% of southwestern forests are dominated by ponderosa pine (Reynolds et al. 1992).

Ponderosa Pine Forest

Importance of Ponderosa Pine --- Ponderosa pine is the most important commercial tree species of western North America. Its geographic range extends from Nebraska, South Dakota, and Texas to the west coast from California to British Columbia. It extends well into Canada in the north and into Mexico in the south. In many parts of its range, ponderosa pine constitutes either the major or the sole tree component of forests extending over thousands of meters of elevation. It provides the physical and biological framework to the biological communities inhabiting these forests. Its wood is excellent for a variety of uses from furniture to dimension lumber; consequently it has formed the base of extensive logging, house building, and manufacturing industries, and many homes have been framed with and contain objects made from ponderosa pine. Any number of books, films, and stories are set in ponderosa pine habitats. For all these reasons, it can truly be said that, in many ways, ponderosa pine "defines the American West" (Benedict 1990:272) and is worthy of special care and concern.

Early Impressions of Ponderosa Pine Forests --- Several accounts describe, often in lyrical terms, the ponderosa pine forests of the Southwest and the central Rocky Mountains. These descriptions are available for a number of locations in Arizona and New Mexico; north into Colorado, Idaho, and Washington; and west into California. It is significant that these forests, regardless of location, were usually open, consisting of groups of large ponderosa pine, with few (or at least unremarkable) saplings, and a forest floor thick with a mixture of grasses and wildflowers.

When we read these early accounts, special effort was made to look for evidence of dense patches of seedlings or saplings within the region. Only 3 such accounts mention them. The Gila River Forest Reserve stand near Spring Creek was described as having a "phenomenal growth of young pines, approximately 30 feet in height and 6 inches in diameter" (Rixon 1905). Rixon noted that such regeneration was present in some areas and absent in others. Dense reproduction also was noted in certain areas within the Black Mesa Forest Reserve (Plummer 1904). Finally, in the Prescott National Forest, reproduction was noted to be good and, in places, so dense that it was almost impenetrable (Pearson 1910).

In addition to providing descriptions of forest structure, early travelers, botanists, and land managers were witness to the impressively rapid impact of overgrazing on these forest communities. The most dramatic of these reports was by Holsinger (1902), who provided an example of changes around Fort Whipple: "where hundreds of tons of hay were cut under the actual spread of the forest trees during the sixties and seventies, there is not now enough grass on a thousand acres to keep in condition a family cow. Where were then running streams are now only arroyos, and where were then living springs are now beds of silt and sand." Other detailed descriptions of overgrazing and its impacts upon streams and water in general were given by Cooper (1960) and Bahre (1991).

Scientific Evidence About Forest Conditions --- It is possible, although difficult, to identify past forest conditions because of the longevity of ponderosa pine. This species routinely reaches many hundreds of years of age, and stumps and snags can remain *in situ* for many decades after logging as a result of the arid climate of the region. The study of old stumps and large old trees allows approximation of 2 important features of these forests: their density and dispersion patterns, and their fire history. Pearson (1950) was the first forest scientist to take careful measurements on ponderosa pine forests. Research on the biology and management of ponderosa pine began in 1908 at Fort Valley, near Flagstaff, Arizona. Pearson noted that as early as 1909, it was recognized that certain areas should be protected from logging to permit their description and to follow their fate through time. Such research is continuing today. For example, detailed stand analyses have entailed repeated measurements and observations on more than 3,300 tagged trees. The resulting record, thanks to the foresight of G. A. Pearson and his collaborators, and to the dedication of current forest scientists such as C. C. Avery (Avery et al. 1976) and W. W. Covington (Covington and Moore 1994), constitutes one of the most detailed and ambitious

data sets about forest biology anywhere in the world, since it spans an 80-year period with repeated measurements every 5 - 10 years.

The overall pattern that Pearson described shows the forest in this area consisted of clusters of mature "yellow pines" over 200 years of age interspersed with younger clusters. When and if fire was kept out of an area, seedlings and saplings invaded the open spaces between clusters and also grew under the old trees where the canopy was "not dense."

The economic and biological importance of ponderosa pine as a species and as a forest association have continued to provide an important impetus for research. Several recent book-length treatments dealing wholly or in part with ponderosa pine are available (e.g., Baumgartner and Lotan 1988, Tecle et al. 1989, Kaufmann et al. 1992). The most detailed recent analyses of stand structure in the Southwest were done by Covington and Moore (e.g., 1994). These analyses, in combination with the work of Cooper (1960, 1961) and White (1985), all in Arizona, provide a well-documented picture of both pre-settlement stand densities and post-settlement changes.

Pre-settlement Ponderosa Pine Forests --- These forests consisted of large trees, aggregated into clusters of varying sizes, usually 0.05 to 0.3 ha per cluster (Cooper 1960, 1961; White 1985; Moore et al. 1993). These clusters typically consisted of relatively few trees (3-44 reported by White [1985]) whose ages within a group spanned ranges of 33 years in relatively homogenous groups to 268 years in heterogeneous stands. As a result of the patchy structure of these stands, canopy closure was highly irregular: it was probably close to 100% within clumps and 0% outside. On a large scale, canopy closure values were reported to be about 20% (White 1985, Covington and Sackett 1986), 25%, and seldom over 30% (Pearson 1923). The number of trees per hectare was variable. Stand densities varied from site to site, depending upon heterogeneity of climatic, elevational, and ecological conditions. However, regardless of these conditions, current data clearly support the observation that pre-settlement forests were irregularly stocked and open canopied. This was true both in the Southwest and in other parts of the Rocky Mountains and California (Covington and Moore 1994).

The primary factor contributing to the open nature of these forests was the occurrence of frequent ground fires. Exact frequencies cannot be ascertained for many sites, but it is probable that frequency varied as a function of terrain, temperature, rainfall, and grazing. However, precise estimates are available in certain stands based on fire scars dated by growth rings on stumps, snags, and live trees. Research findings indicate that fire frequencies have varied throughout the ponderosa pine range with 2-3 years reported in northcentral Arizona (Dieterich 1980), 5-6 years in southwestern New Mexico (Swetnam and Dieterich 1985) and 6-7 years in eastcentral Arizona. Additional research confirmed these findings showing the presence of fire scars on the most frequently burned individual stumps occurred on average every 4.8 years, with the longest interval between fires being 11.8 years (Weaver 1951). Individual trees provided the basis for estimates; thus, the collection process focused on single sites and provided estimates of fire occurrence at those sites. Some estimates may be conservative because fires that were light enough to create no scarring were undetectable. These frequent fires in open forest were ground fires, and were fueled primarily by grasses and seedlings that had grown since the passing of a previous fire. Thus, fuel loads were relatively light and fires were not intense. Over the past several centuries, there is also some evidence of intervals of 15 - 20 years without fires. These were usually associated with abnormally wet periods (Swetnam and Dieterich 1985).

Post-settlement Changes --- These changes have involved many activities and form the basis of many problems faced by these forests and their inhabitants today. The most important change in many parts of the Southwest was the advent of large-scale logging. Intensive logging was initiated in the context of railroad building, but it continued until recently because of the high demand for pine lumber and the accessibility of the forests. Intensive timber harvest, often coupled with controversial economic policies associated with below-cost timber sales on national forest lands (e.g., O'Toole 1988), has led to a current climate of public mistrust about any forestry activity that involves logging and tree removal.

Even in areas that are currently forested dramatic changes have occurred that have drastically modified stand structure and forest characteristics. Heavy grazing in the early 1900's removed the dense herbaceous vegetation in many areas, thereby removing the potential for competition between grasses and newly germinated seedlings, a competition that young ponderosa pine cannot tolerate (Pearson 1950). An unusually wet period over several years at about the same time allowed for large-scale dense seedling establishment, often at the rate of dozens of seedlings per square meter. Finally, aggressive fire suppression prevented frequent (but low intensity) fires from sweeping through the forests, thereby allowing large proportions of seedlings to survive to sapling stages. In 1994, Covington and Moore simulated the overall impacts of these changes on the forest structure based on data from actual stands. The impacts are clear: forest density

has increased, the herbaceous layer has almost disappeared, and stream flow has been reduced significantly. In addition, fire data show that fire suppression is actually counterproductive. Fires now burn over larger areas, are more intense, and more devastating than in earlier times. Crown fires, practically unheard of before 1940, are now common because of fire ladders provided by dense stands of saplings below the large trees, and increasing canopy closure in these forests (Covington and Moore 1994). Among lightning-caused fires, the area burned per year went from 4,100 ha in the 1940's to 6,100 ha in the 1980's, and the fire character changed from surface fires averaging 1,200 ha to crown fires reaching 4,000-8,000 ha (Swetnam and Dieterich 1985, Swetnam 1990).

Additional changes in these forests include increased incidence and intensity of diseases, parasites, and insect outbreaks, including dwarf mistletoe and bark beetles, and shifts in tree species composition from ponderosa pine to (primarily) white fir. During our field visit in December 1993, we noted that invasion of white fir into ponderosa pine is especially well illustrated on the Kaibab Plateau, within Grand Canyon National Park.

Health of Ponderosa Pine And Its Importance To Forest Residents --- Ponderosa pines are moisture-sensitive, and show significant physiological stress in response to low soil moisture availability. Under stressful conditions induced either by drought or by high tree density, ponderosa pine close their stomata and reduce their photosynthetic rates drastically (Bassman 1988). Under these conditions, low photosythetic rates mean there is little carbohydrate production and, as a result, the trees produce few or no cones. This association between moisture stress and low cone production is known for a variety of pines including ponderosa (Baumgartner and Lotan 1988, Linhart 1988). Impacts on cone production can be dramatic: an uncrowded adult tree will routinely produce 100-1,000 or more cones in a good year. Densely-grown trees, even if they are the same height and age, will produce 1/10 of that or less, and young trees in dense stands often produce no cones for years on end (Linhart and Mitton 1985). Ponderosa pine seeds are a critical food base for seed-eating mammals such as deer mice (*Peromyscus maniculatus*), chipmunks (*Tamias spp.*), tree squirrels (*Sciurus aberti* and *Tamiasciurus hudsonicus*) and golden-mantled ground squirrels (*Spermophilus lateralis*); birds such as juncos (*Junco spp.*), Cassin's finch (*Carpodacus cassinii*), pine siskin (*Carduelis pinus*), evening grosbeak (*Coccothraustes vespertinus*), chickadees (*Parus spp.*), crossbills (*Loxia spp.*), nuthatches (*Sitta spp.*), Stellers' jay (*Cyanocitta stelleri*), and Clark's nutcracker (*Nucifraga columbiana*); as well as cone and seed insects including beetles (*Conophthorus spp.*), bugs (*Conotrachelus spp.*), and moths (*Dioryctria spp.*). These species, in turn, are potential prey for a variety of carnivorous mammals and birds of prey. The dependence of these and other species on cone crops in turn means that dense, closed ponderosa pine forests that produce a small fraction of the cone crops of open-canopied forests will also support a fraction of the individuals of these animal species.

Synthesis of Available Information About Ponderosa Pine Forests --- Pre-settlement ponderosa pine forests were park-like, had open canopies, and consisted of clusters of trees, scattered irregularly over the landscape. Young seedlings and saplings also were scattered, and seldom did young trees form dense thickets of any notable size. The evidence for this perspective is solid, and consists of a combination of eyewitness reports and recent, careful studies conducted in Arizona, New Mexico, and other states where ponderosa pine forests are common.

The understory of these forests usually consisted of dense herbaceous vegetation, dominated by bunch grasses, but also contained many species of wildflowers. This profuse growth provides indirect but strong evidence there was abundant sunlight reaching the forest floor, which provides additional testimony to the open-canopied nature of this forest.

This open forest has been replaced by a much denser forest, dominated in many places by dense thickets of saplings and pole-size trees of ponderosa pine and, in other places, by a dense understory of white fir. This shift is attributed to a combination of climatic changes along with human activities, especially logging of large trees, overgrazing, and fire prevention.

Those parties involved in forest management and forest protection must agree on their vision of the structure of future ponderosa pine forests. If, as one possibility, everyone agrees these forests should be managed so as to return to some semblance of their former structure, then human manipulations will be necessary. The primary goal of such manipulation will need to involve large-scale thinning and removal of dense stands of young ponderosa pine and white fir that presently choke the understory. This thinning will have to be done by a combination of fire and mechanical manipulations. In some places, present fuel loads are so high that fire is no longer a viable option, and tree removal must be done by logging (Covington and Moore 1992, 1994).

We must learn to read the southwestern landscape as it once existed and as it exists today, and attempt not to have preconceptions about what the landscape "ought to be" like. Many of us, when asked to conjure up "forest

primeval" or "old-growth forests" automatically think of close-canopied, densely shaded places. This vision may be applicable to the Pacific Northwest, the eastern United States, or to Europe but it is not appropriate for ponderosa pine forests. If we insist on thinking of them as close-canopied, and demand that current forests remain that way, we will commit the same error committed by the first European and eastern settlers and foresters in the area. For example, these people viewed fire as an all-consuming savage, scary, and wasteful beast that had to be stopped at all costs. The quotes from Gifford Pinchot (Appendix), who was trained as a forester in France where wild fires are uncommon but devastating when they occur, are typical.

Heterogeneity in this landscape also must be recognized. In some areas, past forests had 20% canopy closure, in others 40%, and numbers of trees undoubtedly varied from 25 to 100/ha.

The *Management Recommendations* present an accurate, well-researched description of forest communities in the Southwest. We concur that thinning from below seems appropriate (Reynolds et al. 1992:22). We also caution that while even proportions of 20% Vegetation Structural State (VSS) 3-6 and 10% of the other 2 VSS seem reasonable to provide heterogeneity of forest stands (page 23), these recommendations must not be used to justify logging of large trees. The recommended minima of 7-12 mature trees/ha (pages 24, 28) are low in the context of known densities of large trees or old-growth forests which ranged from 25 to 74 or more trees/ha. For example, densities of 7-12/ha are insufficient to provide the interlocking crowns needed by Abert's squirrels (*Sciurus aberti*).

We disagree with the concept of a "pathological age" (Reynolds et al. 1992, table 4) as ponderosa pine can remain healthy for 250+ years. The values presented appear to be incorrect and irrelevant. Further, they can be misinterpreted to justify logging of large trees.

OTHER ISSUES

Single Species Management vs. Ecosystem Management --- Management practices recommended by Reynolds et al. (1992) are designed to benefit numerous species besides the northern goshawk, but their effects on other species (e.g., certain passerine birds, owls, and mammals) must also be considered (Ariz. Game and Fish Dep. 1993). Ideally, national forests should be managed for a diversity of species. For this reason, an ecosystem management strategy is needed. The *Management Recommendations* are a step in that direction.

Secondary cavity-nesting birds constitute 40-55% of the breeding bird population in ponderosa pine forests (Balda 1975) and have exhibited 53% declines in density following snag removal during timber harvesting (Scott and Oldemeyer 1983). For this reason, care must be taken to prevent lack of snag recruitment associated with intensive silvicultural management (Brawn and Balda 1988).

Three other forest raptor species whose status is uncertain also could be affected by intensive management for goshawks. The flammulated owl (*Otus flammeolus*) and sharp-shinned hawk (*Accipiter striatus*) are also Forest Service sensitive species (U.S. Dep. Agric. 1989). The flammulated owl is associated with old-growth ponderosa pine forest (Reynolds and Linkhart 1992) and is a secondary cavity nester. A reduction of snag recruitment trees could be detrimental to this species. The sharp-shinned hawk may also incur negative impacts from forest thinning treatments recommended in the *Management Recommendations*. The Mexican spotted owl (*Strix occidentalis lucida*), a subspecies listed as threatened (U.S. Dep. Inter. 1993), requires habitat characteristics (e.g., relatively dense canopy cover) that may not be compatible with some recommendations of the *Management Recommendations* (McDonald et al. 1991). However, prime habitat for the spotted owl in the Southwest may not overlap completely with that of the goshawk (Ganey and Balda 1989, 1994), so this may not be an issue. The potential effects of the *Management Recommendations* on other species should be explored more thoroughly.

Wild turkey (*Meleagris gallopavo*) could benefit from some forest characteristics recommended in the *Management Recommendations*, but the early effects of some vegetative treatments could be detrimental until cover regenerates.

Black bears (*Ursus americanus*) also may be adversely affected by intensive forest management for goshawks. Black bears select habitat primarily because of its cover, preferring areas with low horizontal visibility (LeCount and Yarchin 1990). Widespread application of the *Management Recommendations* could make certain areas unattractive to black bears.

Tassel-eared squirrels are prey for goshawks and important components of ponderosa pine forests. Several studies (Patton 1984; Patton et al. 1985; Snyder 1992,

1993; Snyder and Linhart 1993, 1994) have clearly demonstrated that these squirrels depend on large, cone-producing ponderosa pines and, at least for certain activities, prefer large ponderosa pine in clumps with some continuity to the canopy. Other species should benefit from forest conditions resulting from application of the *Management Recommendations*. Habitat requirements of 14 species of birds and mammals identified as important prey were used to help designate forest conditions that would result in sustainable populations of the prey (Reynolds et al. 1992).

Disturbance --- Knight and Skagen (1988) compiled many examples of how human recreational uses can alter activities of certain raptors. They found these activities can alter the distribution of raptors, disrupt nest attentiveness, cause abandonment of breeding territories, reduce productivity, and alter foraging behavior. Suggested mitigation of such disturbance included total restriction of human access to critical raptor areas, and tailoring management plans to specific cases (e.g., identifying critical nesting areas and prohibiting human access during the raptors' breeding season).

We know of no studies of human disturbance on breeding goshawks, but the *Management Recommendations* recommendation to minimize human activity in the nest area during the breeding season seems to be a reasonable, conservative approach.

Esthetics --- Bird watching is the second most popular passive sport in North America, with 30 million participants (Ehrlich et al. 1988). Birds of prey, because of their array of fascinating adaptations and scarcity, are of particular interest to birders. Species difficult to see are especially valued, and northern goshawks, because of habitats used and their secrecy, are difficult to see. The public also places a high esthetic value on the idea of pristine forests with pre-settlement-like characteristics. To the extent that good goshawk habitat and old-growth forests are the same, the support for conservation of both is strengthened.

MONITORING OF GOSHAWKS AND FOREST MANAGEMENT

Further inventory and monitoring are necessary to provide a basis for identifying trends in populations of the northern goshawk. Presently, there are several untested estimates of statewide numbers of nest areas or nesting pairs (e.g., Herron et al. 1985 for Nevada, Bloom et al. 1986 for California) and there are some counts or estimates for local areas such as a portion of a national forest. Many of these latter estimates are from reports cited by Marshall (1992). However, most of these studies use different survey designs and field methods and many lack information about effort and detection rates. The data cannot be combined or compared to give a clear indication of the status of the species. A recent analysis of counts of migrating hawks in the western United States suggests that counts of northern goshawks have declined (S.W. Hoffman, J.C. Bednarz, and W.R. DeRagon, pers. commun.). Recent and ongoing breeding season surveys using more standardized methods will contribute to a better determination of status (DeStefano et al. 1994; Woodbridge and Detrich 1994; R.T. Reynolds, pers. commun).

The determination of status requires some basis for comparison with measurements taken to detect changes such as those expected from landscape-scale management practices prescribed by the *Management Recommendations*. The USFS, USFWS, and others must complete sufficient basic inventory to make an initial determination of status. Population status usually is based on a scale encompassing the species or subspecies distribution, or on an isolated group or population that constitutes a signigicant portion of the subspecies or species. Most of the concern for the status of northern goshawk that we encountered were based on threats to some number of pairs of a local breeding assemblage. Results such as those of Crocker-Bedford (1990) and Patla (1990) should be analyzed in the context of populations and metapopulations as well as individual pairs. Based on results of the 2 petitions to list southwestern northern goshawks (T.J. Tibbits, pers. commun.) and from the population viability analysis by Maguire (1993), there are too few data to biologically delineate a southwestern "population." Clearly, population status is yet to be determined, although the work of Whaley and White (1994) suggests that identifiable geographic populations may exist.

Most inventories conducted to date have been inadequate to estimate the numbers of northern goshawks on a given southwestern national forest or even most ranger districts. The report by Fletcher and Sheppard (1994) indicates that in recent years, with more and more search effort, more and more goshawk nests were found. Until the number of nests found, or some estimate of nests, or pairs, or birds stabilizes for a known amount of search effort, we cannot know the status of local northern goshawks.

Standardized survey and monitoring designs and field protocols should be established to ascertain the status of northern goshawks. Managers must use the protocols to monitor changes in status that result from current timber

harvest procedures and from implementation of the *Management Recommendations*. Similar efforts should be made throughout the breeding range of the goshawk in the United States. Further, managers should design their surveys and monitoring to complement research on the demography and population dynamics of northern goshawks.

The information we reviewed from southwestern forests suggests monitoring to date has involved locating nests or nest areas, and assigning an activity status (e.g., Fletcher and Sheppard 1994). We note that determining distribution and monitoring population status need not involve finding nests. More area probably can be sampled by surveying for the presence of goshawks, rather than counting nests *per se*. For example, repeated surveys could be used along transects through representative habitats, on which a biologist records sight or sound detections of goshawks. The study design could use the Kennedy and Stahlecker (1993) broadcast field method to establish an area occupied index (Geissler and Fuller 1986, Iverson and Fuller 1991). Regardless of what (birds or nests or occupied areas) is being surveyed, it is imperative that similar methods be used, that the effort and areas surveyed be carefully recorded, and that there is an estimate of detection rate for each of the general circumstances or situations that are to be compared, or from which results are to be pooled for analyses (Geissler and Fuller 1986).

When nests must be found for demographic studies, monitoring for specific objectives, or for evaluating management, it is important to survey representative habitats, not just the "best" or the "most likely" habitat (stratification of effort can be used). Also, it is important to search for new nests or alternative nests because if only historical nests are surveyed, a perceived decrease in nesting is assured; goshawks do not always use the same nest (e.g., Detrich and Woodbridge 1994, Reynolds et al. 1994). The protocols (e.g., for the Coronado and Coconino National forests) and Interim Directives (e.g., No. R32670-93-1) we have seen for nest surveys allow for modifications to the Kennedy and Stahlecker (1993) survey method. Modifications should not be made to a basic survey design unless the effects of these modifications are known and can be quantified and accounted for in an estimate. Joy et al. (1994) have results suggesting useful modifications for a basic survey design. These should be implemented wherever applicable, and "corrections" or adjustments made whenever possible to data gathered under the previous protocol. The terminology relevant to the survey should be defined, and preferably follow some established usage (e.g., Ralph and Scott 1981, Verner 1985, Fuller and Mosher 1987, Steenhof 1987).

It is our impression that the recommendations, the minimum and maximum values, the VSS categories, etc., and the scope of implementation are not uniformly interpreted and applied. If there is no systematic procedure for evaluating compliance with the recommendations or measuring the outcome of implementation, hypotheses cannot be tested, questions about effects on non-target species and forestry practices cannot be answered, and the concerns of persons, groups, and agencies cannot be clearly addressed. We are not familiar with the usefulness of the Biological Evaluation process (FSM 2672.4, cited in the Interim Guidelines), and cannot speculate on how well this process meets the needs of testing the hypotheses or providing information for addressing questions and concerns. However, we found little mention of it or other criteria for evaluating the usefulness of the *Management Recommendations*.

The USFS should conduct training to ensure standardized interpretation and careful implementation of the *Management Recommendations* wherever it is used. It would be most expedient to select a number of areas for initial implementation and testing. An adequate sample of areas could be designated to receive treatments based on the extremes of the range of values presented in the *Management Recommendations*. Other areas should be left as controls of either routine forestry practices, or "hands-off" as on National Park Service lands. Measures of goshawk demography and trends in other wildlife species, plant community changes, forest products, etc. could be made through time to understand the implications and effectiveness of the *Management Recommendations*. Planning an evaluation such as this should cause all interested parties to think more about the type(s) of forest they want in the Southwest in the future, and to have a better understanding of each other's objectives and concerns.

CONCLUSIONS

1. The scope and the review of the biology of northern goshawks in the *Management Recommendations* are excellent.

2. The *Management Recommendations* represent an innovative approach to forest management because they encourage forest managers to consider forest ecosystems as assemblages of interacting species of plants and animals.

3. The *Management Recommendations* and related USFS policy lack substantive considerations for evaluating the effectiveness, and testing the consequences of implementing these practices.

4. No evidence was presented to indicate that northern goshawk populations are declining, threatened or endangered in the Southwest or anywhere within its range, and we found no evidence of a long-term decline in goshawk breeding populations. There is a need to conduct additional research of goshawk demographics and additional inventory and monitoring of goshawk populations.

5. The complexity of detail for silvicultural treatments in the *Management Recommendations* indicates a preciseness of management that cannot and probably need not uniformly be achieved over large areas. Further, the impacts of the prescriptions on other species resident in ponderosa pine ecosystems are difficult to predict at this time. Therefore, we conclude that the *Management Recomendations* should be implemented as experiments in adaptive management to learn about the practicality and the effects of managing by these methods in a variety of landscapes and forest types.

6. Surveys of goshawks should be standardized and conducted in all southwestern forests to establish baseline data on population status and trends in all seasons, and to monitor the status of goshawks.

7. Northern goshawks use a variety of forested habitats during the nesting period (Apr-Aug). Throughout its distribution it is considered a forest and prey generalist. However, populations are adapted to local conditions and are, therefore, considered specialized concerning nest-use sites, foraging habitats, and prey selection. We conclude that current forest management practices will not have the same effect on goshawk breeding populations in different regions. Administrators, managers, and other interested public groups must recognize that the *Management Recommendations* were not designed to and may not provide the same results everywhere. Application of specific prescriptions developed on the North Kaibab elsewhere in the Southwest and generally in North America would be inappropriate and may be detrimental to northern goshawks and their preferred nesting areas and prey. Prescriptions for habitat management to benefit northern goshawks will need to be ecosystem-specific with the realization that prescriptions may need to be tailored to the watershed scale.

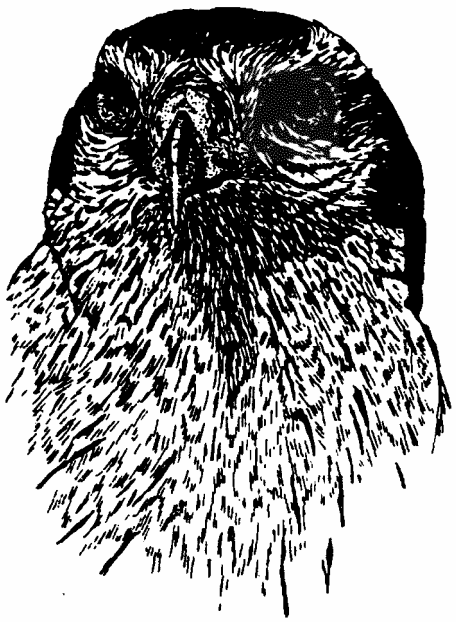
8. Significant research should be conducted on habitat and prey requirements during the non-nesting period (Sep-Mar).

9. Implementation of prescriptions in the *Management Recommendations* must be carefully considered and recognize the diverse growing conditions and inherent heterogeneity of southwestern forests.

10. In the absence of frequent ground fire, healthy southwestern ponderosa pine forests need management (e.g., removal of small trees) to enhance forest stand variability necessary to maintain diverse assemblages of animals and to ensure that significant areas (at least at the watershed level) will attain and sustain the successional stages and character of pre-settlement forests. The *Management Recommendations* should contribute to a healthy, heterogenous forest.

11. Proper management of southwestern forests must involve an ecosystem/landscape approach and should not be narrowly focused on one species. We believe the *Management Recommendations* represent a major step toward research and management of ecosystems at a landscape scale. We recognize that insufficient data are available for many species to adequately understand their needs and roles in southwestern forests.

12. The public needs to learn that ponderosa pine forests in the Southwest were open and park-like in the pre-settlement period. Information must be made available to all interested public groups about the actual condition of ponderosa pine forests prior to settlement in the 1800's. A goal for future desired conditions must be set as a basis for forest management.



LITERATURE CITED

American Ornithologists' Union. 1957. Check-list of North American birds, 5th ed. Port City Press, Baltimore, Md. 691pp.

_____. 1983. Check-list of North American birds, 6th ed. Allen Press, Lawrence, Kans. 877pp.

Arizona Game and Fish Department. 1993. Review of U.S. Forest Service strategy for managing northern goshawk habitat in the southwestern United States. Arizona Game and Fish Dep., Phoenix. 87pp.

Avery, C. C., F. R. Larson, and G. H. Schubert. 1976. Fifty-year records of virgin stand development in southwestern ponderosa pine. U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-22. 71pp.

Bahre, C. J. 1991. A legacy of change. Univ. Arizona Press, Flagstaff. 231pp.

Balda, R. P. 1975. The relationship of secondary cavity nesters to snag densities in western coniferous forests. U.S. Dep. Agric., For. Serv. Wildl. Habitat Tech. Bull. 1. 37pp.

Bassman, J. H. 1988. Photosynthesis and water relations of ponderosa pine. Pages 45-58 in D. M. Baumgartner and J. E. Lotan, eds. Ponderosa pine, the species and its management. Symp. Proc., Washington State Univ., Coop Ext. Serv., Pullman.

Baumgartner, D. M., and J. E. Lotan, Editors. 1988. Ponderosa pine, the species and its management. Symp. Proc., Washington State Univ., Coop. Ext. Serv., Pullman. 281pp.

Beale, E. F. 1858. Wagon Road from Fort Defiance to the Colorado River. 35th Congress, 1st Session, Senate Executive Document 124. 87pp.

Benedict, A. D. 1990. The Southern Rockies. Sierra Club Books, San Francisco, Calif. 578 pp.

Bloom, P. H., G. R. Stewart, and B. J. Walton. 1986. The status of the northern goshawk in California, 1981-1983. California Dep. Fish and Game, Wildl. Manage. Branch Admin. Rep. 85-1. 26pp.

Bosakowski, T., and D. G. Smith. 1992. Comparative diets of sympatric nesting raptors in the eastern deciduous forest biome. Can. J. Zool. 70:984-992.

Brawn, J. D., and R. P. Balda. 1988. The influence of silvicultural activity on ponderosa pine forest bird communities in the southwestern United States. Pages 3-21 in J. A. Jackson, ed., Bird Conservation 3. Univ. Wisconsin Press, Madison.

Brown, D. E., Editor. 1982a. Biotic communities of the American Southwest- United States and Mexico. Desert Plants 4. 342pp.

_____. 1982b. Great Basin conifer woodland. Pages 52-57 in D. E. Brown, ed. Biotic communities of the American Southwest - United States and Mexico. Desert Plants 4.

Cooper, C. F. 1960. Changes in vegetation, structure, and growth of southwestern pine forests since white settlement. Ecol. Monogr. 30:129-164.

_____. 1961. Pattern in ponderosa pine forests. Ecology 42:493-499.

Covington, W. W. and M. M. Moore. 1992. Postsettlement changes in natural fire regimes: implications for restoration of old-growth ponderosa pine forests. Pages 81-99 in M. R. Kaufmann, W. H. Moir, and R. L. Bassett, tech. coords. Old-growth forests in the Southwest and Rocky Mountain regions. Proc. of a workshop. U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-213.

_____, **and** _____. 1994. Southwestern ponderosa forest structure: changes since Euro-American settlement. J. For. 92:39-47.

_____, **and S. S. Sackett.** 1986. Effect of periodic burning on soil nitrogen concentrations in ponderosa pine. Soil Sci. Soc. Am. J. 50:452-457.

Crocker-Bedford, D. C. 1990. Goshawk reproduction and forest management. Wildl. Soc. Bull. 18:262-269.

DeStefano, S., S. K. Daw, S. M. Desimore, and E. C. Meslow. 1994. Density and productivity of northern goshawks: implications for monitoring and management. Studies Avian Biol. 16:88-91.

Detrich, P. J., and B. Woodbridge. 1994. Territory fidelity, mate fidelity, and movements of color-marked northern goshawks in the southern Cascades of California. Studies Avian Biol. 16:130-132.

Dieterich, J. H. 1980. Chimney Spring forest fire history. U.S. Dep. Agric., For. Serv. Res. Pap. RM-220. 8pp.

Dodd, N. L. 1992. Another perspective on pre-settlement forest conditions. Arizona Wildl. Views. 35(7):18-20.

Dutton, C. E. 1887. Physical geology of the Grand Cañon district, U.S. Geol. Surv., Second Annu. Rep.:49-166.

Ehrlich, P. R., D. S. Dobkin, and D. Wheye. 1988. The birder's handbook. Simon and Schuster, New York, N.Y. 785pp.

Enderson, J. H., and G. R. Craig. 1988. Population turnover in Colorado peregrines. Pages 685-688 in T. J. Cade, J. H. Enderson, C. G. Thelander, and C. M. White, eds. Peregrine falcon populations: their management and recovery. The Peregrine Fund, Inc., Boise, Idaho.

Fletcher, N., and G. Sheppard. 1994. The northern goshawk in the Southwestern Region, 1992 status report. U.S. Dep. Agric., For. Ser., Albuquerque, N.M. 20pp.

Fuller, M. R., and J. A. Mosher. 1987. Raptor survey techniques. Pages 37-65 in B. G. Pendleton, B. W. Millsap, K. W. Kline, and D. M. Bird, eds., Raptor management techniques manual. Natl. Wildl. Fed., Washington, D.C.

Ganey, J. L., and R. P. Balda. 1989. Distribution and habitat use of Mexican spotted owls in Arizona. Condor 91:355-361.

_____, **and** _____. 1994. Habitat selection by Mexican spotted owls in northern Arizona. Auk 111:162-169.

Geissler, P., and M. R. Fuller. 1986. Estimation of the proportion of an area occupied by an animal species. Pages 533-537 in survey research methods. Proc. Am. Stat. Assoc. Washington, D.C.

Grzybowski, J. A., and S. W. Eaton. 1976. Prey items of goshawks in southwestern New York. Wilson Bull. 88:669-670.

Haukioja, E., and M. Haukioja. 1970. Mortality rates of Finnish and Swedish goshawks (Accipiter gentilis). Finnish Game Res. 31:13-20.

Herron, G. B., C. A. Mortimore, and M. S. Rawlings. 1985. Nevada raptors: their biology and management. Nevada Dep. Wildl., Biol. Bull. 8. Reno. 114pp.

Höglund, N. 1964. Der habicht Accipiter gentilis Linnè in Fennoscandia. Viltrevy 2:195-270.

Holsinger, S. J. 1902. The boundary line between the desert and the forest. For. and Irrig. 8:21-27.

Huhtala, K., and S. Sulkava. 1981. Environmental influences on goshawk breeding in Finland. Pages 89-104 in R.E. Kenward and I.M. Lindsay, eds. Understanding the goshawk. Intl. Assoc. Falconry and Conserv. of Birds of Prey, Oxford, U.K.

Iverson, G. C., and M. R. Fuller. 1991. Woodland nesting raptor survey techniques. Pages 118-124 in B. G. Pendleton and D. L. Krahe, eds., Proc. midwest raptor manage. symp and workshop. Natl. Wildl. Fed., Washington D.C.

Ives, J. C. 1861. Report upon the Colorado River of the West, explored in 1857 and 1858. 36th Congress, 1st Session, House Executive Document 90.

Johnsgard, P. A. 1990. Hawks, eagles, and falcons of North America: biology and natural history. Smithson. Inst. Press, Washington, D.C. 402pp.

Joy, S. M., R. T. Reynolds, and D. G. Leslie. 1994. Northern goshawk broadcast surveys: hawk response variables and survey cost. Studies Avian Biol. 16:24-30.

Kaufmann, M. R., W. H. Moir, and R. L. Bassett, Technical Coordinators. 1992. Old-growth forests in the Southwest and Rocky Mountain regions. Proc. of a workshop, U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-213. 201pp.

Kennedy, P. L. 1991. Reproductive strategies of northern goshawks and Cooper's hawks in north-central New Mexico. Ph.D. Diss., Utah State Univ., Logan. 222pp.

_____, **and D. W. Stahlecker.** 1993. Responsiveness of nesting northern goshawks to taped broadcasts of three conspecific calls. J. Wildl. Manage. 57:249-257.

Kenward, R. E. 1982. Goshawk hunting behaviour, and range size as a function of food and habitat availability. J. Anim. Ecol. 51:69-80.

_____, **V. Marcström, and M. Karlbom.** 1981. Goshawk winter ecology in Swedish pheasant habitats. J. Wildl. Manage. 45:397-408.

Knight, R. L., and S. K. Skagen. 1988. Effects of recreational disturbance on birds of prey: a review. Pages 355-359 in R. L. Glinski, B. G. Pendleton, M. B. Moss, M. N. LeFranc, Jr., B. A. Millsap, and S. W. Hoffman,

eds. Proc. Southwest raptor management symp. and workshop. Natl. Wildl. Fed. Sci. Tech. Ser. 11., Washington, D.C.

LeCount, A. L., and J. C. Yarchin. 1990. Black bear habitat use in east-central Arizona. Arizona Game and Fish Dep., Tech. Rep. 4. 42pp.

Leiberg, J. B., T. F. Rixon, and A. Dodwell. 1904. Forest conditions in the San Francisco Mountains Forest Reserve, Arizona. U.S. Geol. Survey, Prof. Pap. 22. 95pp.

Leopold, A. 1921. A plan for recognition of artificial works in forest erosion control policy. J. For. 19:267-273.

Lindén, H., and M. Wikman. 1983. Goshawk predation on tetraonids: availability of prey and diet of the predator in the breeding season. J. Anim. Ecol. 52:953-968.

Linhart, Y. B. 1988. Ecological and evolutionary studies of ponderosa pine in the Rocky Mountains. Pages 77-89 in D. M. Baumgartner and J. E. Lotan, eds. Ponderosa pine, the species and its management. Symp. Proc., Washington State Univ., Coop. Ext. Serv. Pullman.

_____, **and J. B. Mitton.** 1985. Relationships among reproduction, growth rates, and genetic protein heterozygosity in ponderosa pine. Am. J. Bot. 72:181-184.

Maguire, L. A. 1993. Population viability analysis of northern goshawks (Accipiter gentilis) on the North Kaibab Ranger District, Arizona. Arizona Game and Fish Dep. Contract No. G10076-A. 38pp.

Marshall, D. B. 1992. Status of the northern goshawk in Oregon and Washington. Portland Audubon Soc., Portland, Oreg. 34pp.

Marshall, J. T., Jr. 1957. Birds of the pine-oak woodland in southern Arizona and adjacent Mexico. Pacific Coast Avifauna 32. 125pp.

Marti, C. D., E. Korpimäki, and F. M. Jaksíc. 1993. Trophic structure of raptor communities: a three-continent comparison and synthesis. Pages 47-137 in D. M. Power, ed. Current ornithology, Vol. 10. Plenum Press, New York, N.Y.

McDonald, C. B., J. Anderson, J. C. Lewis, R. Mesta, A. Ratzlaff, T. J. Tibbits, and S. O. Williams, III. 1991. Mexican spotted owl (Strix occidentalis lucida) status review. U.S. Fish and Wildl. Serv., Endangered Species Rep. 20. 85pp.

McGowan, J.D. 1975. Distribution, density and productivity of goshawks in interior Alaska. Final Rep., Fed. Aid Wildl. Rest. Proj. W-17, Alaska Dep. Fish and Game, Juneau. 31pp.

Meng, H. 1959. Food habits of nesting Cooper's hawks and goshawks in New York and Pennsylvania. Wilson Bull. 71:169-174.

Merriam, C. H. 1890. Results of a biological survey of the San Francisco Mountain region and desert of the Little Colorado, Arizona. U.S. Bur. Biol. Surv., North Am. Fauna 3. 136pp.

_____. 1899. Life zones and crop zones of the United States. U.S. Dep. Agric., Bur. Biol. Survey Bull. 10. 79pp.

Moir, W. H. 1992. Ecological concept in old growth forest definition. Pages 18-23 in M. R. Kaufmann, W. H. Moir, and R. L. Bassett, tech. coords. Old-growth forests in the Southwest and Rocky Mountain regions. Proc. of a workshop., U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-213.

Moore, M. M., W. W. Covington, and P.Z. Fule. 1993. Spacial changes in southwestern ponderosa pine since settlement. Bull. Ecol. Soc. Am. 74:365.

Nelson, E. W. 1884. Explorations in southern Arizona. Annu. Rep. Smithson. Inst. 1884:20-24.

Newton, I. 1979. Population ecology of raptors. Buteo Books, Vermillion, S.D. 399pp.

O'Toole, R. 1988. Reforming the Forest Service. Island Press, Washington, D. C. 247pp.

Palmer, R. S. Editor. 1988. Handbook of North American birds. Vol. 4. Diurnal raptors. Yale Univ. Press, New Haven, Conn. 433pp.

Pase, C. P., and D. E. Brown. 1982. Rocky Mountain (Petran) and Madrean Montane Conifer forests. Pages 43-48 in D. E. Brown, ed. Biotic communities of the American Southwest - United States and Mexico. Desert Plants 4.

Patla, S. M. 1990. Northern goshawk monitoring project report, 1989, Targhee National Forest. Final Rep., U.S. Dep. Agric., Targhee Natl. For. P.O. No. 43-02S2-8-1931. 22pp.

Pattie, J. O. 1905. Personal narrative of James O. Pattie of Kentucky. Ed. 1831 by T. Flint, New Ed., R. G. Thwaites. Arthur H. Clark Co., Cleveland, Ohio.

Patton, D. R. 1984. A model to evaluate Abert squirrel habitat in uneven-aged ponderosa pine. Wildl. Soc. Bull. 12:408-414.

_____, **R. L. Wadleigh, and H. G. Hudak.** 1985. The effects of timber harvesting on the Kaibab squirrel. J. Wildl. Manage. 49:14-19.

Pearson, G. A. 1910. Reproduction of western yellow pine in the Southwest. U.S. Dep. Agric., For. Serv. Circ. 174. 16pp.

_____. 1923. Natural reproduction of western yellow pine in the Southwest. U.S. Dep. Agric., For. Serv. Bull. 1105. 142pp.

_____. 1950. Management of ponderosa pine in the Southwest as developed by research and experimental practices. U.S. Dep. Agric., Agric. Monogr. 6. 218pp.

Pielowski, Z. 1968. Studien über die Beslandverältnisse einer Habichts population in Zentralpolen. Schrift. der Land. in Nordrhein -- Westfalen 5:125-136.

Pinchot, G. 1910. The fight for conservation. Univ. Washington Press, Seattle. 152pp.

Plummer, F. G. 1904. Forest conditions in the Black Mesa Forest Reserve. U.S. Geol. Surv. Prof. Paper. 23. 62pp.

Powell, D. S., J. L. Faulkner, D. R. Darr, Z. Zhu, and D. W. MacCleery. 1993. Forest resources of the United States, 1992. U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-234. 132pp.

Powell, J. W. 1879. Report on the lands of the arid region of the United States, with a more detailed account of the lands of Utah. 2nd ed., U.S. Geog. and Geol. Surv., Rocky Mtn. Region. U.S. Gov. Print. Off. Washington, D.C.

Ralph, C. J., and J. M. Scott, Editors. 1981. Estimating numbers of terrestrial birds. Studies Avian Biol. 6. 630pp.

Reynolds, R. T., and B. D. Linkhart. 1992. Flammulated owls in ponderosa pine: evidence of preference for old growth. Pages 166-169 in M. R. Kaufmann, W. H. Moir, and R. L. Bassett, tech. coords. Old-growth forests in the Southwest and Rocky Mountain regions. Proc. of a workshop, U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-213.

_____, **and E. C. Meslow.** 1984. Partitioning of food and niche characteristics of coexisting Accipiter during breeding. Auk 101:761-779.

_____, **and H. M. Wight.** 1978. Distribution, density, and productivity of accipiter hawks breeding in Oregon. Wilson Bull. 90:182-196.

_____, **S. M. Joy, and D. G. Leslie.** 1994. Nest productivity, fidelity, and spacing of northern goshawks in Arizona. Studies Avian Biol. 16:106-113.

_____, **R. T. Graham, M. H. Reiser, R. L. Bassett, P. L. Kennedy, D. A. Boyce, Jr., G. Goodwin, R. Smith, and E. L. Fisher.** 1992. Management recommendations for the northern goshawk in the southwestern United States. U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-217. 90pp.

Rixon, T. F. 1905. Forest condition in the Gila River Forest Reserve, New Mexico. U.S. Geol. Surv. Prof. Paper 39. 89pp.

Rothrock, J. T. 1875. Preliminary botanical report, with remarks upon the general topography of the region traversed in Arizona and New Mexico; its climatology, forage plants, timber, irrigation, sanitary conditions, etc. in G. M. Wheeler. Annual report upon the geographical explorations and surveys west of the one hundredth meridian, in California, Nevada, Nebraska, Utah, Arizona, Colorado, New Mexico, Wyoming, and Montana. Geogr. Expl. Surv. West of 100th Merid., Annu. Rep. Chief Engineer, War Dep. 1875. Append. LL.

_____. 1878. Report upon the botanical collections made in portions of Nevada, Utah, California, Colorado, New Mexico, and Arizona during the years 1871-1875. in G. M. Wheeler. Rep. U.S. Geogr. Surv. West of the 100th Merid. 6:3-297.

Saurola, P. 1976. Mortality of Finnish goshawks. Suomen Luonto 6:310-14.

Schnell, J. H. 1958. Nesting behavior and food habits of goshawks in the Sierra Nevada of California. Condor 60:377-403.

Scott, V. E., and J. L. Oldemeyer. 1983. Cavity-nesting bird requirements and response to snag cutting in ponderosa pine. Pages 19-23 in J. W. Davis, G. A. Goodwin, and R. A. Ockenfels, tech. coords. Snag habitat management; Proc. of the symposium. U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-99.

Sherrod, S. K. 1978. Diets of North American Falconiformes. Raptor Res.12:49121.

Show, S. B., and E. I. Kotok. 1924. The role of fire in the California pine forests. U.S. Dep. Agric. Bull. 1294. 80pp.

Simpson, J. H. 1850. Report of an expedition into the Navajo Country. 31st Congress, 1st Session, Senate Executive Document 64.

Snyder, M. A. 1992. Selective herbivory by Abert's squirrels mediated by chemical variability in ponderosa pine. Ecology 73:1730-1741.

_____. 1993. Interactions between Abert's squirrel and ponderosa pine: the relationship between selective herbivory and host plant fitness. Am. Nat. 141:866-879.

_____, **and Y. B. Linhart.** 1993. Barking up the right tree. Nat. Hist. 102:44-49.

_____, **and** _____. 1994. Nest-site selection by Abert's squirrel: chemical characteristics of nest trees. J. Mamm. 78:136-141.

Steenhof, K. 1987. Assessing raptor reproductive success and productivity. Pages 157-170 in B. G. Pendleton, B. W. Millsap, K. W. Kline, and D.M. Bird, eds., Raptor management techniques manual, Natl. Wildl. Fed., Washington, D. C.

Sutton, G. M. 1927. The invasion of goshawks and snowy owls during the winter of 1926-1927. Cardinal 2:35-41.

Swetnam, T. W. 1990. Fire history and climate in the southwestern United States. Pages 6-17 in J. S. Krammes, tech. coord. Effects of fire management of southwestern natural resources. U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-191.

____, **and P. M. Brown.** 1992. Oldest known conifers in the southwestern U.S.: temporal and spatial patterns of maximum age. Pages 24-38 in M. R. Kaufmann, W. H. Moir, and R. L. Bassett, tech. coords. Old-growth forests in the Southwest and Rocky Mountain regions. Proc. of a workshop. U. S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-213.

____, **and J. H. Dieterich.** 1985. Fire history of ponderosa pine forests in the Gila Wilderness, New Mexico. Pages 390-397 in J. E. Lotan, B. M. Kilgore, W. C. Fischer, and R. W. Mutch, tech. coords. Proceedings-symposium and workshop on wilderness fire. U. S. Dep. Agric., For. Serv. Gen. Tech. Rep. INT 182.

Tecle, A., W. W. Covington, and R. H. Hamre. 1989. Multi-resource management of ponderosa pine forests. U.S. Dep. Agric., For. Serv. Gen. Tech. Rep. RM-185. 282pp.

Thissen, J., G. Müskens, and P. Opdam. 1982. Trends in the Dutch goshawk Accipiter gentilis population and their causes. Pages 28-43 in R. E. Kenward and I. M. Lindsay, eds., Understanding the goshawk. Intl. Assoc. Falconry and Conserv. of Birds of Prey, Oxford, U.K.

U.S. Department of Agriculture. 1989. Regional forester's sensitive species list. Southwestern Region, Albuquerque, N.M.

U.S. Department of Interior. 1993. Endangered and threatened wildlife and plants; final rule to list the Mexican spotted owl as a threatened species. Fed. Regist. 58:14248-14271.

Verner, J. 1985. Assessment of counting techniques. Pages 247-302 in R. F. Johnston, ed., Current ornithology, Vol.2. Plenum Press, New York, N.Y.

Weaver, H. 1951. Fire as an ecological factor in the southwestern ponderosa pine forests. J. For. 49:93-98.

Whaley, W. H., and C. M. White. 1994. Trends in geographic variation of Cooper's hawk and northern goshawk in North America: a multivariate analysis. Proc. West. Found. Vertebrate Zool. 5:161-209.

White, A. S. 1985. Presettlement regeneration patterns in a southwestern ponderosa pine stand. Ecology 66:589-594.

Widén, P. 1984. Activity patterns and time-budget in the goshawk Accipiter gentilis in a boreal forest area in Sweden. Ornis Fenn. 61:109-112.

____. 1989. Hunting habits of goshawks Accipiter gentilis in boreal forests of central Sweden. Ibis 131:205-213.

Wikman, M., and H. Lindén. 1981. The influence of food supply on goshawk population size. Pages 105-113 in R.E. Kenward and I.M. Lindsay, eds. Understanding the goshawk. Intl. Assoc. for Falconry and Conserv. of Birds of Prey, Oxford, U.K.

Woodbridge, B., and P. J. Detrich. 1994. Territory occupancy and habitat patch size of northern goshawks in the southern Cascades of California. Studies Avian Biol. 16:83-87.

Woolsey, T. S., Jr. 1911. Western yellow pine in Arizona and New Mexico. U.S. Dep. Agric., For. Serv. Bull. 101. 64pp.

Younk, J. V., and M. J. Bechard. 1994. Breeding ecology of the northern goshawk in high-elevation aspen forests of northern Nevada. Studies Avian Biol. 16:119-121.

APPENDIX

Descriptions of Southwestern Forests

Subalpine Conifer Forests --- Subalpine forests consist primarily of Engelmann spruce and subalpine fir. Other dominant species can include corkbark fir (A. lasiocarpa var. arizonica) and periodically, white fir and blue spruce (P. pungens). In rocky, steep scree areas, limber pine (Pinus flexilis) and bristlecone pine (P. aristata) dominate.

Spruce-fir forests tend to be dense, and canopy closure can be almost complete. Old-growth stands can exceed 25 m in height, and all species can reach several hundred years at maturity. For example, average longevities of trees in old-growth stands in the Southwest are about 200 years for both Abies, 500 to 600 years for both Picea, with maxima recorded of 450 years for A. lasiocarpa and 1,670 years for Pinus flexilis (Moir 1992, Swetnam and Brown 1992).

The primary shrub species in spruce-fir forests include several willows (Salix bebbiana, S. scouleriana), maple (Acer glabrum), elders (Sambucus glauca, S. microbotrys), alder (Alnus tenuifolia), bitter cherry (Prunus emarginata), Mahonia (Berberis repens), several species of raspberries (Rubus), snowberries (Symphoricarpos spp.), and the ubiquitous common juniper (Juniperus communis), kinnikinnik (Arctostaphylos uva-ursi), honeysuckle (Lonicera involucrata), and shrubby cinquefoil (Potentilla fruticosa). Wherever there has been recent disturbance (e.g., fire or landslides), quaking aspen (Populus tremuloides) can occur in dense and extensive stands. Clonal growth and resprouting from underground rhizomes allows this species to regrow quickly after disturbance, but individual stems seldom live to 100 years, so that fire suppression often leads to aspen stands being overgrown in a few decades by conifers. At high elevations these forests become sparse, trees become low growing shrubs and the alpine zone begins. At lower elevations, usually between 2,400 and 2,900 m, these forests intergrade into the mixed-conifer forest.

Mixed-conifer Forest --- This is the most complex forest in terms of tree diversity, because it can contain the spruces and firs, especially white fir, plus Douglas-fir, ponderosa pine, and southwestern white pine (P. strobiformis). The mixed-conifer forest defines a zone intermediate in elevation, density, and moisture between the moist, often snowy, relatively dense and close-canopied spruce-fir forests with a short growing season, and the open, warm, and much drier ponderosa pine forests below. The mixed-conifer association is especially common in cool canyons and on north-facing slopes. Many of the understory shrubs are the same genera, and often the same species as those in the subalpine forest. Aspen defines seral stands, and Gambel oak (Quercus gambelii) is locally common (Pase and Brown 1982).

Pinyon-Juniper Woodland --- These open woodlands are characterized by trees of short, broad, often multi-stemmed stature, seldom over 10 m tall. The primary pinyon pine is P. edulis, while a variety of junipers occur in the region including J. deppeana and J. scopulorum, although J. monosperma is an occasional member of the association. Shrubs are also common in these woodlands, especially cliffrose (Cowania mexicana), Apache-plume (Fallugia paradoxa), Mormon tea (Ephedra spp.), barberries (Berberis fremontii and B haematocarpa), and soapweed (Yucca glauca and Y. baccata) (Brown 1982b). Variations of the major forest types are common. One of the more striking is provided by Marshall (1957) who noted that the head of Florida Canyon in the Santa Rita Mountains contains a forest of Douglas-fir with an understory of walnut (Juglans arizonica) while at the same elevation and slope in the nearby Madre Canyon, the forest is pure ponderosa pine. Also, certain canyons are so steep and narrow, that the canyon floors are moister (and colder because of temperature inversions); therefore, one can find inversions of forest associations with Douglas-fir dominated stands below ponderosa pine.

Views of Early Foresters

When forestry operations were initiated in the Southwest at the turn of the century, foresters were impressed by the big trees, covering millions of hectares of land, and representing an important resource. They decided these stands could be made to grow at higher densities to yield more timber, but that higher densities were only possible if fire was kept out of the forest. For example, Leiberg et al. (1904:23) noted that, in the San Francisco Mountain Forest Reserve, "It is very evident that the yellow pine stands, even when entirely untouched by the ax, do not carry an average crop of more than 40 percent of the timber they are capable of producing ..." This attitude seemed to be prevalent throughout the west: in California, Show and Kotok (1924) noted that fire exclusion

would allow nature "...to utilize the full growing power of the land, and to restore the broken and understocked forest to a more normal condition." The logic or the biological evidence behind the arguments that these forest stands were "capable" of producing more wood, if only nature's "full growing power" was used are not mentioned. Thus, fire prevention became the stated goal and duty of these foresters, encouraged from the start by John Wesley Powell's (1879) early call to action "Can these forests be saved from fire?" This attitude about the need to extract the bounties of nature with maximal efficiency, and to prevent the wasting of these bounties by wild fires was strongly supported by Gifford Pinchot, who was the Chief Forester of the Division of Forestry within the U.S. Department of Agriculture. Pinchot had strong opinions about conservation, development,and fires. For example, in his book *The Fight for Conservation* (1910:42-46) he wrote: "The first great fact about conservation is that it stands for development...In the second place, conservation stands for the prevention of waste...waste is not a good thing and...the attack on waste is an industrial necessity...Today we understand that forest fires are wholly within the control of men. So we are coming...to understand that the prevention of waste...is a simple matter of good business. We are in a position... to say how far the waste and destruction of natural resources are to be allowed to go on and where they are to stop."



Impressions of Pre-settlement Ponderosa Pine Forests

Descriptions	Area	Source
Arizona - New Mexico		
"Pines tall...grass luxuriant...profusion of...flowers...the wildrose...among them."	Chuska Mtns., Washington Pass	Simpson 1850
"Towering pines and firs...flowers of rich profusion...upwards of 90 varieties..."	Chuska Mtns., Rio Negro	Simpson 1850
"Bright green sward...open groves [of pines] dispersed gracefully..."	Bill Williams Mtn.	Ives 1861
"Pine, aspen, park-like region with a large growth of yellow pine (*P. ponderosa*) and fir...a diversified herbaceous vegetation."	South of Gallup	Rothrock 1875
Noted open canopy structure	N AZ (35°N)	Whipple 1856 (cited in Cooper 1960)
"The forest was perfectly open and unencumbered with brush."	Chuska Mtns.	Beale 1858
"Vast forest of gigantic pines, intersected frequently with green glades, sprinkled all over with...meadows and wide savannas filled with the richest grasses, were traversed by our party for many days."		
"Plateau at 2130 m. covered throughout with beautiful forest of stately pines (*P. ponderosa*)...There is no undergrowth to obstruct the view...grass after rainy season...is knee-deep in places."	San Francisco Mtns.	Merriam 1890
"trees are...noble in aspect and stand widely apart, exception the highest part of the plateau where spruces predominate. Instead of dense thicket...we can...see tree trunks vanishing away like and infinite colonnade...From June until September there is a display of wild flowers."	Kaibab Plateau	Dutton 1887
"Pine trees are widely spaced and in close groves of oak and grass-floored parks."	Chuska, Carrizo, and Navajo Mtn.	Rothrock 1887
"...scarcely any undergrowth, but a dense mat of grass and flowers in these forests, and beautiful mountain parks..."	Springerville, AZ	Nelson 1884
"The first day we were fatiqued by the difficulty of getting through the high grass which covered the heavily timbered bottom."	Gila R.	Pattie 1905
"The bottoms of the Blue River were in 1885...stirrup high in gramma grass and covered with groves of mixed hardwoods and pine."	Blue R. (tributary of upper Gila)	Leopold 1921
"The forests of Arizona...were green, devoid of undergrowth, and consisted in the main mature trees. Instead of...undergrowth, the ground was well set with perennial grasses and other herbage."	Arizona Overview	Holsinger 1902
"The typical western yellow pine forest of the Southwest is a pure parklike stand made up of scattered groups from 2 to 20 trees...openings are frequent and vary greatly in size."	AZ & NM	Woolsey 1911

ANALYSIS OF GOSHAWK NESTING HABITAT AT FIVE SPATIAL SCALES IN UNDISTURBED AND TIMBER HARVEST TERRITORIES ON THE TARGHEE NATIONAL FOREST

FINAL REPORT
CHALLENGE COST SHARE RESEARCH PROJECT 1992-1995

SUSAN PATLA AND DR. C. H. TROST
IDAHO STATE UNIVERSITY
21 JANUARY 1997

SUMMARY OF RESULTS

This report summarizes habitat data collected at Northern Goshawk (Accipiter gentilis) nesting territories at 27 current (occupied since 1988) and 4 historical territories (occupied prior to 1988) on the Targhee National Forest in eastern Idaho. Twelve territories were located in undisturbed areas of the Forest, and 19 in active timber sale areas. We collected habitat data at five spatial scales within estimated home range areas including the nest tree, nest stand, nesting area (NA: 200 acres surrounding nest trees), post-fledging family area (PFA: 400 acres surrounding nest area), and the entire foraging area (FA: 6000 acres surrounding nest trees). We quantified cover types in the larger analysis areas using ARC/INFO Geographic Information System (GIS) vegetation coverages. Active nests trees (n=49) were found in mature Douglas fir (Pseudotsuga menziesii) (78%), lodgepole pine (Pinus contorta) (18%), Engelmann spruce {Picea engelmanii) (2%), and quaking aspen (Populas tremuloides) (2%). Nest trees averaged 82 feet in height, 17.2 inches dbh, 79% canopy cover, and 131 years in age. Mean elevation was 6950 ft. Most trees were found on moderate slopes with north and west aspects. Over half the nest clusters were found within 500 feet of a forest edge; the remainder were located farther back in the interior of the forest. We measured nest stand data using 66 ft radius plots centered at nest trees. Stands were characterized by high density of mature trees (155 trees/acre) and high canopy cover (73%). Compared to lodgepole pine stands, Douglas fir/mixed conifer stands had a greater density of large and medium sized sawtimber, greater basal area, higher canopy cover, and fewer downed trees. Comparing nest plots to paired random plots located within estimated home range areas, we found that nest plots had taller center trees, greater basal area, greater overstory height, more distance beneath the main canopy, and were located farther from the forest edge.

Mature forest cover predominated within our three larger analysis areas at current territories. Within the NA, averages for the five cover types measured were mature forest (68%), seedling (20%), sage/shrub (6%), young sawtimber (3%), and open area (3%). Within the PFA, mature forest averaged 66%, seedling 18%, sage/shrub 7%, young sawtimber 5%, and open area 4%. Within the FA; mature forest averaged 61%, seedling 16%, sage/shrub 14%, young sawtimber 5%, and open area 4%. Proportion of mature forest cover at all three analysis levels averaged higher in undisturbed territories (NA=84%, PFA=76%, FA= 67%). At each level, mature forest cover lower than 40% was measured at a few territories found in post-harvest areas. Comparing the three analysis areas, the only significant difference in cover types found was a greater proportion of sage/shrub habitat in the FA compared to the NA and PFA, and a slightly higher proportion of open/grassland habitat in the FA compared to the NA. Given the available attributes in the GIS database, we could not compare structural differences of mature forest stands between the three analysis areas.

Average occupancy for 22 territories monitored a minimum of three years was 69%. Productivity averaged 1.88 young per nest attempt. We found no relation between the number of young produced per nest and habitat variables measured at any spatial scale. Territories with high occupancy rates (over 50%) had significantly greater mature forest cover within the NA and PFA, and significantly less young forest (NA, PFA, FA), and seedling cover (NA, PFA). Using step-wise regression analysis, we found occupancy was positively related to sage/shrub cover at all three levels, and negatively related to seedling cover (NA) and young forest (PFA).

Comparing current territories in undisturbed (n=12) and post-harvest areas (n=15), the post-harvest territories had significantly less mature forest cover within the NA and PFA. Minimum levels of mature forest cover at the undisturbed territories were not lower than 49% at any analysis level. Productivity did not differ between undisturbed and post-harvest territories. Occupancy averaged higher for the undisturbed territories but was not significant. Forty-two percent of the post-harvest territories and 14% of the undisturbed had low occupancy rates (50% or lower).

We measured loss of mature forest cover at 10 territories where goshawks were found nesting both in the pre and post-harvest periods. Prior to harvest, mature forest cover averaged 90% (NA), 86% (PFA), and 80% (FA). Change in percent mature forest cover was significant at all levels. Losses were greatest in the core area of estimated home range areas: NA (33% harvested), PFA (26%), FA (19%). Goshawks reoccupied 80% of the post-harvest territories in the years immediately following harvest. Average number of young produced per nest was not different in the pre and post-harvest periods. Occupancy averaged 79% in the pre-harvest period and 47% in post-harvest period, but sample number was low for the pre-harvest period and differences were not significant. We compared cover types between high and low occupancy post-harvest territories. High occupancy territories had higher level of mature forest cover at all analysis levels; within the NA differences were significant. Variation in the amount of mature forest cover within the NA accounted for 57% of the variation in occupancy for these post-harvest territories. Data from territories monitored over four or five years, indicate that goshawks may renest for a few years post-harvest but then not reoccupy territories. Occupancy rates were higher and more consistent over time at territories where known nest sites were protected by large untreated buffers. At three historical territories in LP salvage harvest areas, where goshawks no longer were found nesting, proportion of mature forest cover was lower than at current territories: 37% (NA), 49% (PFA) and 47% (FA).

Although our study has documented successful nesting by goshawks in post-harvest areas, it may have over estimated occupancy due to the short interval since harvesting occurred at many territories, and possible lag responses to habitat change. Our analysis shows that current harvest methods significantly reduces mature forest cover within estimated home range areas. Mature forest habitat was disproportionately lost from the core (NA and PFA) of territories. Since occupancy in post-harvest territories appears to be related to the amount of mature forest cover in the core area, identification and management of traditional nesting territories should be included in conservation plans for this species.

Averages for mature forest cover measured within estimated home range areas at goshawk nesting territories on the Targhee NF correspond closely to recommendations for managing goshawk habitat in the Southwest (Reynolds et al. 1992). We suggest that recommendations be modified by redefining the nest area as a contiguous, unmanaged 175 acre area of mature forest habitat that includes all known nest stands.

GOSHAWK MANAGEMENT WORKSHOP - FEB. 27-28, 1997 - SPOKANE, WASHINGTON
MEETING NOTES

Gene Silovsky
- Widely distributed/all forest types/uses both natural and altered habitats
- 60% of all reported nest sites in areas with timber harvest in Region 6

Miles Hemstrom
- Info from UCRB assessment
- Change has been rapid in last 50-100 years
- Soil & geology highly variable
  Climate highly variable
  Vegetation highly variable
- 60 years ago compared to today:
  amount of shrubs steeppe has declined
  D. fir and mixed conifer declined
  P. Pine conifer declined
  Whitefir and grand fir increased
  Grassland and cropland increased
  Young forest has declined
  Old multistory O.G. has increased
  Old single story O.G. has decreased

Lute successional forest:
  60 years ago-abundant multstoried late succ. forest
* Today - amount of late successional forest declined
  (map showed no late successional forest today on Targhee) -
  (where did they get their data?!)

James Watson
East Cascades - Food habits during nesting season:
  193 prey items - birds - 52% and mammals - 45% 97% of prey
  grouse most commonly used prey
  Douglas tree squirrels and hares most common mammals
  Prey items are cyclic-affects goshawks
- grouse provided 52% of biomass
- snowshoe hare also large part of prey biomass
- No info on winter diets

Joseph Buchanon/Larry Irwin:
East cascades - 55% of spotted owl nests are old goshawk nests.
Nest site characteristics: at the nest sites used by spotted owls - this is biased to only those sites used by owls - what about the other 45%?

Conclusion: Range of habitat conditions at nest stands -
does not represent full range of conditions for goshawks.

Only looked at the actual nest sites - 0.1 acre and 0.25 acre plots.
Most of sites on slopes - 29-59% slopes
Most in Douglas fir trees -
Dbh - 40-100 cm dbh (median 24 inches dbh)
Age - 60-120 yrs. old trees
Height - 16-40 meters
Canopy Height (lowest live branch) - 10-30 meters
Age of stand - 80-280 years - dominant trees
41-140 years - intermediate trees
40% of nest on north facing slopes but nests were found on all aspects

Stephen DeStefano

Nest site characteristics - Eastern Oregon -

12 hectures to 170 hectures

| | - post-fledging family area

Nest stand

72 reliable nest sites -

47% dry mixed conifer

27% P. Pine

25% lodgepole

Goshawks don't use same sites year after year - studies in 5 states showed about a 73% reoccupancy rate.

Nest sites in late seral stage forests

Variables used more than available -

stem exclusion (mid to late succ. forests)

lower slopes and drainage bottoms

north aspects

Goshawks forage in open areas (sagebrush) for ground squirrels - shows flexibility.

Goshawk is more of a forest generalist - but still requires at least a minimum amount of late succ. forest.

Comment Do we have more goshawk habitat today than in historical times
- because we had more dense forests today?
- We cannot maintain the high densities forever!

Karen Austin

Habitat use - South Cascades (Shasta-Trinity and Klamath N. F. in California)- 1988/1989

Home Range/Habitat Use/Prey Analysis -

Nesting -> {1924 hectares - average home range/males & females

Seasons {2663 (females) - average home for females

{1185 (males) - average home for males

- Manage landscapes in a way that provides for goshawk nest sites and prey species - a variety of stand conditions - they are compatable with a variety of types of forest management.

- All research was during the nesting season only.

Mike McGrath

Landscape characteristics of nest sites in Oregon and Washington - more of a big picture - looked at 170 ha PFA, and 83 ha theoretical PFA (based on size of bird).

(Need to get a copy of his paper - very complex)

John Squires

Nest site preferences in Southern Wyoming -
50-60 pairs - 1992 to present time

Species of nest tree selected in proportion to availability of that species - used aspen, lodgepole, subalpine fir.

Selected larger size trees than random

Nest {Evenaged, mature stands - (he stressed not old growth!)
Stands {single storied with high canopy closure, and open understories.
{Created by stand replacing fires!
Food items (red squirrels, flickers, robins, ground squirrels, chipmunks).

Migrate up to 400 Km for winter period (average distance was 194 Km). Used sage, juniper, ponderosa, etc.

All mortality on birds has been fall/winter - no mortality during nesting season.

Richard Reynolds

- 6 years of research on Kaibab Plateau (16 Years of data on Flammulated Owls)

- No water on Plateau!!
- 700 sq. miles in size -
  1991 - 37 nests
  1992 - 64 nests
  1993 - 82 nests
  1994 - (only 20% of pairs bred) 88
  1995 - 100 nests
  1996 - 107 nests
  estimate - 130 territories in total

Most territories are occupied
- but not all are reproductively active every year.

- Birds in National Park are doing less well than birds on the National Forest!!

- 53 to 73% of pairs used alternate nests the following year - you cannot just monitor the same nest sites.

{-91% of Males - remain faithful to territory
{-78% of females remain faithful to territory
{ fairly high rate of mate fidelity and territory fidelity

68% survival rate for males
86% survival rate for females

- No pairs in seed tree harvest areas! (large openings
- with only a few trees left/acre) SW Goshawk guidelines call for small regen openings - not large ones.

Sandy Boyce -

S.W. Goshawk guidelines - the concept -

"The long term welfare of the Goshawk is best met when a sustained flow of habitat is provided through time"

Forested acres } does not include } natural openings }	10	vss 1 grass	}	all stages must be distributed across the landscape
	10	vss 2 seed		
	20	vss 3 young		
	20	vss 4 mid-aged		
	20	vss 5 mature		
	20	vss 6 old		

(patch size is .3 &.7 acres in size in ponderosa pine)

--> Manage entire landscape for foraging areas for goshawks.

Dan Garcia/Scott Nammenga -

- Still have more trees in all size classes than existed in 1910 on the Kaibab Plateau.
- Seasonal restrictions includes hauling through PFA's!!
- Foraging area - they are using stand boundaries and topographic breaks - something recognizeable - reasonable.
- Looking at vegetation treatments in nest areas to help maintain them overtime - underburning - thinning from below, etc.
- What do you do with overlapping territories - many times foraging areas overlap - what if one territory is for a vss class and other territory is not at a limit - what do you do - - can you treat the one territory? --
- To implement - they are combining VSS1 & VSS2 - too hard to keep them separate - most often they are intermixed anyway.

Russ Graham -

"the 10/10/20/20/20/20 - based on maintaining mature and old growth overtime" -

Robert Anthony -

- Can S.W. Guidelines be applied to Region 6
- Assumptions of S.W. Guidelines - food and nesting habitat are limiting factors -
- Assumptions and principles are correct for Region 6 - !!!

For Nest Site/areas,

Need To:

- Modify according to habitat characteristics of the Forest types in your locale.

* More info is needed on concept of PFA and its real significance in Region 6!

Can we manage for the small differences in canopy cover called for in SW guidelines in PFA's versus foraging areas? Nobody has found a consistent/reliable way to measure canopy cover anyway.

- Need for more diet information before implementing guidelines for Region 6.
- Need more information on range of historical vegetative conditions in Region 6.

3 possible management approaches --

1. Maintain all known pairs and territories
2. Manage entire landscape for suitable habitat
3. Explicit conservation strategies for number and distribution of breeding pairs (need detailed info like was done for northern spotted owl).

Summary - Can S.W. concepts be use in Region 6? :

- Is PFA concept valid - do we need to distinguish from foraging area?
- winter habitat info is needed - everywhere
- diets - more info is needed for specific locations
- Demographic performance of population is needed
- Info on juveniles - habitat use/dispersal - is needed

Wally Murphy -

Implications of UCRB/EEMP "ICBEMP"

- Emphasis is on the "Big Picture" - no fine scale analysis
- Viability scores for goshawk were "good" in assessment area

--> 160 Standards & Objectives in Plan/EIS!!

Viability Assessment:

Relative ranking of alternatives based on habitat capability.

Robert Riggs:

Differences in habitat variations were not very important in productivity - why -

other factors also have effect } -- narrow range of habitat variations
- nest substrate
- weather
- prey abundance/availability
- competition
- predation

Charlie Johnson -

Disturbances are a vital part of ecosystems.
Landforms, soils, relief, climate all combine to create vegetation patterns.
Need a shift from species level and stand level management to landscape level management. Must focus on the landscape.

Fire/Grazing/Insect/Diseases/Wind/Floods/Climate Change

\|/

Natural & Human Disturbances

Fire - frequent fires in ponderosa pine - Light understory burns
- infrequent fires in other forest types - patch burns-selective burns
- stand replacement burns

LP forests - result of stand replacing fires

- Silvicultural treatments that emulate fire disturbances are beneficial
  - stand composition
  - stand structure
  - stand successional stage
  - stand patchsizes

Healthy forest is not all late successional - healthy forest contains all successional stages.

Silvicultural treatments and prescribed fire can promote biological diverse forests.

Jim Hatfield -
Considerations of forest diseases -

Dave Bridgewater -
Considerations of forest insects
Bark Beetles - kill trees quickly
Defoliators - usually kill trees more slowly

Bark Beetles like dense/overstocked stands -

Not sure what triggers defoliation outbreaks -
they just occur periodically.

Exotic insects and diseases are the biggest concern - they are not natural!

Use of bark beetle "pheromes" is a new test to attract or disperse beetles. If you put an attractant on a single tree -- you could attract enough beetles to kill that tree to create a snag. Use a disperser in a campground to keep beetles away.

Monte Cook -
Viable Ecosystem Process - Ochoco National Forest
Too many single species management plan - didn't all fit together -
needed a landscape - EM approach. Analysis done at a watershed level.

Started with existing vegetation conditions identified historical vegetation conditions, identified habitat needs for species/guides of wildlife.

Steve Tesch -
Silvicultural Options for Goshawks in mixed conifer forests -

1. Landscape Pattern -
   previous/existing/desired
2. Disturbance history - fire/insects/disease/harvesting
3. Dynamics into the future -
   stands & landscapes are on a trojectory overtime -
   not all disturbances lead to the same future condition
4. Diversity within the mixed conifer forest type
   - within stand
   - geographically
   - overtime - succession
5. Interactions
   - habitat is associated with structural and successional change overtime

Working with small diameter material (thinning from below)
is not/may not pay for itself. Does not see alot of money coming for thinning small diameter trees.
Fundamentals of Density Management:

1. Concept of site carrying capacity
2. Allocating growing space
3. Stand density index
4. Relative density - crown closure/mortality
5. Density management diagrams
6. Density effects on growth and other stand attributes.

We don't manage for maximum density - trees wouldn't grow - density we manage for depends on our objective for tree sizes/cover/etc.

Evelyn Bull -
Consideration of other species in goshawk management
Great Grey Owls }
Great Horned Owls } all use goshawk nests -
Spotted Owls } goshawks eat them

Goshawks eat pileated wood peckers -
pileated need 4 snags/acre for viable populations
Region 6 goshawk guidelines call for 2.2 snags/acre

pileated need 89 logs/acre ≥ 34' long ≥ 6" dbh
Region 6 goshawk guidelines - 3-4 logs/acre ≥ 34' long

pileated-home range 1,000 acres - 94% late succ./old growth
Region 6 goshawk guidelines - 400 acres - 60% late succ./old growth

Marten:
- Marten like late succ/o.g. forest - as forests are fragmented - Marten densities & reproduction decline.
- snags/hollow trees important
- mistetoe used
- downed logs - 176 logs/acre ≥ 34' ≥ 4" dbh
-760 to 2500 acres - home range - 69% late/o.g.
'O+ 'O->
- thinning/burning not beneficial to marten

Vaux's Swift:
- need hollow trees for next sites
- goshawk guidelines are OK for Vaux's Swift

* Evelyn cited some work about downed logs/acre and relationship to small mammal populations.

- Retain as many logs as you can and still meet your management objectives. Fire people said 60 logs/acre was OK for fire purposes.

Panel
Hawkwatch: - monitoring hawk migrations in West U.S.
- 70 - 90% of goshawks are immature birds
- some years we get birds from Canada (when hare populations crash).
- Decline in goshawks at only 1 site - in Utah 39% decline

- A separate approach for each forest cover type is need for a goshawk conservation strategy throughout the western U.S.

- Pat Kennedy - doing a paper for raptor research saying goshawk should not be listed.

No genetic variation among any goshawk population in Western U.S. - paper currently being prepared for publication.

ATTACHMENT K

Road and Trail Access Information
for each BMU/Subunit for each Alternative

pages 1-5:	Roads and trails by 13 differenct categories (see Attachment I for explanation of categories)
pages 6-8:	Roads and trails by 8 categories
pages 9-11:	OROMTRD and TMARD

EXISTING CONDITION - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
Bechler/Teton	22.1	8.1	164.0	30.5	0.0	0.0	0.0	0.0	0.0	7.4	20.1	144.6	71.7	468.5
B/T other	1.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Total	23.4	8.1	164.1	30.5	0.0	0.0	0.0	0.0	0.0	7.4	20.1	144.6	71.7	469.9
Henrys Lake 1	20.6	0.0	61.7	3.9	0.0	0.0	0.0	0.0	0.0	8.2	26.4	39.9	13.0	173.7
H. L. 1 other	9.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Total	29.6	0.0	63.0	3.9	0.0	0.0	0.0	0.0	0.0	8.2	26.4	39.9	13.0	184.0
Henrys Lake 2	19.9	0.0	12.2	7.9	0.0	0.0	0.0	0.0	0.0	1.5	0.0	2.8	17.5	61.8
H. L. 2 other	4.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.2
Total	24.1	0.0	12.7	7.9	0.0	0.0	0.0	0.0	0.0	2.0	0.0	2.8	17.5	67.0
Henrys Lake 3	54.5	0.0	40.5	5.5	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.2	7.4	111.2
H. L. 3 other	112.3	0.0	24.6	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	138.8
Total	166.8	0.0	65.1	5.5	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.2	7.6	250.0
Plateau 1	14.8	0.0	88.3	6.4	0.0	0.0	0.0	0.0	0.0	11.7	0.5	103.1	10.0	234.8
Pl. 1 other	10.4	0.0	1.7	2.2	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	16.9
Total	25.2	0.0	90.0	8.6	0.0	0.0	0.0	0.0	0.0	14.3	0.5	103.1	10.0	251.7
Plateau 2	7.0	2.9	59.4	12.7	0.0	0.0	0.0	0.0	0.0	0.6	0.0	134.3	0.0	216.9
Pl. 2 other	3.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	5.3
Total	10.1	2.9	61.0	12.7	0.0	0.0	0.0	0.0	0.0	1.2	0.0	134.3	0.0	222.2

Alternative 3M - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
Bechler/Teton	3.9	1.5	138.8	2.6	0.0	0.0	0.0	0.0	0.0	4.1	6.4	46.8	98.3	302.4
B/T other	1.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Total	5.2	1.5	138.9	2.6	0.0	0.0	0.0	0.0	0.0	4.1	6.4	46.8	98.3	303.8
Henrys Lake 1	0.3	0.0	53.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	21.3	22.1	13.8	111.1
H. L. 1 other	9.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Total	9.3	0.0	54.7	0.0	0.0	0.0	0.0	0.0	0.0	0.2	21.3	22.1	13.8	121.4
Henrys Lake 2	5.4	0.0	10.6	6.5	1.6	0.0	0.0	0.0	0.0	0.4	0.0	2.1	17.5	44.1
H. L. 2 other	4.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.2
Total	9.6	0.0	11.1	6.5	1.6	0.0	0.0	0.0	0.0	0.9	0.0	2.1	17.5	49.3
Henrys Lake 3	66.0	0.0	64.5	5.5	0.2	0.0	0.0	0.0	0.0	0.4	0.0	0.7	7.6	144.9
H. L. 3 other	112.3	0.0	24.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	138.7
Total	178.3	0.0	89.0	5.5	0.2	0.0	0.0	0.0	0.0	2.1	0.0	0.7	7.8	283.6
Plateau 1	1.3	0.0	65.2	3.5	0.0	0.0	0.0	0.0	0.0	6.7	1.5	46.0	5.4	129.6
Pl. 1 other	6.8	0.0	1.7	1.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	12.2
Total	8.1	0.0	66.9	4.6	0.0	0.0	0.0	0.0	0.0	9.3	1.5	46.0	5.4	141.8
Plateau 2	0.0	0.0	60.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	3.4	22.7	15.9	102.2
Pl. 2 other	3.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	5.3
Total	3.1	0.0	61.6	0.2	0.0	0.0	0.0	0.0	0.0	0.6	3.4	22.7	15.9	107.5

Alternative 1 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
Bechler/Teton	19.7	1.2	134.0	20.4	3.3	0.0	86.0	0.0	0.0	0.3	20.1	69.8	71.7	426.5
B/T other	1.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Total	21.0	1.2	134.1	20.4	3.3	0.0	86.0	0.0	0.0	0.3	20.1	69.8	71.7	427.9
Henrys Lake 1	11.9	0.0	52.2	0.0	0.0	0.0	2.0	0.0	0.0	7.1	26.4	33.4	13.0	146.0
H. L. 1 other	9.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Total	20.9	0.0	53.5	0.0	0.0	0.0	2.0	0.0	0.0	7.1	26.4	33.4	13.0	156.3
Henrys Lake 2	9.0	3.4	9.8	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	4.2	17.5	46.8
H. L. 2 other	4.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.2
Total	13.2	3.4	10.3	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	4.2	17.5	52.0
Henrys Lake 3	65.3	5.5	58.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	7.4	136.7
H. L. 3 other	112.3	0.0	24.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	138.7
Total	177.6	5.5	82.6	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.4	7.6	275.4
Plateau 1	13.0	6.9	112.4	0.0	0.0	1.7	0.0	0.0	0.0	13.4	0.5	79.0	10.0	236.9
Pl. 1 other	10.4	0.0	1.7	2.2	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	16.9
Total	23.4	6.9	114.1	2.2	0.0	1.7	0.0	0.0	0.0	16.0	0.5	79.0	10.0	253.8
Plateau 2	9.8	1.6	70.3	7.4	0.0	0.0	0.0	0.0	0.0	2.0	0.0	123.3	0.0	214.4
Pl. 2 other	3.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	5.3
Total	12.9	1.6	71.9	7.4	0.0	0.0	0.0	0.0	0.0	2.6	0.0	123.3	0.0	219.7

Alternative 2 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
Bechler/Teton	10.1	0.0	176.1	0.0	4.8	0.0	37.5	0.0	0.0	3.4	20.1	41.3	71.7	365.0
B/T other	1.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Total	11.4	0.0	176.2	0.0	4.8	0.0	37.5	0.0	0.0	3.4	20.1	41.3	71.7	366.4
Henrys Lake 1	5.3	0.0	57.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4	28.3	13.0	130.0
H. L. 1 other	9.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Total	14.3	0.0	58.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4	28.3	13.0	140.3
Henrys Lake 2	5.8	3.4	10.8	0.0	3.0	0.0	1.1	0.0	0.0	2.9	0.0	2.8	17.5	47.3
H. L. 2 other	4.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.2
Total	10.0	3.4	11.3	0.0	3.0	0.0	1.1	0.0	0.0	3.4	0.0	2.8	17.5	52.5
Henrys Lake 3	63.4	5.5	61.2	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	1.4	7.4	143.9
H. L. 3 other	112.3	0.0	24.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	138.7
Total	175.7	5.5	85.7	0.0	0.0	0.0	0.0	0.0	0.0	6.7	0.0	1.4	7.6	282.6
Plateau 1	9.1	8.6	154.4	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.5	7.8	10.0	193.9
Pl. 1 other	10.4	0.0	1.7	2.2	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	16.9
Total	19.5	8.6	156.1	2.2	0.0	0.0	0.0	0.0	0.0	6.1	0.5	7.8	10.0	210.8
Plateau 2	0.6	1.6	93.9	7.4	0.0	0.0	0.0	0.0	0.0	0.5	0.0	94.6	0.0	198.6
Pl. 2 other	3.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	5.3
Total	3.7	1.6	95.5	7.4	0.0	0.0	0.0	0.0	0.0	1.1	0.0	94.6	0.0	203.9

Alternative 3 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
Bechler/Teton	3.9	0.0	148.4	0.0	0.0	0.0	5.3	0.0	0.0	4.1	20.1	38.8	71.7	292.3
B/T other	1.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Total	5.2	0.0	148.5	0.0	0.0	0.0	5.3	0.0	0.0	4.1	20.1	38.8	71.7	293.7
Henrys Lake 1	4.9	0.0	58.5	0.0	0.0	0.0	0.0	0.0	0.0	7.3	26.4	34.3	13.0	144.4
H. L. 1 other	9.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Total	13.9	0.0	59.8	0.0	0.0	0.0	0.0	0.0	0.0	7.3	26.4	34.3	13.0	154.7
Henrys Lake 2	5.8	3.4	9.7	0.0	4.2	0.0	2.8	0.0	0.0	2.3	0.0	1.4	17.5	47.1
H. L. 2 other	4.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.2
Total	10.0	3.4	10.2	0.0	4.2	0.0	2.8	0.0	0.0	2.8	0.0	1.4	17.5	52.3
Henrys Lake 3	67.6	5.5	64.8	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.7	7.4	147.2
H. L. 3 other	112.3	0.0	24.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	138.7
Total	179.9	5.5	89.3	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.7	7.6	285.9
Plateau 1	6.2	7.0	88.6	0.0	0.0	1.6	2.3	0.0	0.0	10.7	0.5	72.0	10.0	198.9
Pl. 1 other	10.4	0.0	1.7	2.2	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	16.9
Total	16.6	7.0	90.3	2.2	0.0	1.6	2.3	0.0	0.0	13.3	0.5	72.0	10.0	215.8
Plateau 2	0.0	0.2	63.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.7	0.0	114.0
Pl. 2 other	3.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	5.3
Total	3.1	0.2	64.7	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	50.7	0.0	119.3

Alternative 4 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
Bechler/Teton	1.8	0.0	124.3	0.0	0.7	0.0	16.1	0.0	0.0	3.4	6.4	14.2	98.3	265.2
B/T other	1.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Total	3.1	0.0	124.4	0.0	0.7	0.0	16.1	0.0	0.0	3.4	6.4	14.2	98.3	266.6
Henrys Lake 1	0.3	0.0	40.3	0.0	0.0	0.0	1.5	0.0	0.0	6.0	21.3	11.9	13.8	95.1
H. L. 1 other	9.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Total	9.3	0.0	41.6	0.0	0.0	0.0	1.5	0.0	0.0	6.0	21.3	11.9	13.8	105.4
Henrys Lake 2	4.6	3.4	8.4	0.0	5.2	0.0	3.0	0.0	0.0	0.0	0.0	1.3	17.5	43.4
H. L. 2 other	4.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.2
Total	8.8	3.4	8.9	0.0	5.2	0.0	3.0	0.0	0.0	0.5	0.0	1.3	17.5	48.6
Henrys Lake 3	62.5	5.5	62.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4	7.6	138.6
H. L. 3 other	112.3	0.0	24.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	138.7
Total	174.8	5.5	86.7	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.4	7.8	277.3
Plateau 1	4.3	7.0	60.5	0.0	0.0	1.6	7.7	0.0	0.0	7.2	0.5	24.7	5.4	118.9
Pl. 1 other	10.4	0.0	1.7	2.2	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	16.9
Total	14.7	7.0	62.2	2.2	0.0	1.6	7.7	0.0	0.0	9.8	0.5	24.7	5.4	135.8
Plateau 2	0.0	0.2	55.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	18.1	15.9	92.7

Pl. 2 other	3.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	5.3
Total	3.1	0.2	56.7	0.0	0.0	0.0	0.0	0.0	0.0	0.6	3.4	18.1	15.9	98.0

Alternative 5 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
Bechler/Teton	1.1	0.0	122.5	0.0	0.0	0.0	10.0	0.0	0.0	4.7	6.4	24.3	98.3	267.3
B/T other	1.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Total	2.4	0.0	122.6	0.0	0.0	0.0	10.0	0.0	0.0	4.7	6.4	24.3	98.3	268.7
Henrys Lake 1	2.2	0.0	48.0	0.0	0.0	0.0	4.1	0.0	0.0	4.2	21.3	6.6	13.8	100.2
H. L. 1 other	9.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Total	11.2	0.0	49.3	0.0	0.0	0.0	4.1	0.0	0.0	4.2	21.3	6.6	13.8	110.5
Henrys Lake 2	5.9	3.4	10.5	0.0	2.9	0.0	0.0	0.0	0.0	1.7	0.0	2.8	17.5	44.7
H. L. 2 other	4.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.2
Total	10.1	3.4	11.0	0.0	2.9	0.0	0.0	0.0	0.0	2.2	0.0	2.8	17.5	49.9
Henrys Lake 3	58.6	5.5	61.8	0.0	0.0	0,0	0.0	0.0	0.0	5.0	0.0	1.4	7.6	139.9
H. L. 3 other	112.3	0.0	24.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	138.7
Total	170.9	5.5	86.3	0.0	0.0	0.0	0.0	0.0	0.0	6.7	0.0	1.4	7.8	278.6
Plateau 1	5.1	7.0	55.1	0.0	0.0	1.6	4.8	0.0	0.0	12.2	0.5	19.9	5.4	111.6
Pl. 1 other	10.4	0.0	1.7	2.2	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	16.9
Total	15.5	7.0	56.8	2.2	0.0	1.6	4.8	0.0	0.0	14.8	0.5	19.9	5.4	128.5
Plateau 2	0.0	0.2	55.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	22.4	15.9	97.2
Pl. 2 other	3.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	5.3
Total	3.1	0.2	56.9	0.0	0.0	0.0	0.0	0.0	0.0	0.6	3.4	22.4	15.9	102.5

Alternative 6 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
Bechler/Teton	0.6	0.0	122.7	0.0	0.0	0.0	9.9	0.0	0.0	4.1	6.4	17.6	98.3	259.6
B/T other	1.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Total	1.9	0.0	122.8	0.0	0.0	0.0	9.9	0.0	0.0	4.1	6.4	17.6	98.3	261.0
Henrys Lake 1	3.9	0.0	50.1	0.0	0.0	0.0	4.1	0.0	0.0	0.0	21.3	6.4	13.8	99.6
H. L. 1 other	9.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Total	12.9	0.0	51.4	0.0	0.0	0.0	4.1	0.0	0.0	0.0	21.3	6.4	13.8	109.9
Henrys Lake 2	5.7	3.4	6.9	0.0	4.1	0.0	3.2	0.0	0.0	0.1	0.0	1.3	17.5	42.2
H. L. 2 other	4.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.2
Total	9.9	3.4	7.4	0.0	4.1	0.0	3.2	0.0	0.0	0.6	0.0	1.3	17.5	47.4
Henrys Lake 3	51.0	5.5	61.1	0.0	0.0	0.0	0.0	0.0	0.0	4.9	0.0	1.7	7.6	131.8
H. L. 3 other	112.3	0.0	24.5	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	138.7
Total	163.3	5.5	85.6	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	1.7	7.8	270.5
Plateau 1	4.3	7.0	75.1	0.0	0.4	1.6	11.6	0.0	0.0	10.2	0.5	23.8	5.4	139.9
Pl. 1 other	10.4	0.0	1.7	2.2	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	16.9
Total	14.7	7.0	76.8	2.2	0.4	1.6	11.6	0.0	0.0	12.8	0.5	23.8	5.4	156.8

Plateau 2	0.0	0.2	54.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	17.7	15.9	92.1
Pl. 2 other	3.1	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	5.3
Total	3.1	0.2	56.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	3.4	17.7	15.9	97.4

EXISTING CONDITION - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
Bechler/Teton	186.10	38.60	0.00	0.00	152.00	91.80	0.00	0.00	468.50
B/T other	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Total	187.50	38.60	0.00	0.00	152.00	91.80	0.00	0.00	469.90
Henrys Lake 1	82.30	3.90	0.00	0.00	48.10	39.40	0.00	0.00	173.70
H. L. 1 other	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30
Total	92.60	3.90	0.00	0.00	48.10	39.40	0.00	0.00	184.00
Henrys Lake 2	32.10	7.90	0.00	0.00	4.30	17.50	0.00	0.00	61.80
H. L. 2 other	4.70	0.00	0.00	0.00	0.50	0.00	0.00	0.00	5.20
Total	36.80	7.90	0.00	0.00	4.80	17.50	0.00	0.00	67.00
Henrys Lake 3	95.00	5.50	0.00	0.00	3.30	7.40	0.00	0.00	111.20
H. L. 3 other	136.90	0.00	0.00	0.00	1.70	0.20	0.00	0.00	138.80
Total	231.90	5.50	0.00	0.00	5.00	7.60	0.00	0.00	250.00
Plateau 1	103.10	6.40	0.00	0.00	114.80	10.50	0.00	0.00	234.80
Pl. 1 other	12.10	2.20	0.00	0.00	2.60	0.00	0.00	0.00	16.90
Total	115.20	8.60	0.00	0.00	117.40	10.50	0.00	0.00	251.70
Plateau 2	66.40	15.60	0.00	0.00	134.90	0.00	0.00	0.00	216.90
Pl. 2 other	4.70	0.00	0.00	0.00	0.60	0.00	0.00	0.00	5.30
Total	71.10	15.60	0.00	0.00	135.50	0.00	0.00	0.00	222.20

Alternative 3M - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
Bechler/Teton	142.70	4.10	0.00	0.00	50.90	104.70	144.50	21.60	468.50
B/T other	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Total	144.10	4.10	0.00	0.00	50.90	104.70	144.50	21.60	469.90
Henrys Lake 1	53.70	0.00	0.00	0.00	22.30	35.10	54.40	8.20	173.70
H. L. 1 other	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30
Total	64.00	0.00	0.00	0.00	22.30	35.10	54.40	8.20	184.00
Henrys Lake 2	16.00	6.50	1.60	0.00	2.50	17.50	16.30	1.40	61.80
H. L. 2 other	4.70	0.00	0.00	0.00	0.50	0.00	0.00	0.00	5.20
Total	20.70	6.50	1.60	0.00	3.00	17.50	16.30	1.40	67.00
Henrys Lake 3	130.50	5.50	0.20	0.00	1.10	7.60	-33.50	-0.20	111.20
H. L. 3 other	136.80	0.00	0.00	0.00	1.70	0.20	0.00	0.00	138.70
Total	267.30	5.50	0.20	0.00	2.80	7.80	-33.50	-0.20	249.90
Plateau 1	66.50	3.50	0.00	0.00	52.70	6.90	98.70	6.50	234.80
Pl. 1 other	8.50	1.10	0.00	0.00	2.60	0.00	0.00	0.00	12.20
Total	75.00	4.60	0.00	0.00	55.30	6.90	98.70	6.50	247.00
Plateau 2	60.00	0.20	0.00	0.00	22.70	19.30	118.60	-3.90	216.90
Pl. 2 other	4.70	0.00	0.00	0.00	0.60	0.00	0.00	0.00	5.30
Total	64.70	0.20	0.00	0.00	23.30	19.30	118.60	-3.90	222.20

Alternative 1 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
Bechler/Teton	153.70	21.60	89.30	0.00	70.10	91.80	25.00	17.00	468.50
B/T other	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Total	155.10	21.60	89.30	0.00	70.10	91.80	25.00	17.00	469.90
Henrys Lake 1	64.10	0.00	2.00	0.00	40.50	39.40	23.80	3.90	173.70
H. L. 1 other	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30
Total	74.40	0.00	2.00	0.00	40.50	39.40	23.80	3.90	184.00
Henrys Lake 2	18.80	3.40	0.00	0.00	7.10	17.50	10.50	4.50	61.80
H. L. 2 other	4.70	0.00	0.00	0.00	0.50	0.00	0.00	0.00	5.20
Total	23.50	3.40	0.00	0.00	7.60	17.50	10.50	4.50	67.00
Henrys Lake 3	123.40	5.50	0.00	0.00	0.40	7.40	-25.50	0.00	111.20
H. L. 3 other	136.80	0.00	0.00	0.00	1.70	0.20	0.00	0.00	138.70
Total	260.20	5.50	0.00	0.00	2.10	7.60	-25.50	0.00	249.90

Plateau 1	125.40	6.90	0.00	1.70	92.40	10.50	0.10	-2.20	234.80
Pl. 1 other	12.10	2.20	0.00	0.00	2.60	0.00	0.00	0.00	16.90
Total	137.50	9.10	0.00	1.70	95.00	10.50	0.10	-2.20	251.70
Plateau 2	80.10	9.00	0.00	0.00	125.30	0.00	-4.10	6.60	216.90
Pl. 2 other	4.70	0.00	0.00	0.00	0.60	0.00	0.00	0.00	5.30
Total	84.80	9.00	0.00	0.00	125.90	0.00	-4.10	6.60	222.20

Alternative 2 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
Bechler/Teton	186.20	0.00	42.30	0.00	44.70	91.80	64.90	38.60	468.50
B/T other	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Total	187.60	0.00	42.30	0.00	44.70	91.80	64.90	38.60	469.90
Henrys Lake 1	62.30	0.00	0.00	0.00	28.30	39.40	39.80	3.90	173.70
H. L. 1 other	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30
Total	72.60	0.00	0.00	0.00	28.30	39.40	39.80	3.90	184.00
Henrys Lake 2	16.60	3.40	4.10	0.00	5.70	17.50	10.00	4.50	61.80
H. L. 2 other	4.70	0.00	0.00	0.00	0.50	0.00	0.00	0.00	5.20
Total	21.30	3.40	4.10	0.00	6.20	17.50	10.00	4.50	67.00
Henrys Lake 3	124.60	5.50	0.00	0.00	6.40	7.40	-32.70	0.00	111.20
H. L. 3 other	136.80	0.00	0.00	0.00	1.70	0.20	0.00	0.00	138.70
Total	261.40	5.50	0.00	0.00	8.10	7.60	-32.70	0.00	249.90
Plateau 1	163.50	8.60	0.00	0.00	11.30	10.50	43.10	-2.20	234.80
Pl. 1 other	12.10	2.20	0.00	0.00	2.60	0.00	0.00	0.00	16.90
Total	175.60	10.80	0.00	0.00	13.90	10.50	43.10	-2.20	251.70
Plateau 2	94.50	9.00	0.00	0.00	95.10	0.00	11.70	6.60	216.90
Pl. 2 other	4.70	0.00	0.00	0.00	0.60	0.00	0.00	0.00	5.30
Total	99.20	9.00	0.00	0.00	95.70	0.00	11.70	6.60	222.20

Alternative 3 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
Bechler/Teton	152.30	0.00	5.30	0.00	42.90	91.80	137.60	38.60	468.50
B/T other	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Total	153.70	0.00	5.30	0.00	42.90	91.80	137.60	38.60	469.90
Henrys Lake 1	63.40	0.00	0.00	0.00	41.60	39.40	25.40	3.90	173.70
H. L. 1 other	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30
Total	73.70	0.00	0.00	0.00	41.60	39.40	25.40	3.90	184.00
Henrys Lake 2	15.50	3.40	7.00	0.00	3.70	17.50	10.20	4.50	61.80
H. L. 2 other	4.70	0.00	0.00	0.00	0.50	0.00	0.00	0.00	5.20
Total	20.20	3.40	7.00	0.00	4.20	17.50	10.20	4.50	67.00
Henrys Lake 3	132.40	5.50	0.00	0.00	1.90	7.40	-36.00	0.00	111.20
H. L. 3 other	136.80	0.00	0.00	0.00	1.70	0.20	0.00	0.00	138.70
Total	269.20	5.50	0.00	0.00	3.60	7.60	-36.00	0.00	249.90
Plateau 1	94.80	7.00	2.30	1.60	82.70	10.50	38.10	-2.20	234.80
Pl. 1 other	12.10	2.20	0.00	0.00	2.60	0.00	0.00	0.00	16.90
Total	106.90	9.20	2.30	1.60	85.30	10.50	38.10	-2.20	251.70
Plateau 2	63.10	0.20	0.00	0.00	50.70	0.00	87.50	15.40	216.90
Pl. 2 other	4.70	0.00	0.00	0.00	0.60	0.00	0.00	0.00	5.30
Total	67.80	0.20	0.00	0.00	51.30	0.00	87.50	15.40	222.20

Alternative 4 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
Bechler/Teton	126.10	0.00	16.80	0.00	17.60	104.70	177.60	25.70	468.50
B/T other	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Total	127.50	0.00	16.80	0.00	17.60	104.70	177.60	25.70	469.90
Henrys Lake 1	40.60	0.00	1.50	0.00	17.90	35.10	70.40	8.20	173.70

H. L. 1 other	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30
Total	50.90	0.00	1.50	0.00	17.90	35.10	70.40	8.20	184.00
Henrys Lake 2	13.00	3.40	8.20	0.00	1.30	17.50	13.90	4.50	61.80
H. L. 2 other	4.70	0.00	0.00	0.00	0.50	0.00	0.00	0.00	5.20
Total	17.70	3.40	8.20	0.00	1.80	17.50	13.90	4.50	67.00
Henrys Lake 3	124.70	5.50	0.00	0.00	0.80	7.60	-27.20	-0.20	111.20
H. L. 3 other	136.80	0.00	0.00	0.00	1.70	0.20	0.00	0.00	138.70
Total	261.50	5.50	0.00	0.00	2.50	7.80	-27.20	-0.20	249.90
Plateau 1	64.80	7.00	7.70	1.60	31.90	5.90	113.50	2.40	234.80
Pl. 1 other	12.10	2.20	0.00	0.00	2.60	0.00	0.00	0.00	16.90
Total	76.90	9.20	7.70	1.60	34.50	5.90	113.50	2.40	251.70
Plateau 2	55.10	0.20	0.00	0.00	18.10	19.30	128.10	-3.90	216.90
Pl. 2 other	4.70	0.00	0.00	0.00	0.60	0.00	0.00	0.00	5.30
Total	59.80	0.20	0.00	0.00	18.70	19.30	128.10	-3.90	222.20

Alternative 5 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
Bechler/Teton	123.60	0.00	10.00	0.00	29.00	104.70	175.50	25.70	468.50
B/T other	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Total	125.00	0.00	10.00	0.00	29.00	104.70	175.50	25.70	469.90
Henrys Lake 1	50.20	0.00	4.10	0.00	10.80	35.10	65.30	8.20	173.70
H. L. 1 other	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30
Total	60.50	0.00	4.10	0.00	10.80	35.10	65.30	8.20	184.00
Henrys Lake 2	16.40	3.40	2.90	0.00	4.50	17.50	12.60	4.50	61.80
H. L. 2 other	4.70	0.00	0.00	0.00	0.50	0.00	0.00	0.00	5.20
Total	21.10	3.40	2.90	0.00	5.00	17.50	12.60	4.50	67.00
Henrys Lake 3	120.40	5.50	0.00	0.00	6.40	7.60	-28.50	-0.20	111.20
H. L. 3 other	136.80	0.00	0.00	0.00	1.70	0.20	0.00	0.00	138.70
Total	257.20	5.50	0.00	0.00	8.10	7.80	-28.50	-0.20	249.90
Plateau 1	60.20	7.00	4.80	1.60	32.10	5.90	120.80	2.40	234.80
Pl. 1 other	12.10	2.20	0.00	0.00	2.60	0.00	0.00	0.00	16.90
Total	72.30	9.20	4.80	1.60	34.70	5.90	120.80	2.40	251.70
Plateau 2	55.30	0.20	0.00	0.00	22.40	19.30	123.60	-3.90	216.90
Pl. 2 other	4.70	0.00	0.00	0.00	0.60	0.00	0.00	0.00	5.30
Total	60.00	0.20	0.00	0.00	23.00	19.30	123.60	-3.90	222.20

Alternative 6 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
Bechler/Teton	123.30	0.00	9.90	0.00	21.70	104.70	183.20	25.70	468.50
B/T other	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
Total	124.70	0.00	9.90	0.00	21.70	104.70	183.20	25.70	469.90
Henrys Lake 1	54.00	0.00	4.10	0.00	6.40	35.10	65.90	8.20	173.70
H. L. 1 other	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30
Total	64.30	0.00	4.10	0.00	6.40	35.10	65.90	8.20	184.00
Henrys Lake 2	12.60	3.40	7.30	0.00	1.40	17.50	15.10	4.50	61.80
H. L. 2 other	4.70	0.00	0.00	0.00	0.50	0.00	0.00	0.00	5.20
Total	17.30	3.40	7.30	0.00	1.90	17.50	15.10	4.50	67.00
Henrys Lake 3	112.10	5.50	0.00	0.00	6.60	7.60	-20.40	-0.20	111.20
H. L. 3 other	136.80	0.00	0.00	0.00	1.70	0.20	0.00	0.00	138.70
Total	248.90	5.50	0.00	0.00	8.30	7.80	-20.40	-0.20	249.90
Plateau 1	79.40	7.00	12.00	1.60	34.00	5.90	92.50	2.40	234.80
Pl. 1 other	12.10	2.20	0.00	0.00	2.60	0.00	0.00	0.00	16.90
Total	91.50	9.20	12.00	1.60	36.60	5.90	92.50	2.40	251.70
Plateau 2	54.90	0.20	0.00	0.00	17.70	19.30	128.70	-3.90	216.90
Pl. 2 other	4.70	0.00	0.00	0.00	0.60	0.00	0.00	0.00	5.30
Total	59.60	0.20	0.00	0.00	18.30	19.30	128.70	-3.90	222.20

EXISTING CONDITION - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Square Miles	Open Roads	Open Trails	OROMTRD	Sea.& Yr. Rest.Rds	Sea.Rest. Trails	TMARD
Bechler/Teton & B/T other	299.00	187.50	38.60	0.76	152.00	0.00	1.26
Henrys Lake 1 & H.L.1 other	116.90	92.60	3.90	0.83	48.10	0.00	1.24
Henrys Lake 2 & H.L.2 other	58.40	36.80	7.90	0.77	4.80	0.00	0.85
Henrys Lake 3 & H.L.3 other	83.70	231.90	5.50	2.84	5.00	0.00	2.90
Plateau 1 & Pl.1 other	136.20	115.20	8.60	0.91	117.40	0.00	1.77
Plateau 2 & Pl.2 other	118.90	71.10	15.60	0.73	135.50	0.00	1.87

Alternative 3M - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Square Miles	Open Roads	Open Trails	OROMTRD	Sea.& Yr. Rest.Rds	Sea.Rest. Trails	TMARD
Bechler/Teton & B/T other	299.00	144.10	4.10	0.50	50.90	0.00	0.67
Henrys Lake 1 & H.L.1 other	116.90	64.00	0.00	0.55	22.30	0.00	0.74
Henrys Lake 2 & H.L.2 other	58.40	20.70	6.50	0.47	4.60	0.00	0.54
Henrys Lake 3 & H.L.3 other	83.70	267.30	5.50	3.26	3.00	0.00	3.30
Plateau 1 & Pl.1 other	134.60	75.00	4.60	0.59	55.30	0.00	1.00
Plateau 2 & Pl.2 other	118.90	64.70	0.20	0.55	23.30	0.00	0.74

Alternative 1 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Square Miles	Open Roads	Open Trails	OROMTRD	Sea.& Yr. Rest.Rds	Sea.Rest. Trails	TMARD
Bechler/Teton & B/T other	299.00	155.10	21.60	0.59	159.40	0.00	1.12
Henrys Lake 1 & H.L.1 other	116.90	74.40	0.00	0.64	42.50	0.00	1.00
Henrys Lake 2 & H.L.2 other	58.40	23.50	3.40	0.46	7.60	0.00	0.59
Henrys Lake 3 & H.L.3 other	83.70	260.20	5.50	3.17	2.10	0.00	3.20

Plateau 1 & Pl.1 other	136.20	137.50	9.10	1.08	95.00	1.70	1.79
Plateau 2 & Pl.2 other	118.90	84.80	9.00	0.79	125.90	0.00	1.85

Alternative 2 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Square Miles	Open Roads	Open Trails	OROMTRD	Sea.& Yr. Rest.Rds	Sea.Rest. Trails	TMARD
Bechler/Teton & B/T other	299.00	187.60	0.00	0.63	87.00	0.00	0.92
Henrys Lake 1 & H.L.1 other	116.90	72.60	0.00	0.62	28.30	0.00	0.86
Henrys Lake 2 & H.L.2 other	58.40	21.30	3.40	0.42	10.30	0.00	0.60
Henrys Lake 3 & H.L.3 other	83.70	261.40	5.50	3.19	8.10	0.00	3.29
Plateau 1 & Pl.1 other	136.20	175.60	10.80	1.37	13.90	0.00	1.47
Plateau 2 & Pl.2 other	118.90	99.20	9.00	0.91	95.70	0.00	1.71

Alternative 3 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Square Miles	Open Roads	Open Trails	OROMTRD	Sea.& Yr. Rest.Rds	Sea.Rest. Trails	TMARD
Bechler/Teton & B/T other	299.00	153.70	0.00	0.51	48.20	0.00	0.68
Henrys Lake 1 & H.L.1 other	116.90	73.70	0.00	0.63	41.60	0.00	0.99
Henrys Lake 2 & H.L.2 other	58.40	20.20	3.40	0.40	11.20	0.00	0.60
Henrys Lake 3 & H.L.3 other	83.70	269.20	5.50	3.28	3.60	0.00	3.32
Plateau 1 & Pl.1 other	136.20	106.90	9.20	0.85	87.60	1.60	1.51
Plateau 2 & Pl.2 other	118.90	67.80	0.20	0.57	51.30	0.00	1.00

Alternative 4 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Square Miles	Open Roads	Open Trails	OROMTRD	Sea.& Yr. Rest.Rds	Sea.Rest. Trails	TMARD
Bechler/Teton & B/T other	299.00	127.50	0.00	0.43	34.40	0.00	0.54
Henrys Lake 1	116.90	50.90	0.00	0.44	19.40	0.00	0.60

& H.L.1 other							
Henrys Lake 2 & H.L.2 other	58.40	17.70	3.40	0.36	10.00	0.00	0.53
Henrys Lake 3 & H.L.3 other	83.70	261.50	5.50	3.19	2.50	0.00	3.22
Plateau 1 & Pl.1 other	136.20	76.90	9.20	0.63	42.20	1.60	0.95
Plateau 2 & Pl.2 other	118.90	59.80	0.20	0.50	18.70	0.00	0.66

Alternative 5 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Square Miles	Open Roads	Open Trails	OROMTRD	Sea.& Yr. Rest.Rds	Sea.Rest. Trails	TMARD
Bechler/Teton & B/T other	299.00	125.00	0.00	0.42	39.00	0.00	0.55
Henrys Lake 1 & H.L.1 other	116.90	60.50	0.00	0.52	14.90	0.00	0.64
Henrys Lake 2 & H.L.2 other	58.40	21.10	3.40	0.42	7.90	0.00	0.55
Henrys Lake 3 & H.L.3 other	83.70	257.20	5.50	3.14	8.10	0.00	3.24
Plateau 1 & Pl.1 other	136.20	72.30	9.20	0.60	39.50	1.60	0.90
Plateau 2 & Pl.2 other	118.90	60.00	0.20	0.51	23.00	0.00	0.70

Alternative 6 - MILES OF ROADS AND TRAILS IN EACH BMU/Subunit

BMU/Subunit	Square Miles	Open Roads	Open Trails	OROMTRD	Sea.& Yr. Rest.Rds	Sea.Rest. Trails	TMARD
Bechler/Teton & B/T other	299.00	124.70	0.00	0.42	31.60	0.00	0.52
Henrys Lake 1 & H.L.1 other	116.90	64.30	0.00	0.55	10.50	0.00	0.64
Henrys Lake 2 & H.L.2 other	58.40	17.30	3.40	0.35	9.20	0.00	0.51
Henrys Lake 3 & H.L.3 other	83.70	248.90	5.50	3.04	8.30	0.00	3.14
Plateau 1 & Pl.1 other	136.20	91.50	9.20	0.74	48.60	1.60	1.11
Plateau 2 & Pl.2 other	118.90	59.60	0.20	0.50	18.30	0.00	0.66

ATTACHMENT L

SUMMARY OF HISTORICAL VEGETATION CONDITIONS FOR TWO WATERSHEDS

A Targhee Forest landscape team just completed a detailed study on a 76,000 acre watershed (Camas Creek) in the Centennial Mountains. For this watershed, we had vegetation mapping dating back to the early 1900's, plus we used some backdating techniques developed by Montana State University. The historic vegetation conditions in this watershed are as follows:

Year - 1850:	54%	in an early successional stage
	39%	in a mid successional stage
	6%	in a late successional stage
Year - 1900:	27%	in an early successional stage
	64%	in a mid successional stage
	8%	in a late successional stage
Year - 1950:	7%	in an early successional stage
	35%	in a mid successional stage
	57%	in a late successional stage
Year - 1995:	7%	in an early successional stage
	36%	in a mid successional stage
	56%	in a late successional stage

Montana State University recently completed a study of historic vegetation patterns on the upper Henry's Fork watershed (Patten and Hansen 1995). The results of this study are as follows:

Year 1790-1870:	< 20% open (non-forested)
	80+% in mature forest
Year 1870-1910:	major natural disturbance about 1870
	70-80% in open & seedling & sapling
	20% in mature forest
Year 1910-1950:	< 20% open
	50-60% in pole size forest
	20-30% in mature forest
Year 1950-1988:	< 20% open
	5-10% seedling & sapling (logging)
	0-5% in pole size forest
	60% in mature forest

Patten, Robin and Andrew Hansen. 1995. Past, Present, and Future Landscapes in the Henry's Fork Watershed, Idaho: A Comparison of Management Alternatives for the Targhee National Forest. 27pp + Appendix, Tables, Figures.

ATTACHMENT M

Elk Hunting Information

Elk Hunting Seasons and Harvest Information
(compiled by Mark Orme)

Many of the letters received on the Draft Forest Plan Revision provide general comments on the elk issue. None of the letters provide substantive information about how elk seasons have changed over time and how harvests have changed over time. The purpose of this attachment is to provide as much information about elk hunting seasons and elk harvests as I have been able to compile at this time.

Idaho

The data on hunting seasons covers the period from 1970 to 1994.

The data on hunters, and harvests covers the period 1979 to 1994. Prior to 1979, IDFG did not have a standardized method of collecting hunter and harvest information (they used a voluntary hunter report card system). IDFG verbally stated to me that the data prior to 1979 is unreliable. Therefore, I have only presented data from 1979 to 1994 for hunters and harvests.

(Note: The data on harvests does not display how much of the harvest was antlered elk and how much was antlerless elk.)

The data on hunter-days covers the period 1983 to 1994. IDFG did not collect hunter-day information prior to 1983.

The information is presented by State Game Management Units (GMU's) (see page 2 for a map of the GMU's)

References for this information are the annual IDFG Big Game Regulations, and the IDFG Annual Reports of Big Game Harvest Estimates.

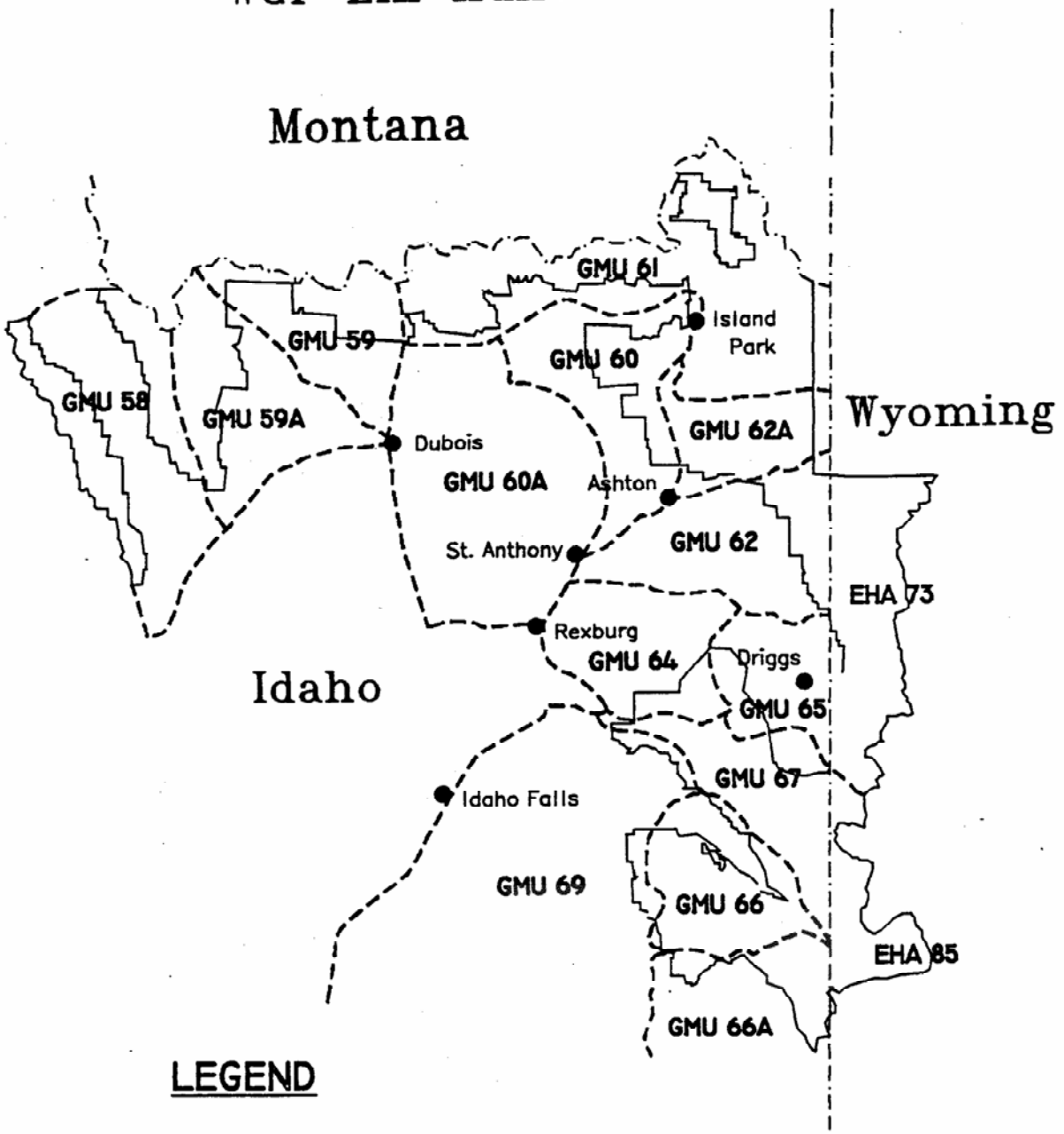
Wyoming

Wyoming data is presented in table format on page 71. References for this information are the WGF annual reports on Elk Hunting.

INDEX

Idaho:	Pages
GMU 58	3-8
GMU's 59 and 59A	9-14
GMU's 60 and 60A	15-20
GMU 61	21-26
GMU 62A	27-32
GMU 62	33-38
GMU's 64 and 65	39-44
GMU 67	45-50
GMU 66	51-56
SUMMARY	57-60
Additional Notes	61-64
Idaho Tables	65-69
Wyoming Tables	70

Targhee National Forest
IDFG Game Management Units
WGF Elk Hunt Areas



GMU 58

Seasons: Table 1 shows the number of days available to hunt elk (antlered and/or antlerless) by various methods from 1970 to 1994.

Prior to 1974, this GMU had a general rifle hunting season for both antlered and antlerless elk that ranged from 16 to 30 days in length. Beginning in 1974, the general rifle hunting seasons were shortened, first to 3 days and then to 5 days and were limited to antlered elk only. From 1991 to the present, the general rifle season was for spike elk only. In 1992, the general rifle season was lengthened to 10 days.

In 1986 an either sex archery season was added. From 1991 to the present, the archery season was for antlerless or spike elk only.

In 1988 a controlled antlerless season was added. In 1994, the controlled season included both antlered and antlerless elk.

Hunters: Figure 2 shows elk hunters from 1979 to 1994.

The number of elk hunters for general seasons ranged from 38 (1979) to 235 (1990). The bar graph depicts a general increasing trend from 1979 to 1990.

Controlled hunting seasons began in 1988. The number of permits for controlled hunts increased from 30 in 1988 to 300 in 1994.

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1993. The second and third highest number of hunters occurred in 1994 and 1992, respectively.

Hunter-days: Figure 3 shows the number of hunter-days.

Hunter-days for general seasons ranged from 113 (1984) to 963 (1991).

Hunter-days for controlled hunting seasons ranged from 111 (1989) to 1,730 (1994).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1994. The second and third highest hunter-days occurred in 1993 and 1992, respectively.

Harvest: Figure 4 shows the elk harvest.

The elk harvests for the general seasons ranged from 0 (1979, 1980, 1983) to 64 (1988).

The elk harvests for the controlled hunts ranged from 14 (1989) to 133 (1992).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1994. The second and third highest elk harvests occurred in 1992 and 1993, respectively.

Table 1.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																							
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
58	General Rifle Antlered	23	23	16	30	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
58	General Rifle Antlerless	23	23	16	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Gen. Archery Either Sex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	28	28	28	26	26	26	26
58	Gen. Muzzleloader Antlered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Gen. Muzzleloader Antlerles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Controlled Antlered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
58	Controlled Antlerless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	26	26	31	31	31	31

Unit 58 Elk Hunters
1979 - 1994

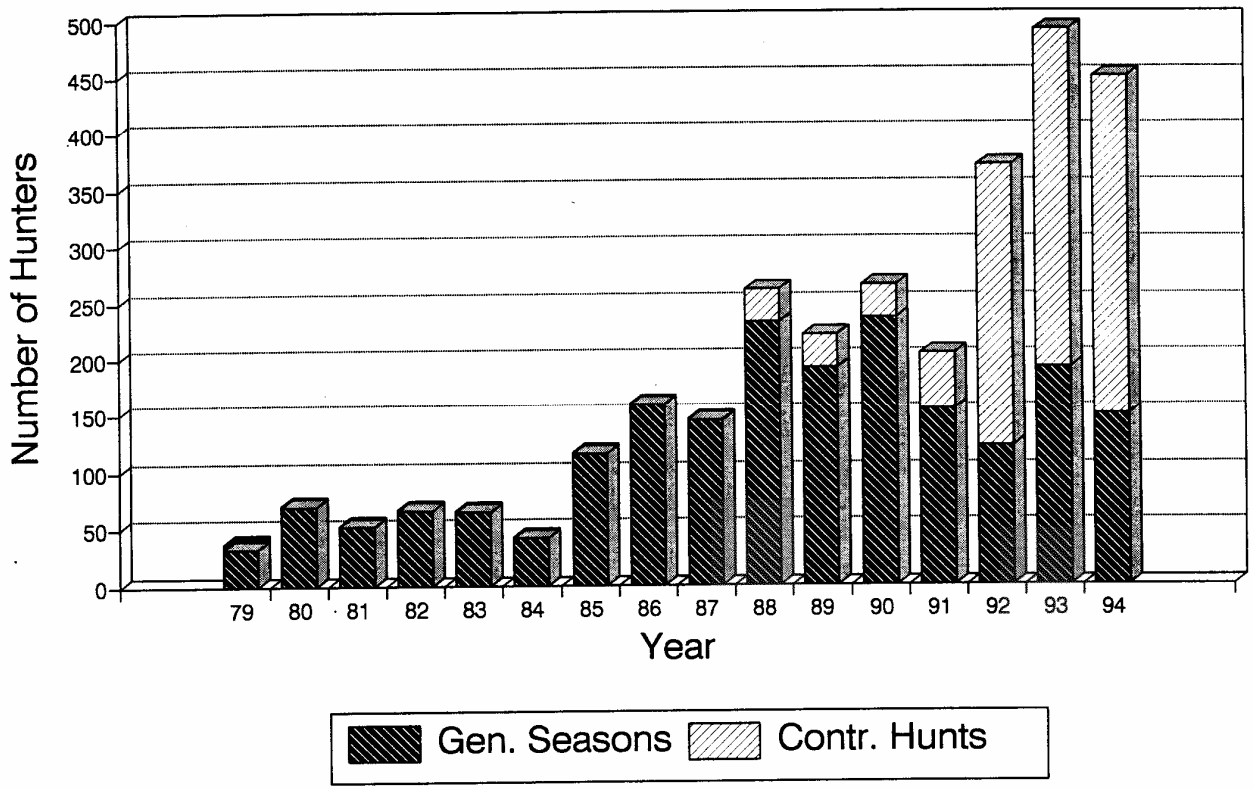


Fig. 2

Unit 58 Elk Hunter-Days
1983 - 1994

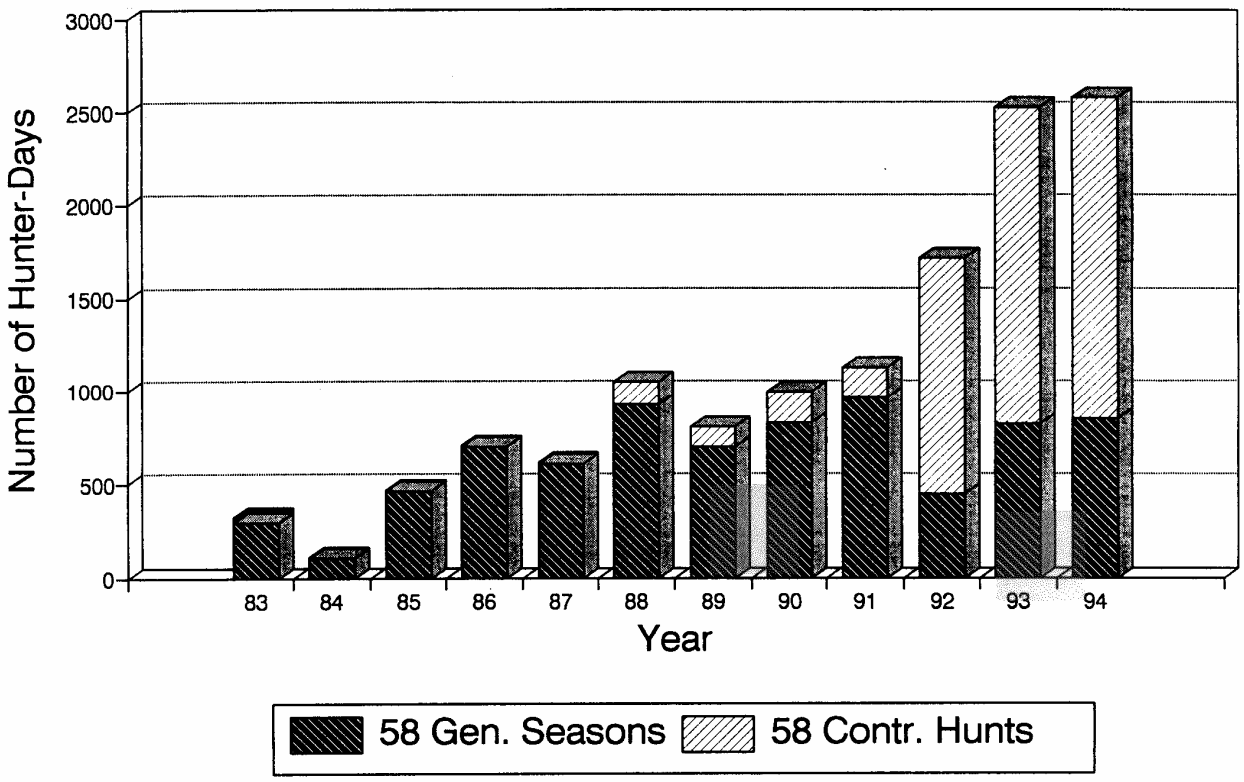


Fig. 3

Unit 58 Elk Harvest
1979 - 1994

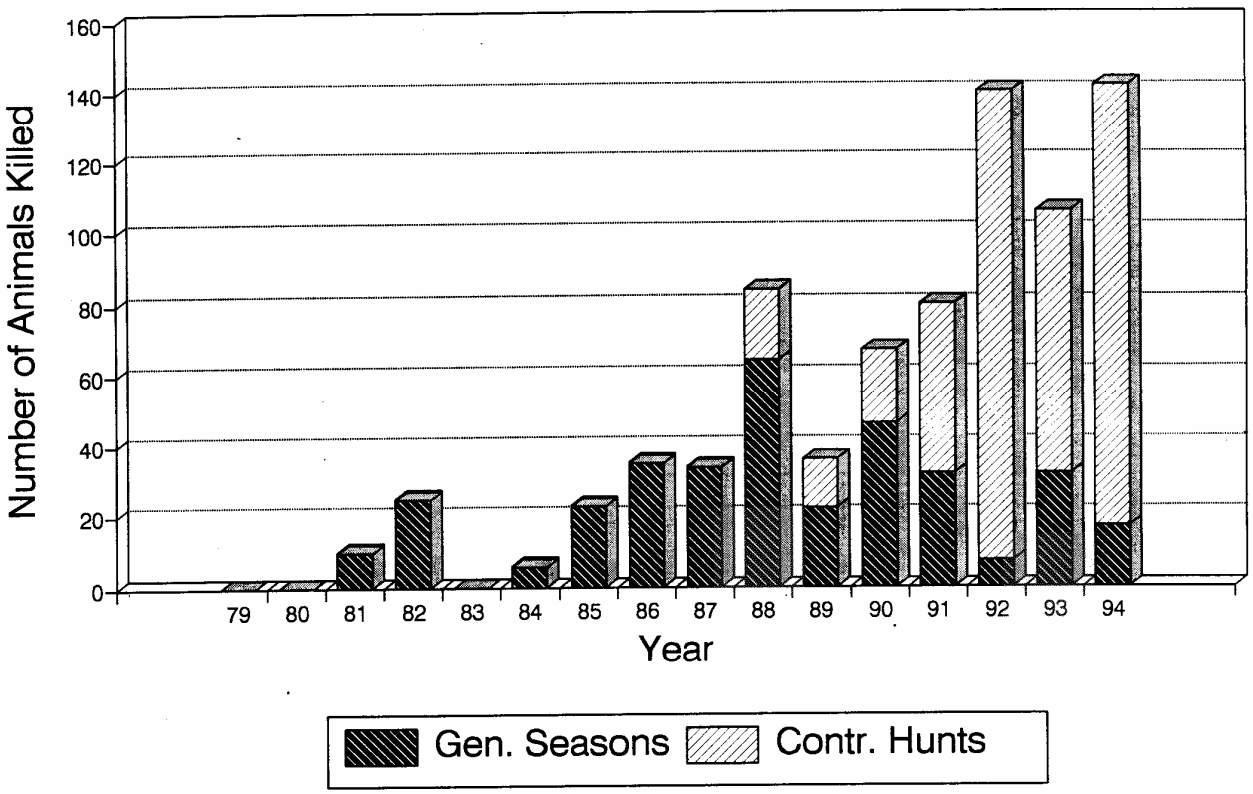


Fig. 4

GMU's 59 and 59A

In the beginning, there was only one GMU (GMU 59) which encompassed the entire area covered by these two GMU's today. In 1973 GMU 59A was created. Controlled hunts are not separated by the two GMU's. To compare changes over time, a common geographic area is required. Therefore, the data is presented for GMU's 59 and 59A combined.

Seasons: Table 2 shows the number of days available to hunt elk (antlered and/or antlerless) by various methods from 1970 to 1994.

From 1970 to 1972, there was a general rifle hunting season for antlered elk ranging from 16 to 23 days. In 1973, the general rifle hunting season included both antlered and antlerless elk. Beginning in 1974, the general rifle hunting seasons were shortened, first to 3 days and then to 5 days and were limited to antlered elk only. In 1991 to the present, the general rifle season was made a spike only hunt. In 1992, the general rifle hunting season was increased to 10 days.

In 1977 an either sex archery season was added. From 1991 to the present, the archery season was for antlerless or spike elk only.

In 1978 and 1979, a muzzleloader season was available.

In 1980 and 1981, a controlled antlered and antlerless season was added. From 1982 to 1993, only a controlled antlerless season existed. In 1994, the controlled season included both antlered and antlerless animals.

Hunters: Figure 5 shows elk hunters from 1979 to 1994.

The number of elk hunters for the general seasons ranged from 458 (1979) to 1,253 (1989). The bar graph depicts a general increasing trend in the number of hunters from 1979 to 1989.

Controlled hunting seasons existed from 1979 to the present (a controlled hunting season actually began in 1978). The number of controlled hunt permits increased from 25 in 1979 to 460 in 1993.

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1989. The years 1993 and 1994 were the second and third highest for number of hunters, respectively.

Hunter-days: Figure 6 shows the number of hunter-days. (NOTE: For the year 1983, I could not separate the general seasons hunter-days from the controlled permits hunter-days with data received from IDFG. For 1983, hunter-days are shown as general season in the bar graphs).

Hunter-days for general seasons ranged from 2,252 (1991) to 3,785 (1984).

Hunter-days for controlled hunting seasons ranged from 182 (1984 and 1991) to 2,103 (1993).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1993. The second and third highest hunter-days occurred in 1994 and 1985, respectively.

Harvest: Figure 7 shows the elk harvest.

The elk harvests for general seasons ranged from 19 (1979) to 315 (1989).

The elk harvests for the controlled hunts ranged from 5 (1979) to 292 (1992).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1992. The second and third highest harvests occurred in 1989 and 1993, respectively.

Table 2.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																							
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
59	General Rifle Antlered	23	23	16	16	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
59	General Rifle Antlerless	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Gen. Archery Either Sex	0	0	0	0	0	0	0	37	23	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
59	Gen. Muzzleloader Antlered	0	0	0	0	0	0	0	0	12	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Gen. Muzzleloader Antlerles	0	0	0	0	0	0	0	0	12	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59/59A	Controlled Antlered	0	0	0	0	0	0	0	0	0	0	13	12	0	0	0	0	0	0	0	0	0	0	0	0	31
59/59A	Controlled Antlerless	0	0	0	0	0	0	0	0	0	0	13	12	12	12	12	26	26	26	26	26	26	31	31	31	31
59A	General Rifle Antlered				16	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
59A	General Rifle Antlerless				16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
59A	Gen. Archery Either Sex				0	0	0	0	37	37	37	44	37	28	28	28	28	28	28	28	28	28	26	26	26	26

Units 59 & 59A Elk Hunters
1979 - 1994

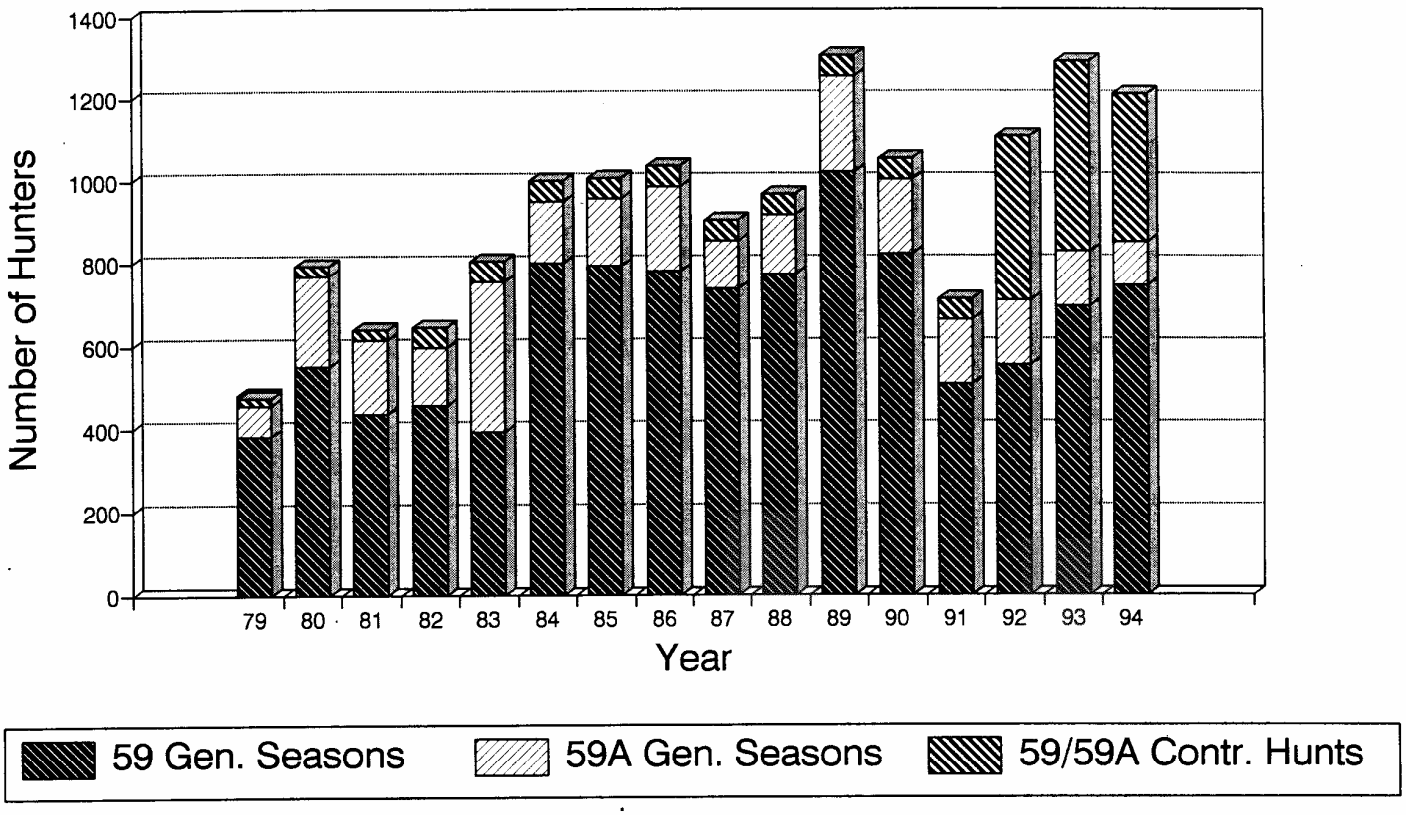


Fig. 5

Units 59 & 59A Elk Hunter-Days
1983 - 1994

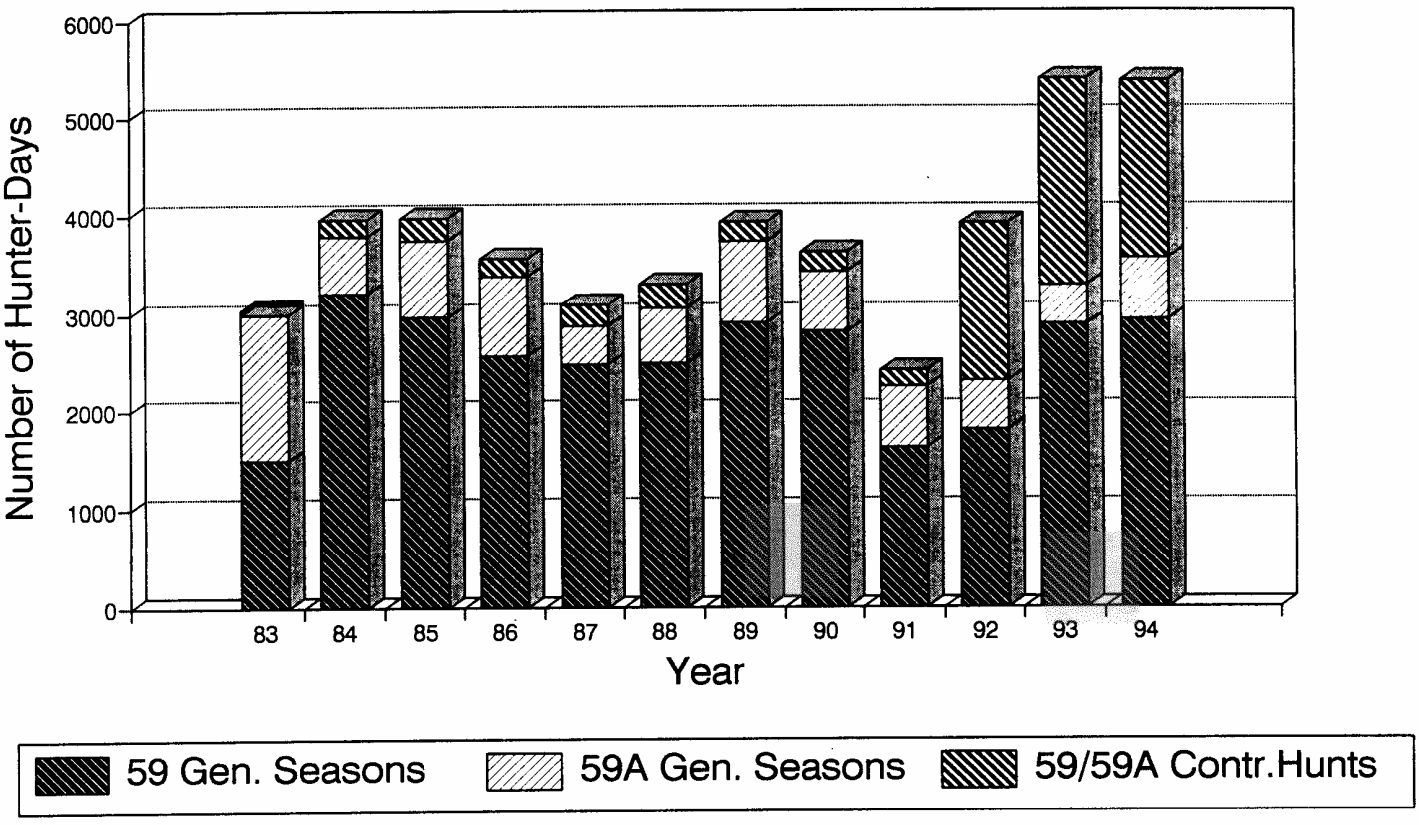


Fig. 6

Units 59 & 59A Elk Harvest
1979 - 1994

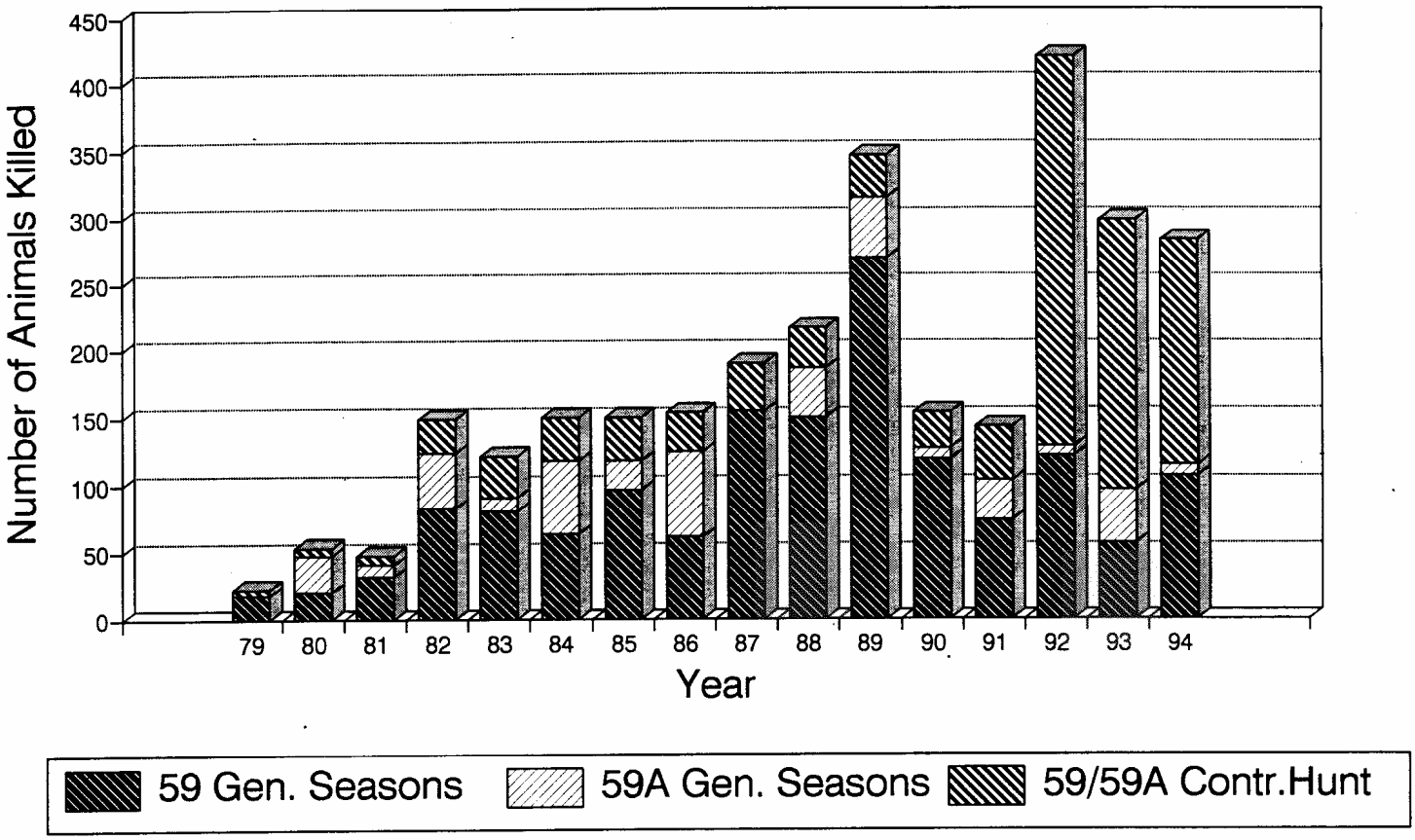


Fig. 7

GMU's 60 and 60A

In the beginning, there was only one GMU (GMU 60) which encompassed the entire area covered by these two GMU's today. Hunting seasons for GMU 60A began in 1988. To compare changes over time, a common geographic area is required. Therefore, the data is presented for GMU's 60 and 60A combined.

Seasons: Table 3 shows the number of days available to hunt elk (antlered and/or antlerless) by various methods from 1970 to 1994.

From 1970 to 1973, there were no general rifle hunting seasons. General rifle hunting seasons began in 1974 for antlered elk, beginning with a 3 day hunt, then a 5 day hunt, and in 1992 a 10 day hunt. In 1991 to the present, the general rifle season was made a spike only hunt.

Controlled hunts for antlered and antlerless elk have been in existence since 1970.

Hunters: Figure 8 shows elk hunters from 1979 to 1994.

The number of elk hunters for the general seasons ranged from 458 (1991) to 2,618 (1980). The number of hunters for the general seasons showed a general decrease from 1980 to 1991.

Controlled hunting seasons existed from 1979 to the present. The number of permits for controlled hunts increased from 125 in 1979 to 1,000 in 1990.

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1980. The second and third highest number of hunters occurred in 1982 and 1983, respectively.

Hunter-days: Figure 9 shows the number of hunter-days. (NOTE: For the year 1983, I could not separate the general seasons hunter-days from the controlled permits hunter-days with data received from IDFG. For 1983, hunter-days are shown as general season in the bar graphs).

Hunter-days for the general seasons ranged from 1,585 (1991) to 8,148 (1983).

Hunter-days for controlled hunting seasons ranged from 921 (1984) to 7,285 (1990).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1990. The second and third highest hunter-days occurred in 1988 and 1987, respectively.

Harvest: Figure 10 shows the elk harvest.

The elk harvests for general seasons ranged from 12 (1991) to 284 (1980).

The elk harvests for controlled hunts ranged from 38 (1984) to 600 (1994).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1990. The second and third highest harvests occurred in 1994 and 1988, respectively.

Table 3.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																						
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
60	General Rifle Antlered	0	0	0	0	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
60	General Rifle Antlerless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Gen. Archery Either Sex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Controlled Antlered	37	16	16	16	14	15	12	12	12	12	0	5	0	0	0	0	0	0	0	0	0	0	0	0	31
60	Controlled Antlerless	30	16	16	16	14	15	12	12	12	12	25	19	12	28	28	40	40	40	40	37	35	0	0	0	31
60A	Controlled Antlered																			65	18	33	33	0	0	37
60A	Controlled Antlerless																			65	42	108	107	61	61	61

Units 60 & 60A Elk Hunters
1979 - 1994

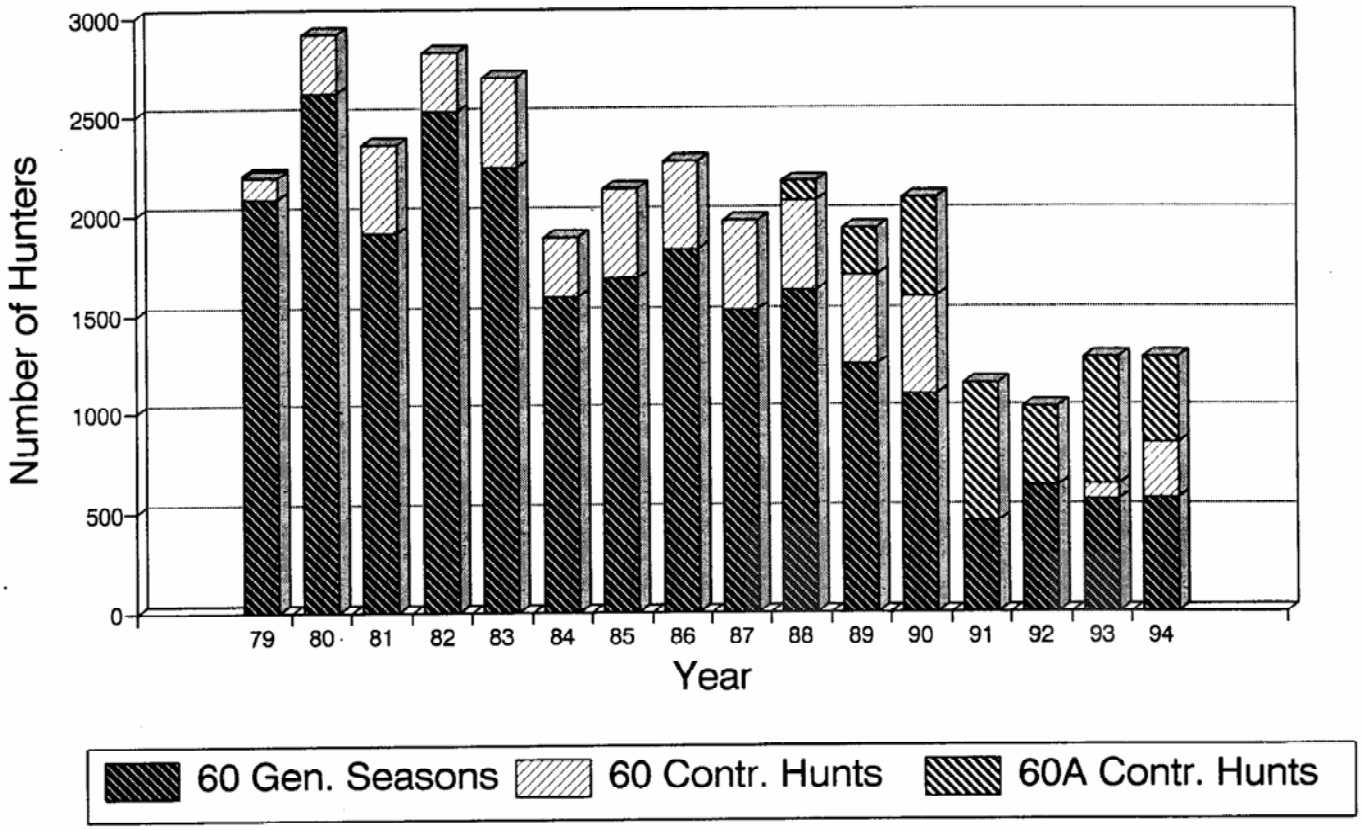


Fig. 8

Units 60 & 60A Elk Hunter-Days
1983 - 1994

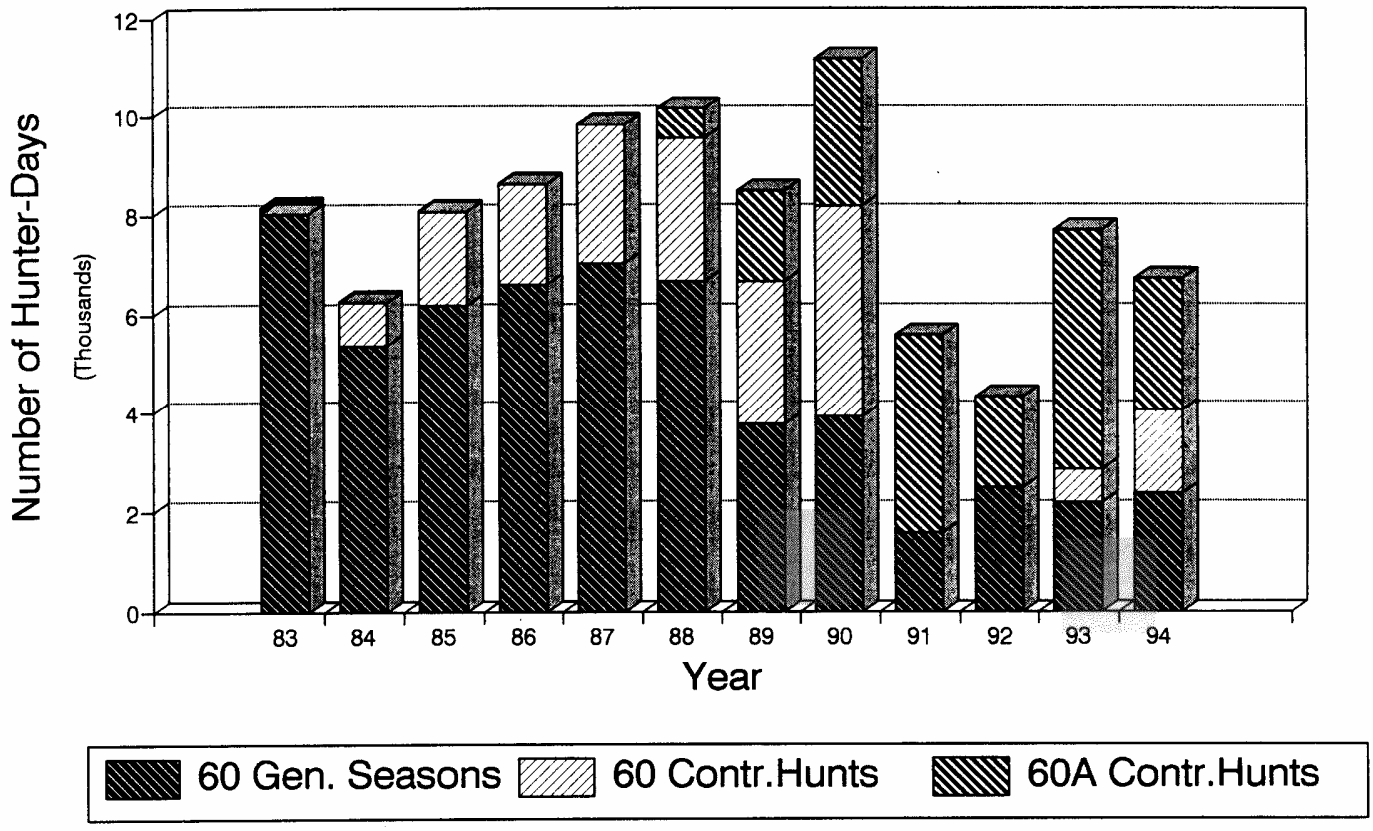


Fig. 9

Units 60 & 60A Elk Harvest
1979 - 1994

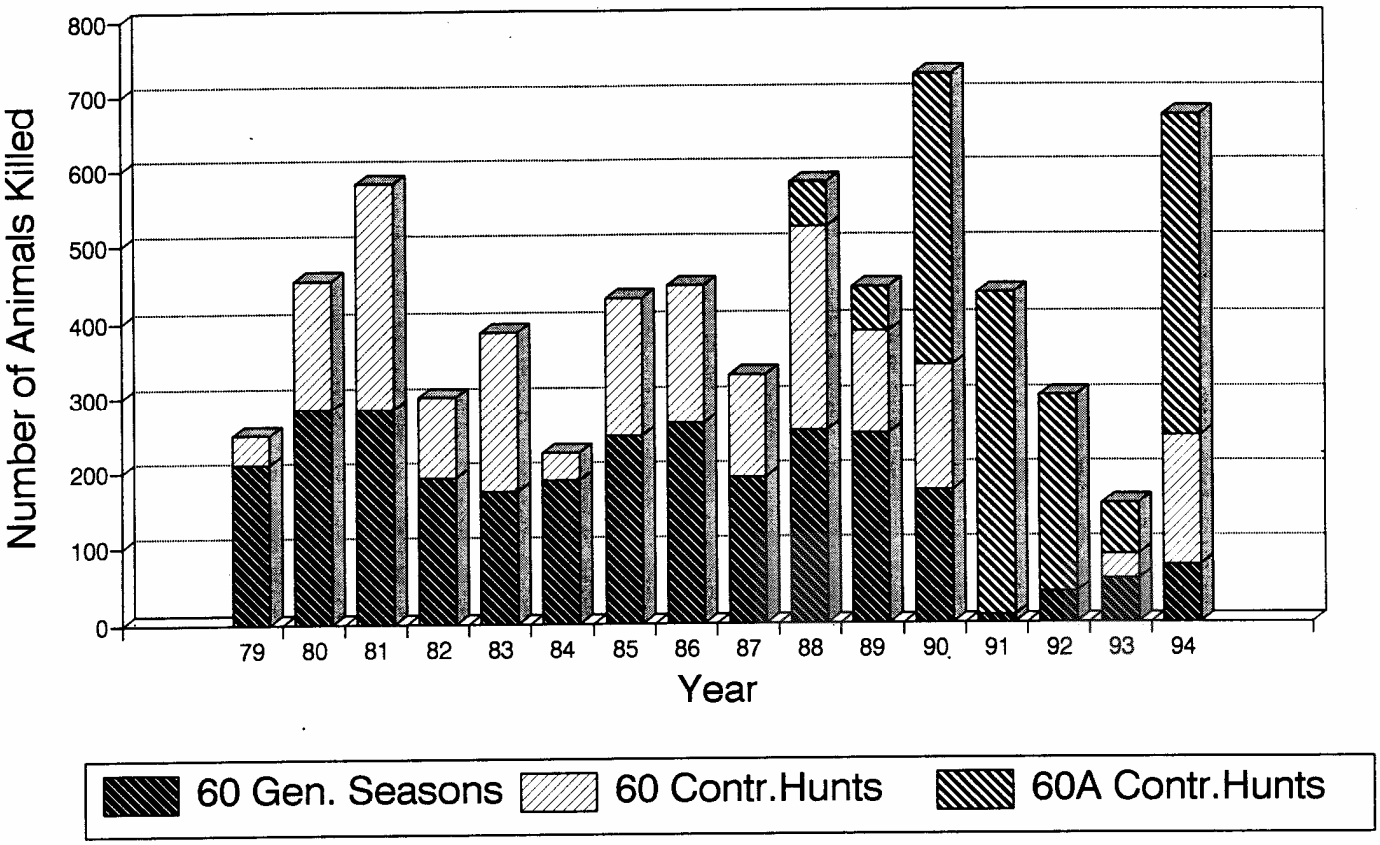


Fig. 10

GMU 61

Seasons: Table 4 shows the number of days available to hunt elk (antlered and/or antlerless) by various methods from 1970 to 1994.

In 1970, there was a 23 day general rifle season for both antlered and antlerless elk. From 1971 to 1973, the general rifle season was reduced to 7 days for both antlered and antlerless elk. Beginning in 1974, the general rifle hunting season was changed to antlered elk, beginning with a 3 day hunt, then a 5 day hunt, and in 1992 a 10 day hunt. In 1991 to the present, the general rifle season was made a spike only hunt.

A general archery season for both antlered and antlerless elk has existed since 1970, ranging from 23 days to 44 days in length. From 1991 to the present, the archery season was for antlerless or spike elk only.

A general muzzleloader season for antlered elk began in 1975. From 1979 to 1990, the general muzzleloader season included both antlered and antlerless elk. From 1991 to 1993, the muzzleloader season was for antlerless or spike elk only. In 1994 and 1995, a portion of GMU 61 had a muzzleloader season for antlerless or spike elk only; while another portion of the GMU had a muzzleloader season for any antlered or antlerless elk.

Controlled hunts for antlered and antlerless elk existed in 1974, 1980, 1981, and 1994. Controlled hunts for just antlerless elk existed from 1982 to 1985.

Hunters: Figure 11 shows elk hunters from 1979 to 1994.

The number of elk hunters for general seasons ranged from 619 (1991) to 3,104 (1982).

Controlled hunting seasons existed from 1980 to 1985, and in 1994. The number of permits for these seasons ranged from 150 in 1980 to 1,366 in 1993.

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1982. The second and third highest number of hunters occurred in 1983 and 1981, respectively.

Hunter-days: Figure 12 shows the number of hunter-days. (NOTE: For the year 1983, I could not separate the general seasons hunter-days from the controlled permits hunter-days with data received from IDFG. For 1983, hunter-days are shown as general season in the bar graphs).

Hunter-days for general seasons ranged from 2,296 (1991) to 10,487 (1983) to .

Hunter-days for controlled hunting seasons ranged from 960 (1984) to 9,817 (1993).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1993. The second and third highest hunter-days occurred in 1985 and 1983, respectively.

Harvest: Figure 13 shows the elk harvest.

The elk harvests for the general seasons ranged from 12 (1991) to 284 (1980).

The elk harvests for the controlled hunts ranged from 38 (1984) to 600 (1994).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1994. The second and third highest harvests occurred in 1982 and 1981, respectively.

Table H.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																							
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
61	General Rifle Antlered	23	7	7	7	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
61	General Rifle Antlerless	23	7	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	Gen. Archery Either Sex	23	23	30	30	30	30	23	37	37	37	44	23	28	28	28	28	28	28	28	28	28	26	26	26	26
61	Gen. Muzzleloader Antlered	0	0	0	0	0	17	16	16	16	16	23	23	23	23	23	23	23	23	23	23	23	20	20	20	20
61	Gen. Muzzleloader Antlerles	0	0	0	0	0	0	0	0	0	16	23	23	16	16	16	23	23	23	23	23	23	20	20	20	20
61	Controlled Antlered	0	0	0	0	16	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	11
61	Controlled Antlerless	0	0	0	0	16	0	0	0	0	0	10	19	12	12	12	10	0	0	0	0	0	0	0	0	11

Unit 61 Elk Hunters
1979 - 1994

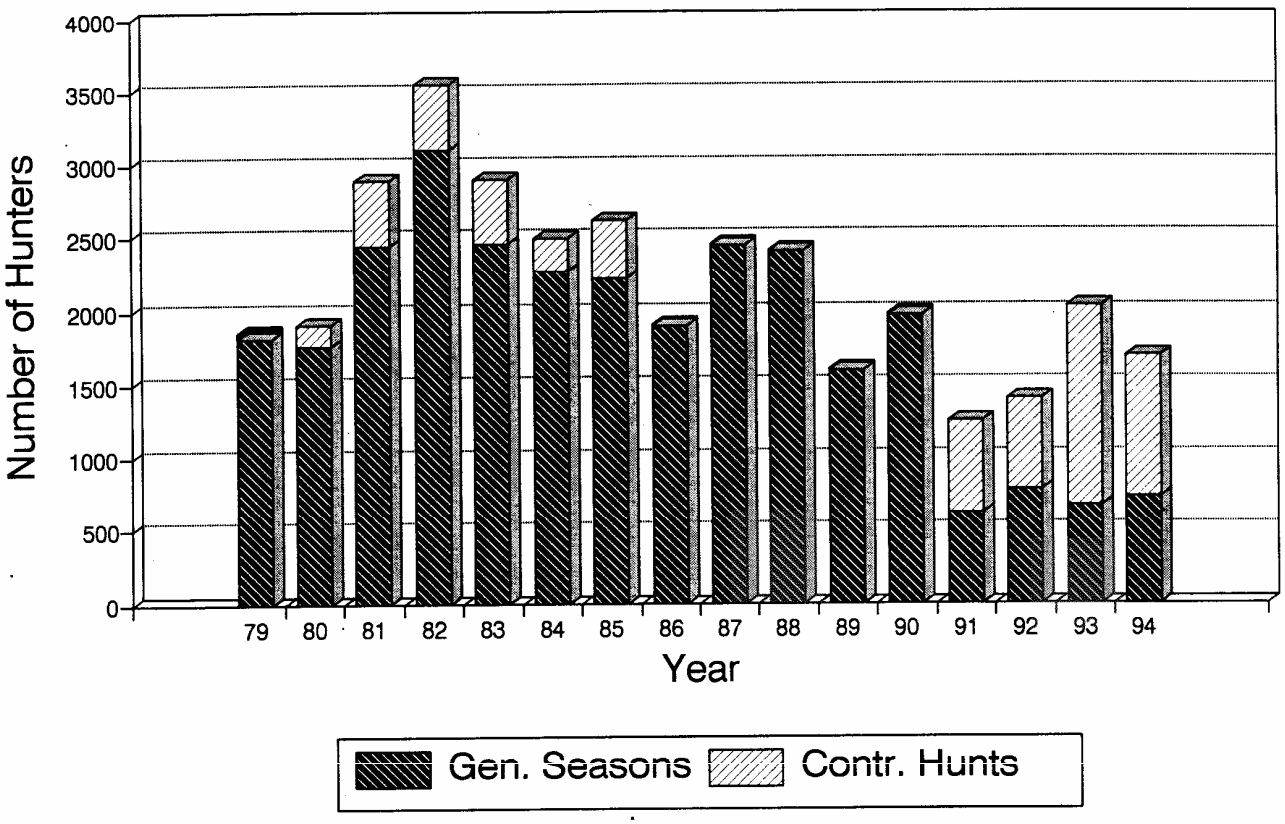


Fig. 11

Unit 61 Elk Hunter-Days
1983 - 1994

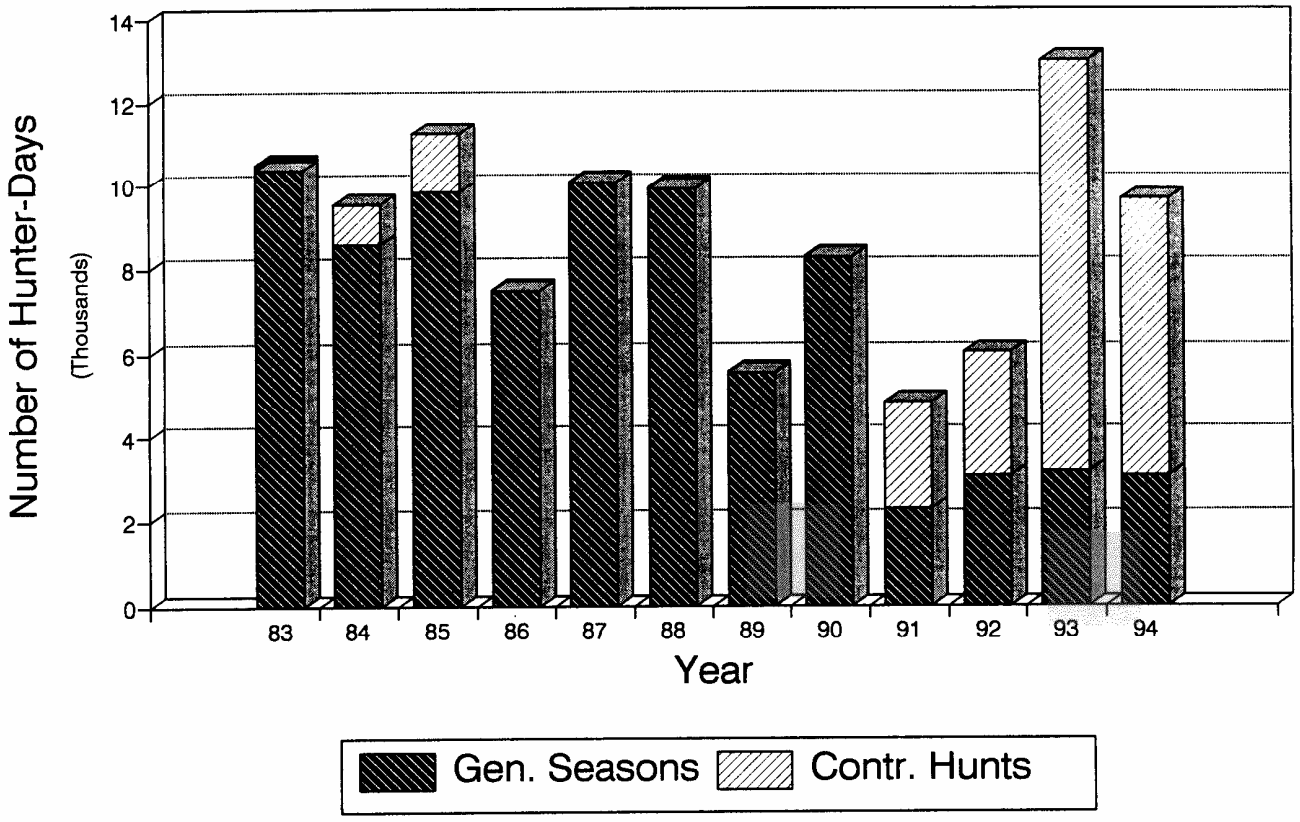


Fig. 12

Unit 61 Elk Harvest
1979 - 1994

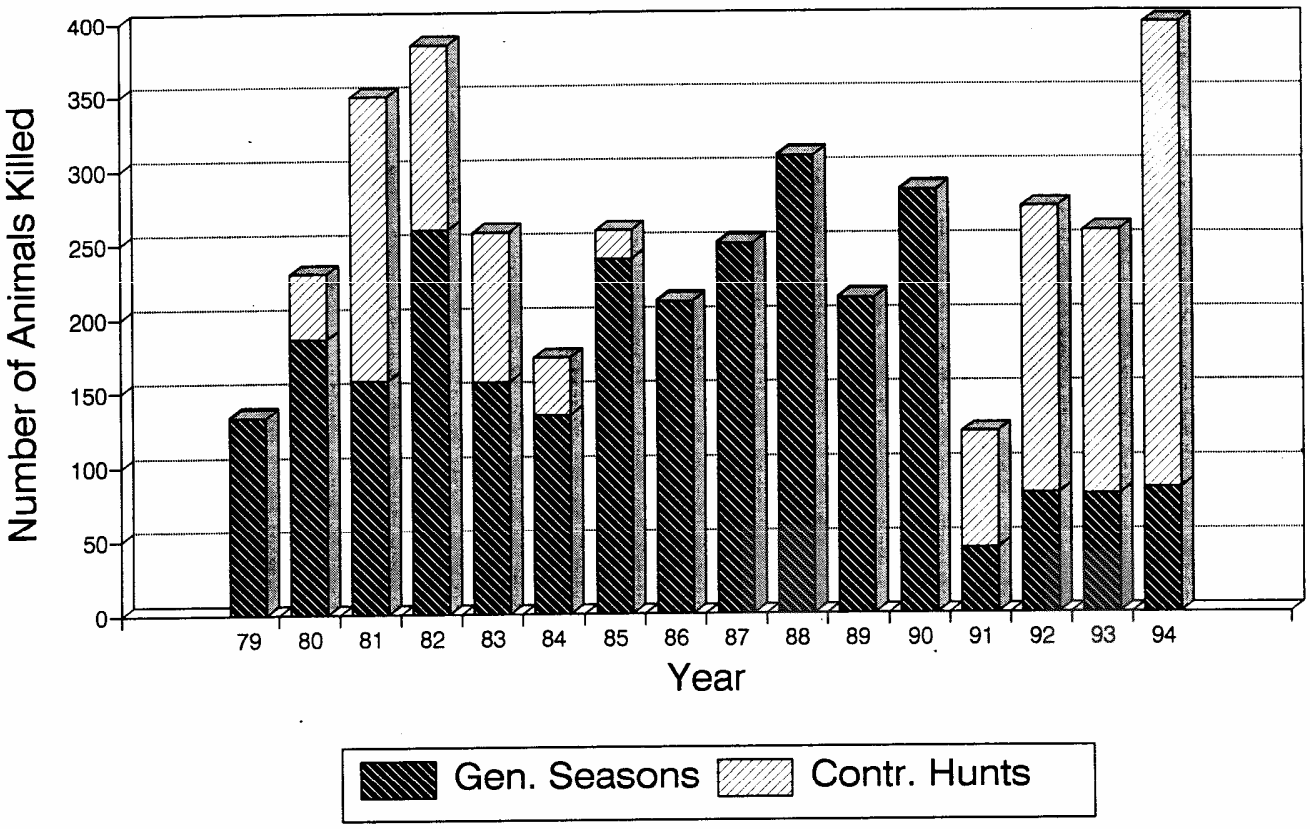


Fig. 13

GMU 62A

Seasons: Table 5 shows the number of days available to hunt elk (antlered and/or antlerless) by various methods from 1970 to 1994.

In 1970, there was a 23 day general rifle season for both antlered and antlerless elk. From 1971 to 1973, the general rifle season was reduced to 7 days for both antlered and antlerless elk. Beginning in 1974, the general rifle hunting season was changed to antlered elk, beginning with a 3 day hunt, then a 5 day hunt, and in 1992 a 10 day hunt. In 1991 to the present, the general rifle season was made a spike only hunt.

A general archery season for both antlered and antlerless elk has existed since 1986, ranging from 26 days to 28 days in length. From 1991 to the present, the archery season was for antlerless or spike elk only.

Controlled hunts for antlered and antlerless elk have existed since 1972. ranging from 16 to 92 days in length.

Hunters: Figure 14 shows elk hunters from 1979 to 1994.

The number of elk hunters for general seasons ranged from 97 (1990) to 664 (1982). The number of general season elk hunters steadily declined from 1982 to 1990.

The number of elk hunters for controlled seasons ranged from 130 (1979) to 575 (1982). From 1990 to 1993, the number of hunters for controlled hunts has been 500; in 1994 it was 505.

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1982. The second and third highest number of hunters occurred in 1983 and 1981, respectively.

Hunter-days: Figure 15 shows the number of hunter-days. (NOTE: For the year 1983, I could not separate the general seasons hunter-days from the controlled permits hunter-days with data received from IDFG. For 1983, hunter-days are shown as general season in the bar graphs).

Hunter-days for general seasons ranged from 345 (1990) to 2,543 (1983).

Hunter-days for controlled hunting seasons ranged from 1,167 (1984) to 4,283 (1993).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1993. The second and third highest hunter-days occurred in 1991 and 1990, respectively.

Harvest: Figure 16 shows the elk harvest.

The elk harvests for the general seasons ranged from 0 (1983, 1991, 1993) to 95 (1979).

The elk harvests for the controlled hunts ranged from 32 (1979) to 240 (1992).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1988. The second and third highest harvests occurred in 1992 and 1985, respectively.

Table 5.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																							
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
62A	General Rifle Antlered	23	7	7	7	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
62A	General Rifle Antlerless	23	7	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62A	Gen. Archery Either Sex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	28	28	28	26	26	26	26
62A	Controlled Antlered	0	0	16	16	32	40	16	32	32	32	37	37	37	37	37	44	51	21	21	37	35	46	46	46	54
62A	Controlled Antlerless	0	0	16	16	32	40	16	32	32	32	37	37	37	37	37	44	49	51	51	44	44	46	46	46	92

Unit 62A Elk Hunters
1979 - 1994

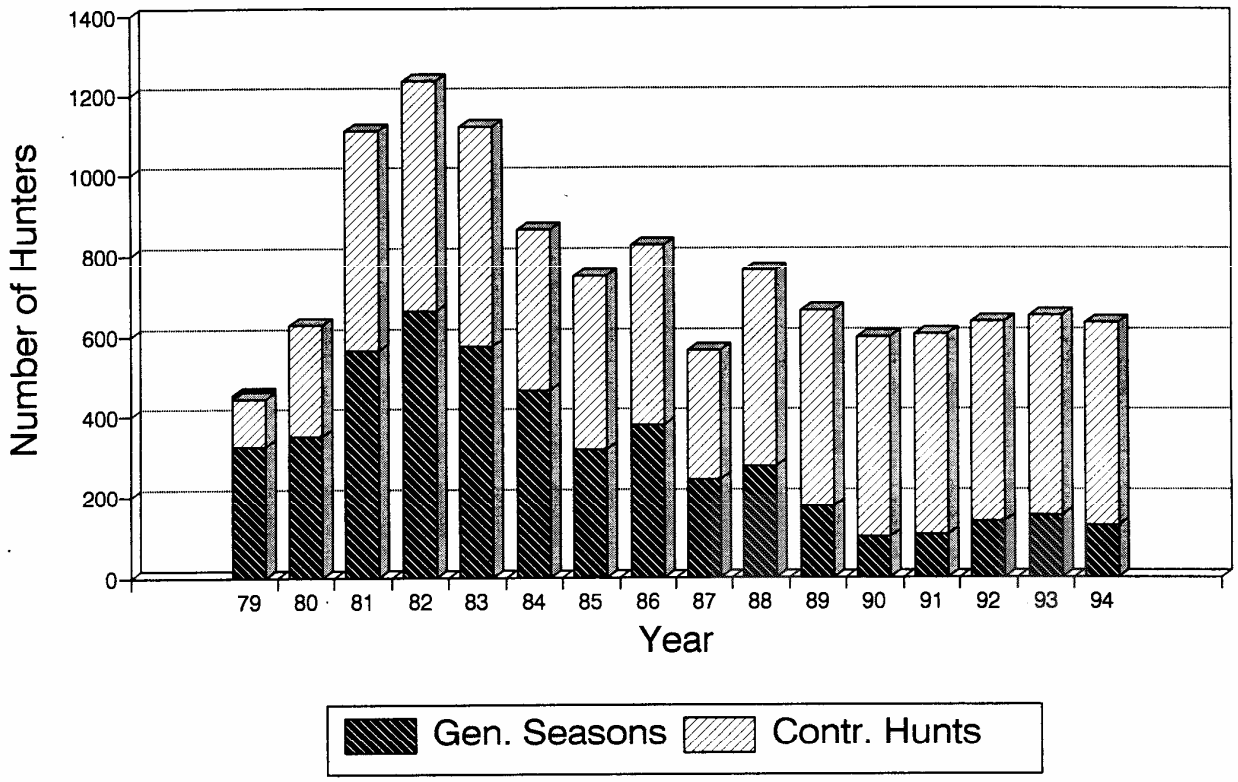


Fig. 14

Unit 62A Elk Hunter-Days
1983 - 1994

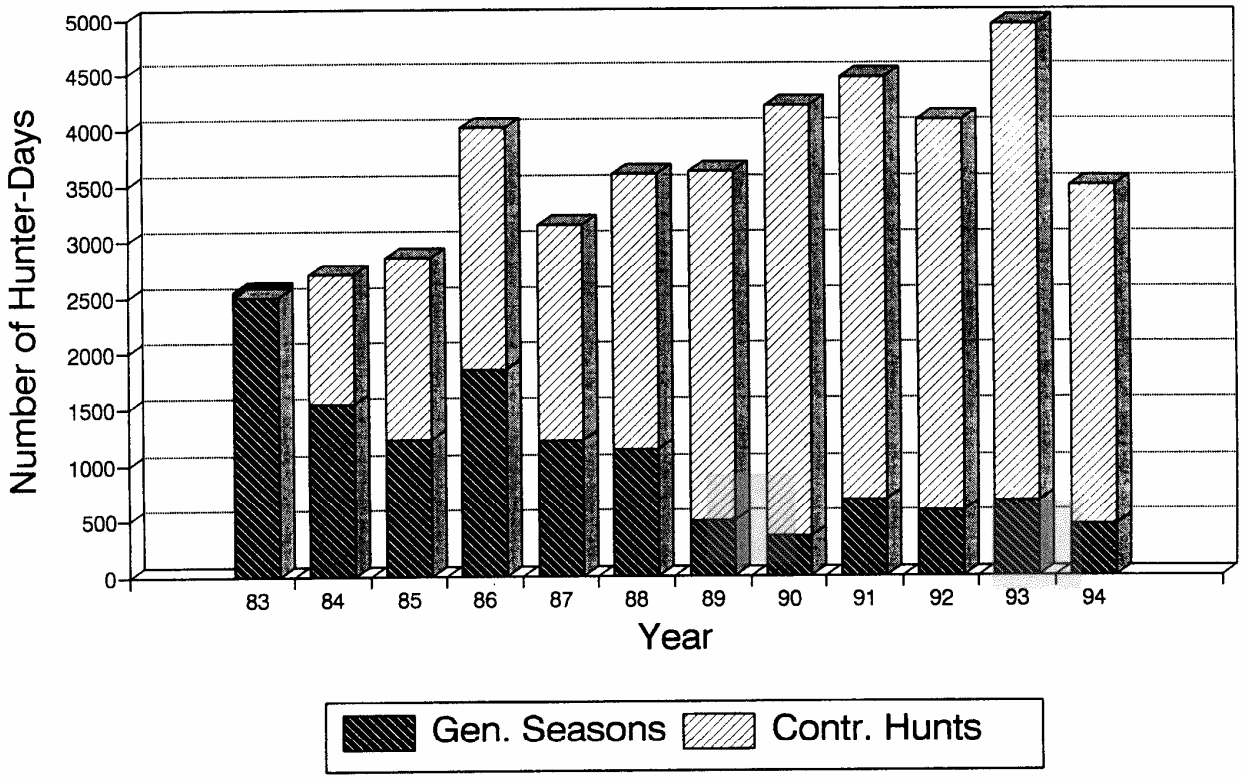


Fig. 15

Unit 62A Elk Harvest
1979 - 1994

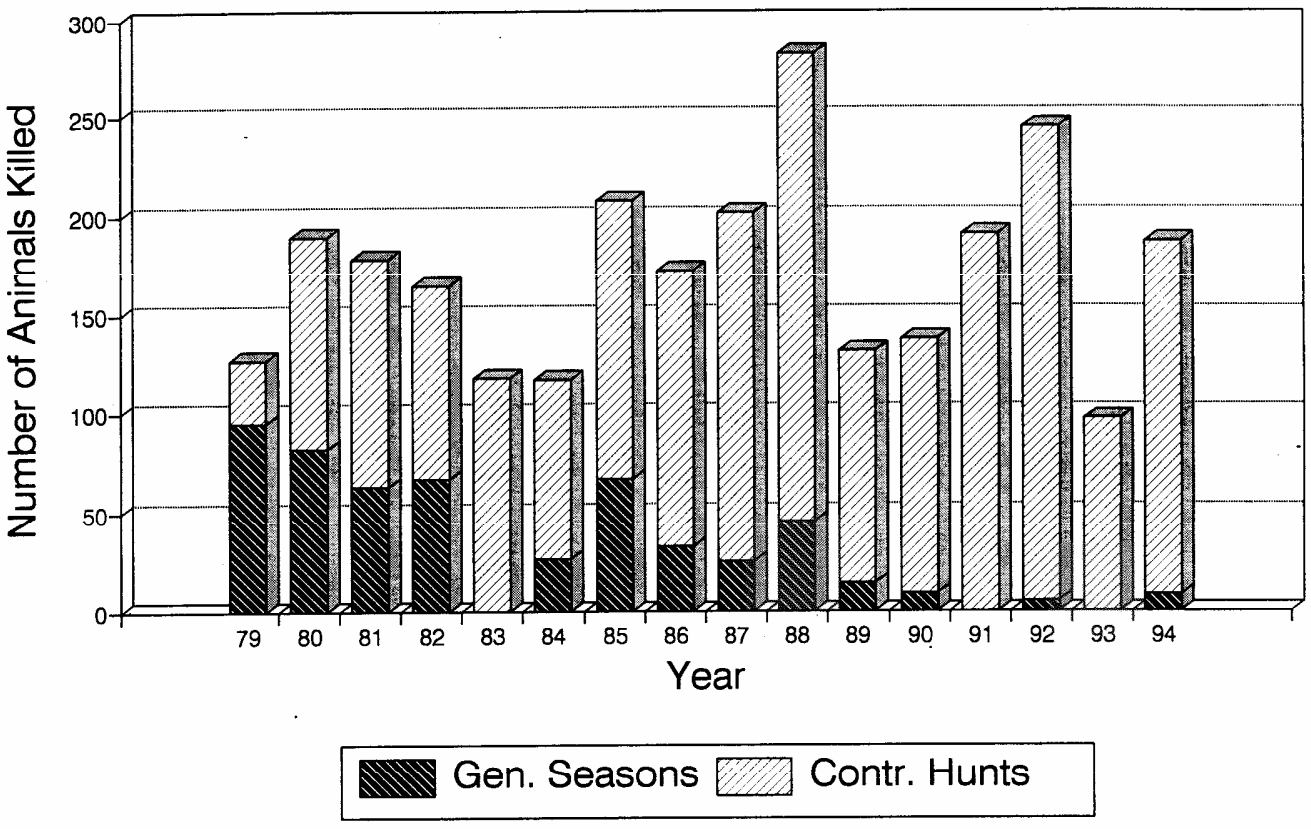


Fig. 16

GMU 62

Seasons: Table 6 shows the number of days available to hunt elk (antlered and/or antlerless) by various methods from 1970 to 1994.

In 1970, there was a 44 day general rifle season for both antlered and antlerless elk. From 1971 to 1973, the general rifle season was reduced to 12 days for both antlered and antlerless elk. Beginning in 1974, the general rifle hunting season was changed to antlered elk, beginning with a 3 day hunt, then a 5 day hunt to the present time.

A general archery season for both antlered and antlerless elk has existed since 1986, ranging from 26 days to 28 days in length.

Controlled hunts for antlered and antlerless elk have existed since 1974, ranging from 15 to 46 days.

Hunters: Figure 17 shows elk hunters from 1979 to 1994.

The number of elk hunters for general seasons ranged from 234 (1994) to 498 (1983).

Controlled hunting season permits ranged from 80 (1979) to 250 (1982, 1983, 1990 to 1994).

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1983. The second and third highest number of hunters occurred in 1982 and 1988, respectively.

Hunter-days: Figure 18 shows the number of hunter-days. (NOTE: For the year 1983, I could not separate the general seasons hunter-days from the controlled permits hunter-days with data received from IDFG. For 1983, hunter-days are shown as general season in the bar graphs).

Hunter-days for general seasons ranged from 1,021 (1994) to 2,046 (1988).

Hunter-days for controlled hunting seasons ranged from 540 (1984) to 1,810 (1994).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1990. The second and third highest hunter-days occurred in 1992 and 1991, respectively.

Harvest: Figure 19 shows the elk harvest.

The elk harvests for the general seasons ranged from 0 (1979) to 80 (1988).

The elk harvests for the controlled hunts ranged from 21 (1979) to 156 (1988).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1988. The second and third highest harvests occurred in 1991 and 1982, respectively.

Table 6.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																							
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
62	General Rifle Antlered	44	12	12	12	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
62	General Rifle Antlerless	44	12	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Gen. Archery Either Sex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	28	28	28	26	26	26	26
62	Controlled Antlered	0	0	0	0	15	16	16	16	16	16	16	23	30	30	30	30	30	30	30	30	35	46	46	46	46
62	Controlled Antlerless	0	0	0	0	15	16	16	16	16	16	16	23	30	30	30	30	30	30	30	30	35	46	46	46	46

Unit 62 Elk Hunters
1979 - 1994

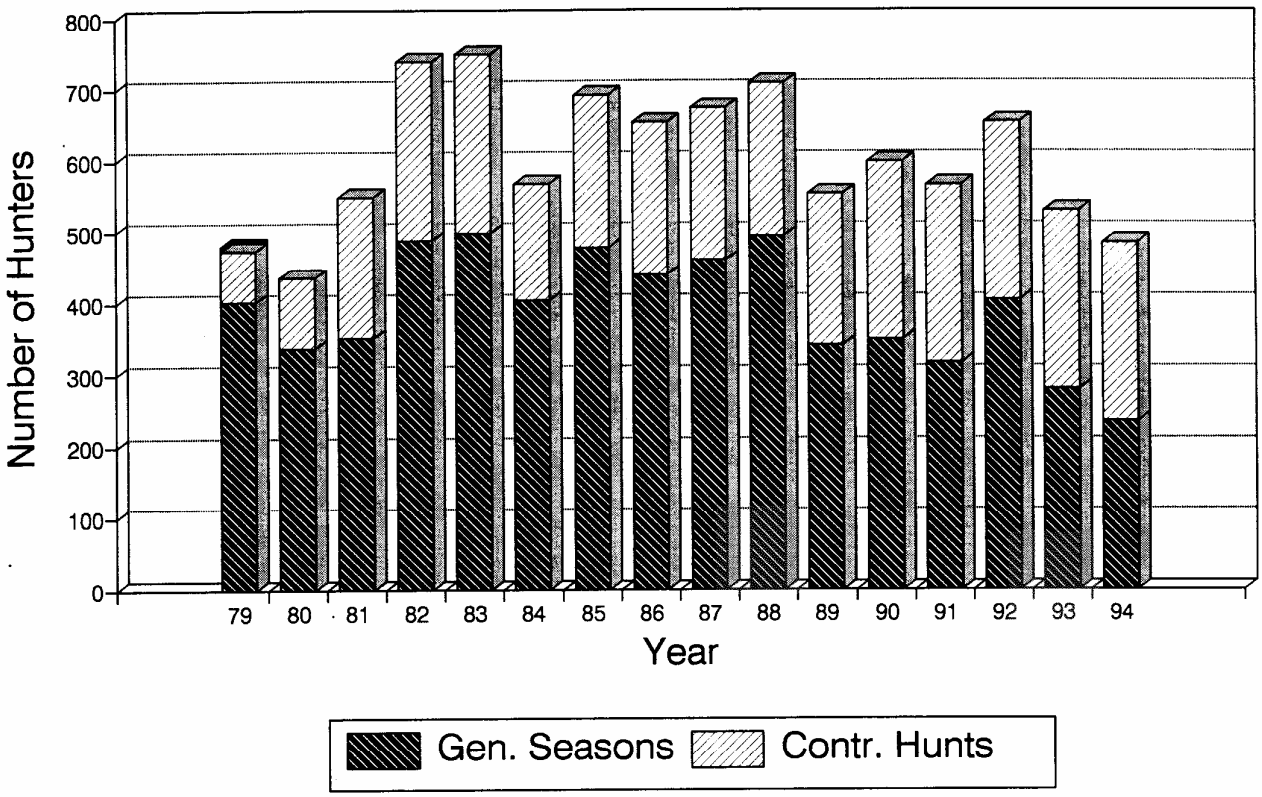


Fig. 17

Unit 62 Elk Hunter-Days
1983 - 1994

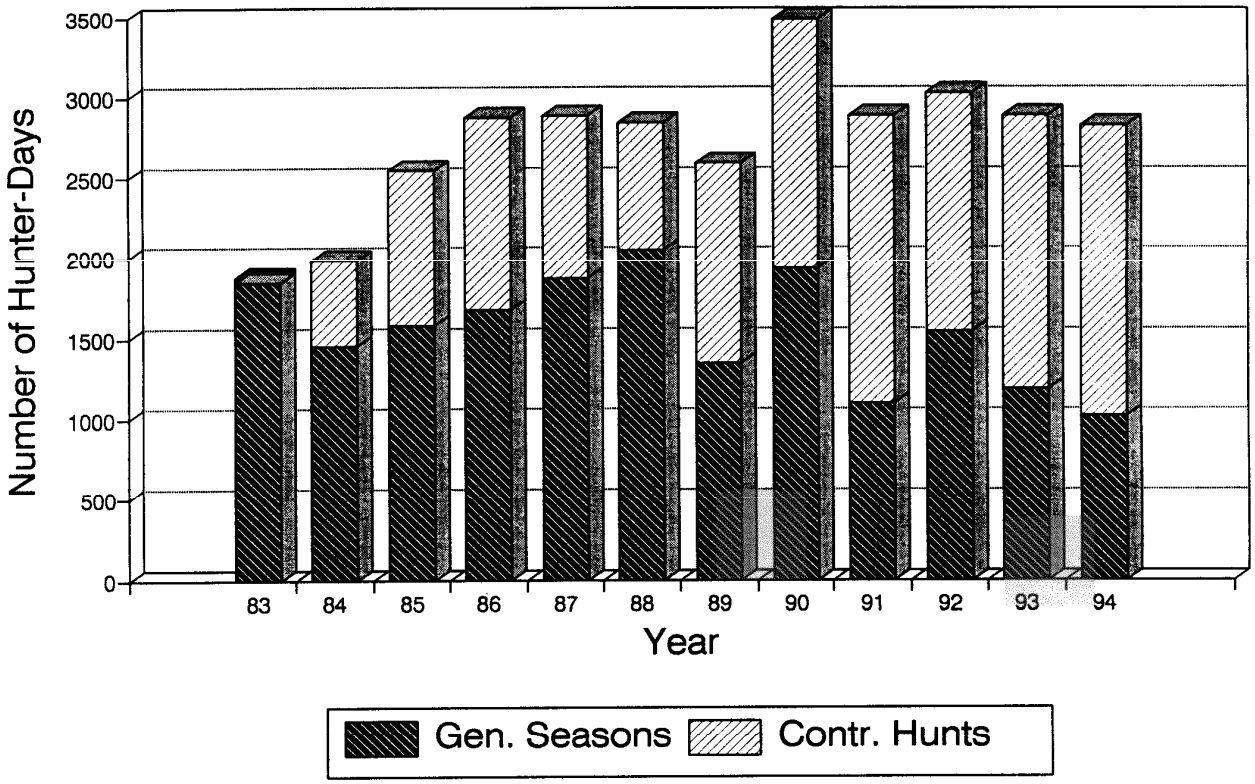


Fig. 18

Unit 62 Elk Harvest
1979 - 1994

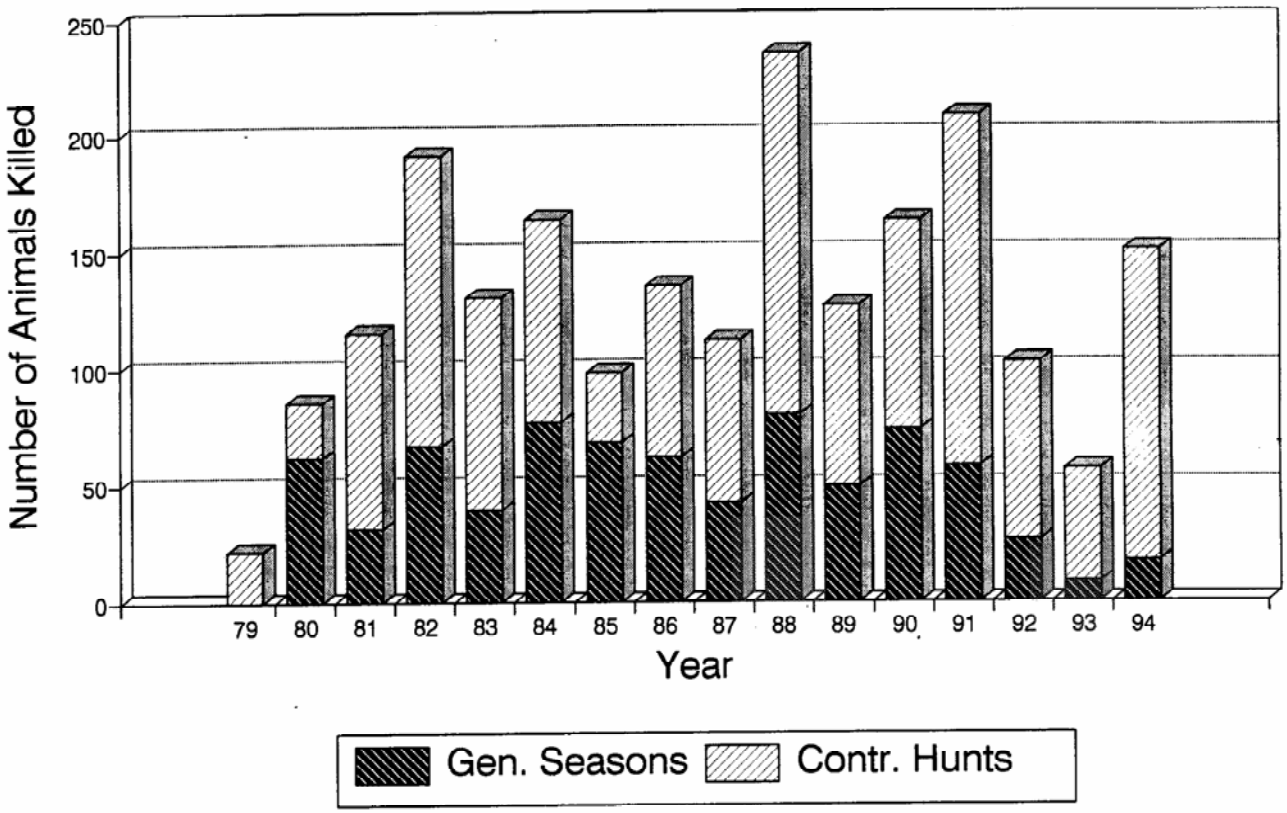


Fig. 19

GMU's 64 and 65 (and a small portion of 67)

In the beginning, controlled elk hunts included a combination of GMU's 64, 65 and a small portion of GMU 67. In order to get a common geographic area to compare changes over time, data for GMU's 64 and 65, plus the small portion of 67 included in the controlled hunts, has been combined. (This is not a completely clean comparison, but it is as close as can be done!)

Seasons: Table 7 shows the number of days available to hunt elk (antlered and/or antlerless) by various methods from 1970 to 1994.

From 1970 to 1972, there were no general rifle hunting seasons in GMU's 64 and 65. The first general rifle season for GMU's 64 nd 65 was an antlered only season beginning in 1974 which was 3 days in length. In 1975, this became a 5 day season, and has stayed the same to the present.

A general either sex archery season began in 1971 and has continued to the present, ranging from 23 to 37 days in length.

From 1979 to 1973, and 1978 to 1980, controlled antlered and antlerless seasons existed for combined GMU's 64, 65, and a small portion of GMU 67. From 1981 to 1987, the controlled hunts for the same combined area were for antlerless elk only. From 1988 to the present time, the controlled hunts were separated by GMU, and no longer included the small portion of GMU 67.

Hunters: Figure 20 shows elk hunters from 1979 to 1994.

The number of elk hunters for the general seasons ranged from 393 (1983) to 735 (1992).

Controlled hunting season permits have ranged from 75 in 1979 and 1980 to 225 in 1991, 1992, and 1993.

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1992. The second and third highest number of hunters occurred in 1991 and 1993, respectively.

Hunter-days: Figure 21 shows the number of hunter-days. (NOTE: For the year 1983, I could not separate the general seasons hunter-days from the controlled permits hunter-days with data received from IDFG. For 1983, hunter-days are shown as general season in the bar graphs).

Hunter-days for general seasons ranged from 1,179 (1990) to 2,969 (1992).

Hunter-days for controlled hunting seasons ranged from 812 (1984) to 1,877 (1993).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1992. The

second and third highest number of hunter-days occurred in 1993 and 1991, respectively.

Harvest: Figure 22 shows the elk harvest.

The elk harvests for general seasons ranged from 0 (1980) to 119 (1989).

The elk harvests for the controlled hunts ranged from 15 (1980) to 118 (1992).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1992. Second and third highest elk harvests occurred in 1989 and 1991.

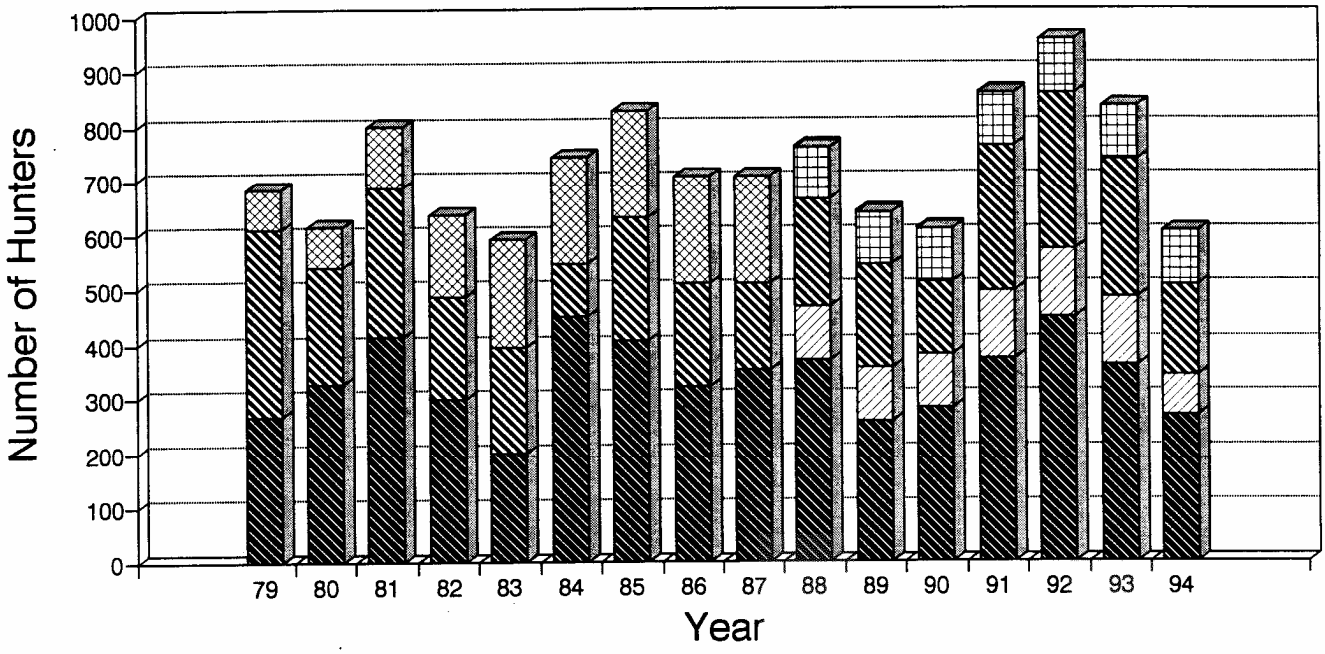
Table 7.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																							
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
64	General Rifle Antlered	0	0	0	0	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
64	General Rifle Antlerless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	Gen. Archery Either Sex	0	23	30	30	30	30	23	37	23	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
65	General Rifle Antlered	0	0	0	0	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
65	General Rifle Antlerless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Gen. Archery Either Sex	0	23	30	30	30	30	23	37	23	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
64/65/67	Controlled Antlered	44	61	58	51	0	0	0	0	12	12	13	0	0	0	0	0	0	0							
64/65/67	Controlled Antlerless	37	37	30	51	0	0	0	0	12	12	13	28	12	12	12	26	26	26							
64	Controlled Antlered																			0	0	0	0	0	0	0
64	Controlled Antlerless																			26	40	45	31	31	31	31
65	Controlled Antlered																			0	0	0	0	0	0	0
65	Controlled Antlerless																			26	26	59	31	31	31	31

(only the portion included in controlled hunts)

Units 64/65/67 Elk Hunters
1979 - 1994



64 Gen. Seasons
64 Contr. Hunts
65 Gen. Seasons
65 Contrl. Hunts
64/65/67 Contr.Hunt

Fig. 20

(only the portion included in controlled hunts)

Units 64/65/67 Elk Hunter-Days
1983 - 1994

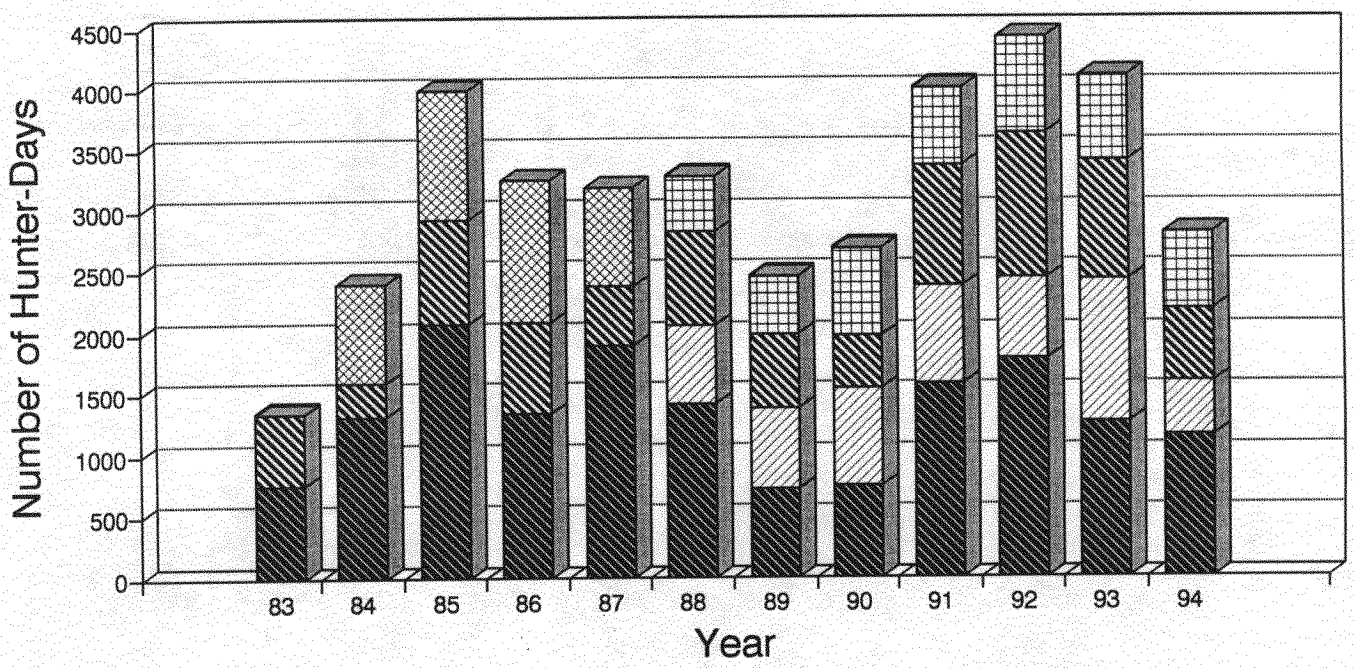


Fig. 21

(only the portion included in controlled hunts)

Units 64/65/67 Elk Harvest

1979 - 1994

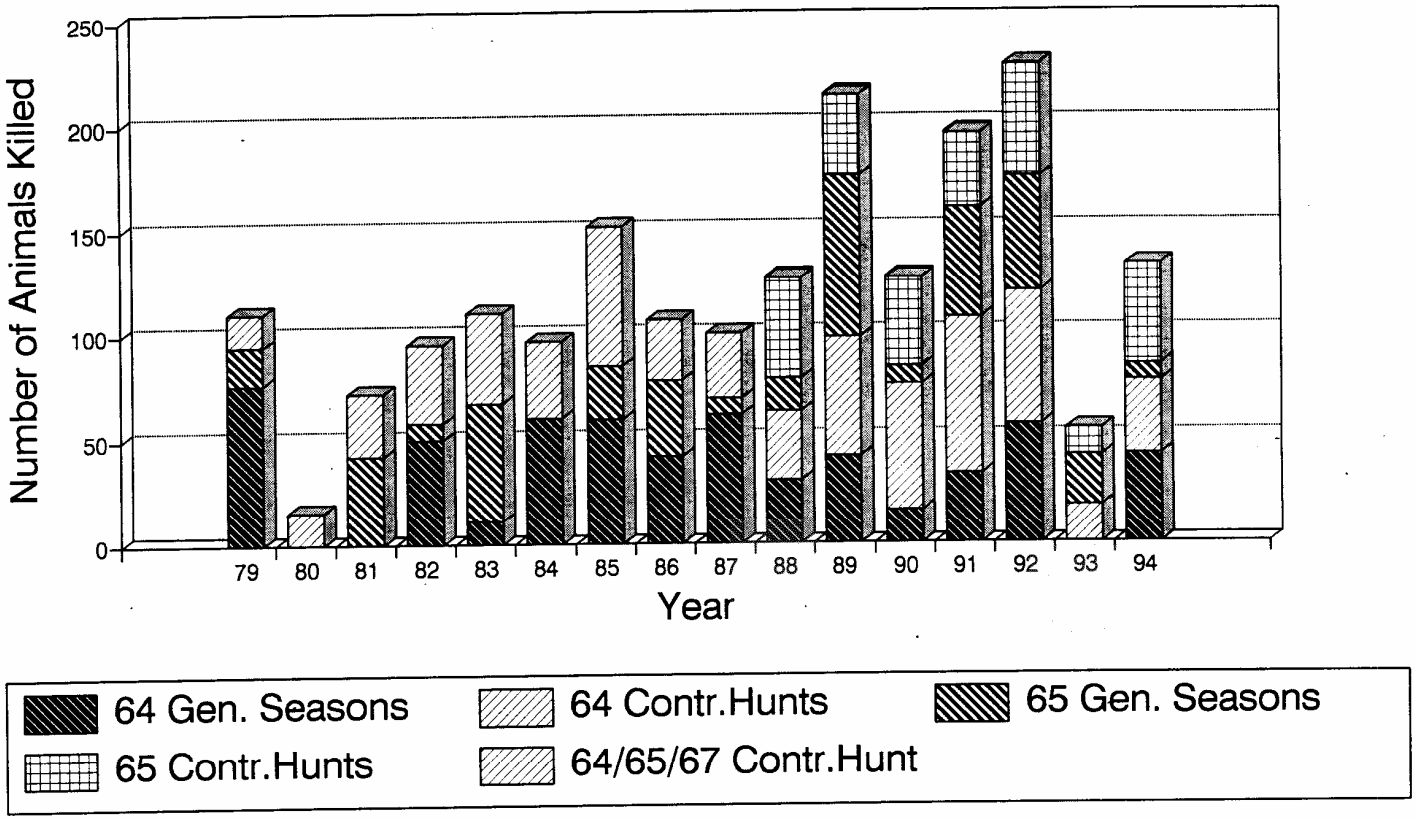


Fig. 22

GMU 67

Seasons: Table 8 shows the number of days available to hunt elk (antlered and/or antlerless) by various methods from 1970 to 1994.

From 1970 to 1972, there was a 9 day general rifle season for both antlered and antlerless elk. In 1973, the 9 day season was shortened to a 7 day season. Beginning in 1974, the general rifle hunting season was changed to antlered elk, beginning with a 3 day hunt, then a 5 day hunt which has existed to the present.

A general archery season for both antlered and antlerless elk has existed since 1971, ranging from 23 days to 37 days in length.

A general muzzleloader season for antlerless elk existed in 1987 and 1988.

Controlled hunts for antlered and antlerless elk existed from 1971 to 1981. From 1982 to 1993, controlled hunts were for antlerless elk. In 1994, controlled hunts included both antlered and antlerless elk.

Hunters: Figure 23 shows elk hunters from 1979 to 1994.

The number of elk hunters for general seasons ranged from 466 (1994) to 1,029 (1988).

Controlled hunting permits ranged from 125 (1979 to 1982) to 600 (1993).

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1988. Second and third highest number of hunters occurred in 1993 and 1983, respectively.

Hunter-days: Figure 24 shows the number of hunter-days. (NOTE: For the year 1983, I could not separate the general seasons hunter-days from the controlled permits hunter-days with data received from IDFG. For 1983, hunter-days are shown as general season in the bar graphs).

Hunter-days for general seasons ranged from 1,735 (1990) to 4,254 (1988).

Hunter-days for controlled hunting seasons ranged from 767 (1987) to 3,475 (1993).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1993. The second and third highest hunter-days occurred in 1988 and 1989, respectively.

Harvest: Figure 25 shows the elk harvest.

The elk harvests for the general seasons ranged from 29 (1986) to 186 (1989).

The elk harvests for the controlled hunts ranged from 32 (1987) to 279 (1994).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1992 and 1994. The second and third highest elk harvests occurred in 1991 and 1988, respectively.

Table 8.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																							
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
67	General Rifle Antlered	9	9	9	7	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
67	General Rifle Antlerless	9	9	9	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	Gen. Archery Either Sex	0	23	30	30	30	30	23	37	23	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
67	Gen. Muzzleloader Antlered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	Gen. Muzzleloader Antlerles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	23	0	0	0	0	0	0
67	Controlled Antlered	0	23	16	16	30	31	16	16	16	16	23	23	0	0	0	0	0	0	0	0	0	0	0	0	9
67	Controlled Antlerless	0	23	16	16	30	31	16	16	16	16	23	23	23	30	42	26	56	26	31	40	45	62	62	62	61

Unit 67 Elk Hunters
1979 - 1994

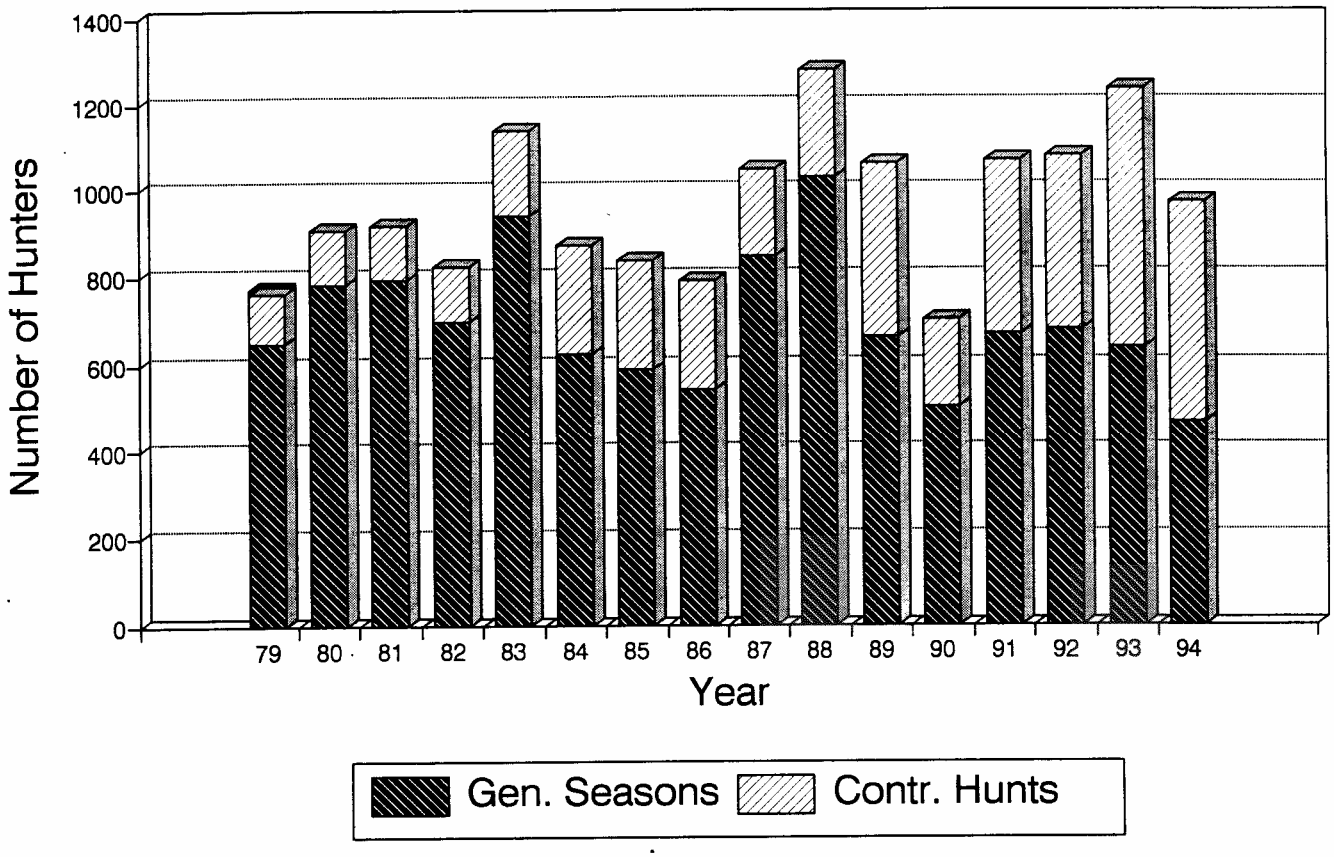


Fig. 23

Unit 67 Elk Hunter-Days
1983 - 1994

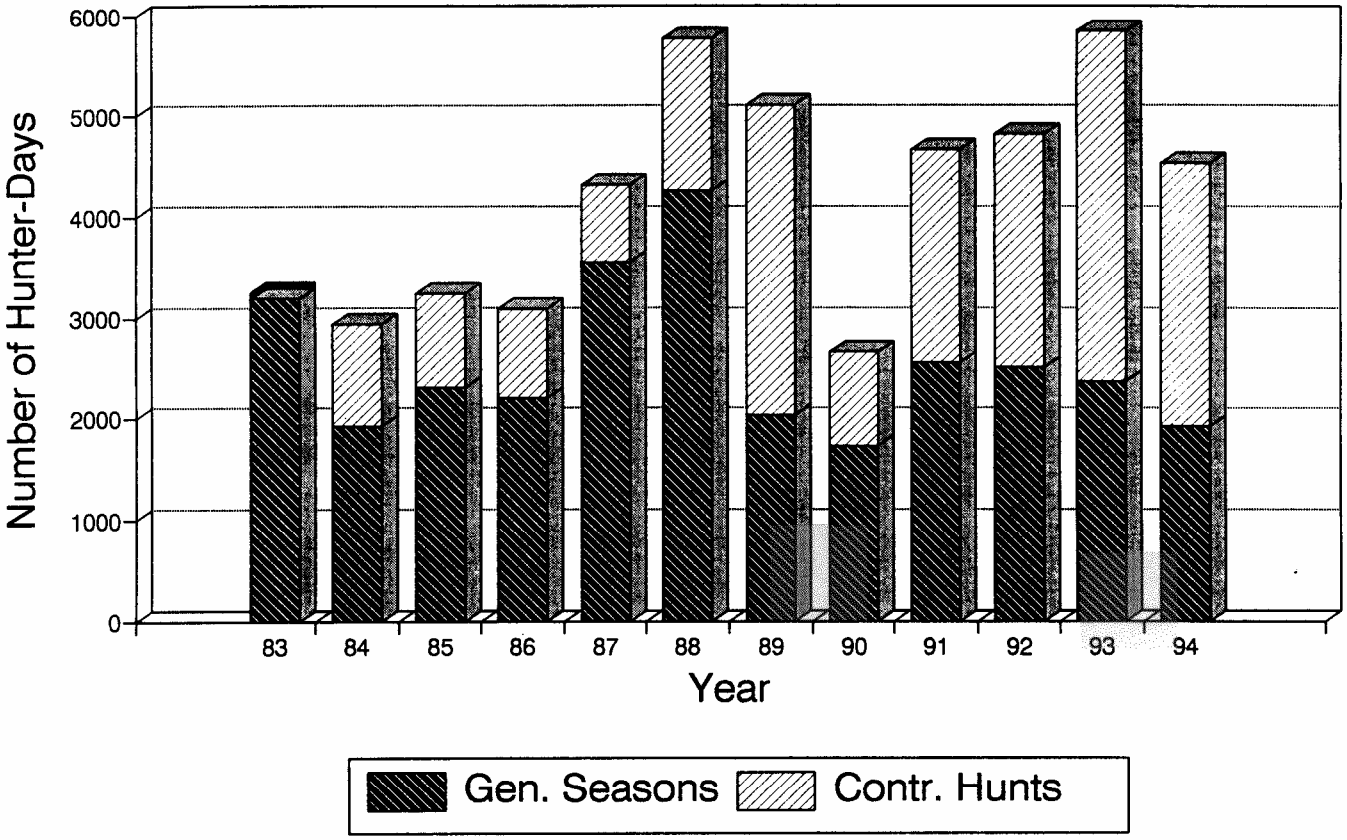


Fig. 24

Unit 67 Elk Harvest
1979 - 1994

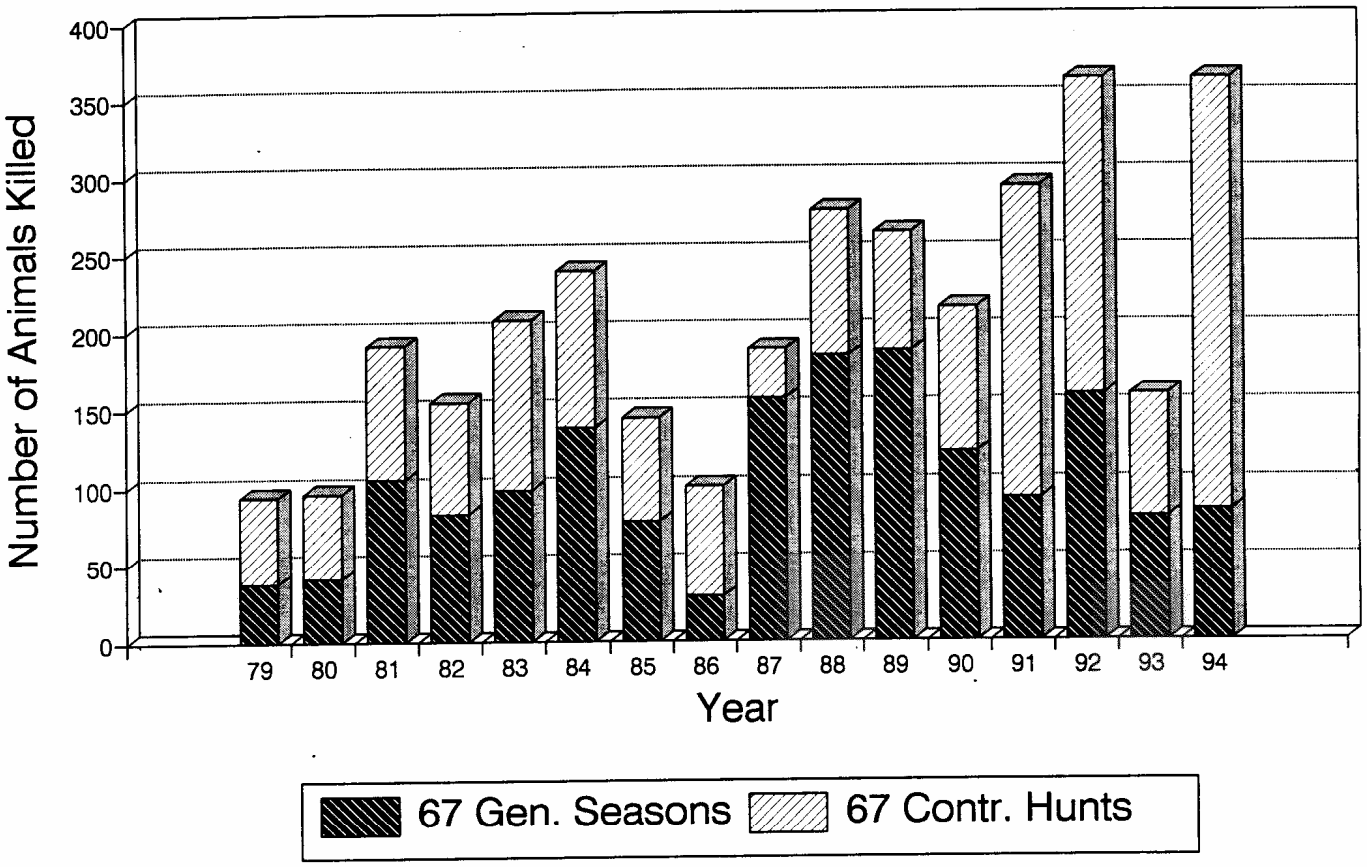


Fig. 25

GMU 66 (and a small portion of 69)

In the beginning, controlled elk hunts included GMU 66 and a small portion of GMU 69. In order to get a common geographic area to compare changes over time, data for GMU 66, plus the small portion of 69 included in the controlled hunts, has been combined. (This is not a completely clean comparison, but it is as close as can be done!)

Seasons: Table 9 shows the number of days available to hunt elk (antlered and/or antlerless) by various methods from 1970 to 1994.

From 1970 to 1973, there were no general rifle hunting seasons in GMU 66. The first general rifle season for GMU 66 was an antlered only season beginning in 1974 which was 3 days in length. In 1975, this became a 5 day season, and has stayed the same to the present.

A general either sex archery season has existed since 1970 and continued to the present, ranging from 23 to 37 days in length.

From 1970 to 1975, and 1979, controlled antlered and antlerless seasons existed for GMU 66 and a small portion of GMU 69. From 1980 to 1989, the controlled hunts for the same combined area were for antlerless elk only. From 1990 to the present time, the controlled hunts applied to GMU 66 (no longer included the small portion of GMU 69), and were for antlerless elk.

Hunters: Figure 26 shows elk hunters from 1979 to 1994.

The number of elk hunters for the general seasons ranged from 1,289 (1994) to 2,033 (1980).

Controlled hunting season permits have ranged from 200 (1979, 1985, 1986, 1987, 1990) to 1,200 (1992, 1993, 1994).

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1992. The second and third highest number of hunters occurred in 1993 and 1980, respectively.

Hunter-days: Figure 27 shows the number of hunter-days. (NOTE: For the year 1983, I could not separate the general seasons hunter-days from the controlled permits hunter-days with data received from IDFG. For 1983, hunter-days are shown as general season in the bar graphs).

Hunter-days for general seasons ranged from 4,435 (1989) to 8,219 (1992).

Hunter-days for controlled hunting seasons ranged from 823 (1987) to 7,337 (1993).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1993. The second and third highest number of hunter-days occurred in 1992 and 1991, respectively.

Harvest: Figure 28 shows the elk harvest.

The elk harvests for general seasons ranged from 99 (1983) to 403 (1989).

The elk harvests for the controlled hunts ranged from 47 (1979) to 557 (1994).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1994. Second and third highest elk harvests occurred in 1992 and 1991, respectively.

Table 9.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																							
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
66	General Rifle Antlered	0	0	0	0	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
66	General Rifle Antlerless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Gen. Archery Either Sex	23	23	30	30	30	30	23	37	37	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
66/69	Controlled Antlered	46	61	58	51	14	15	0	0	0	12	0	0	0	0	0	0	0	0	0	0					
66/69	Controlled Antlerless	37	37	30	51	14	15	0	0	0	12	36	35	35	35	35	26	26	26	26	40	0	0	0	0	0
66	Controlled Antlered																					45	37	37	37	46
66	Controlled Antlerless																									

(only the portion included in controlled hunts)

Units 66 & 69 Elk Hunters
1979 - 1994

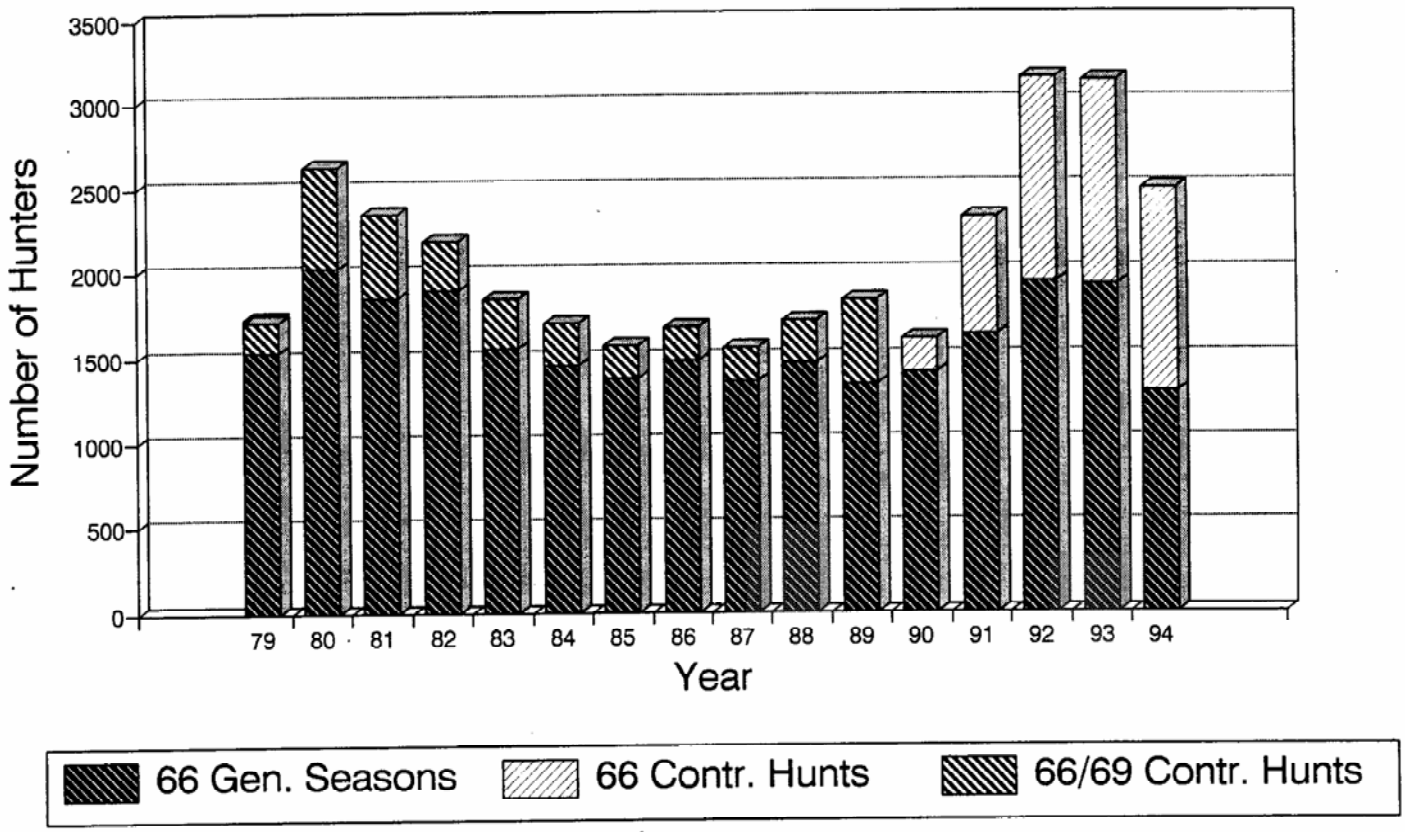


Fig. 26

(Only the portion included in controlled hunts)

Units 66 & 69 Elk Hunter-Days
1983 - 1994

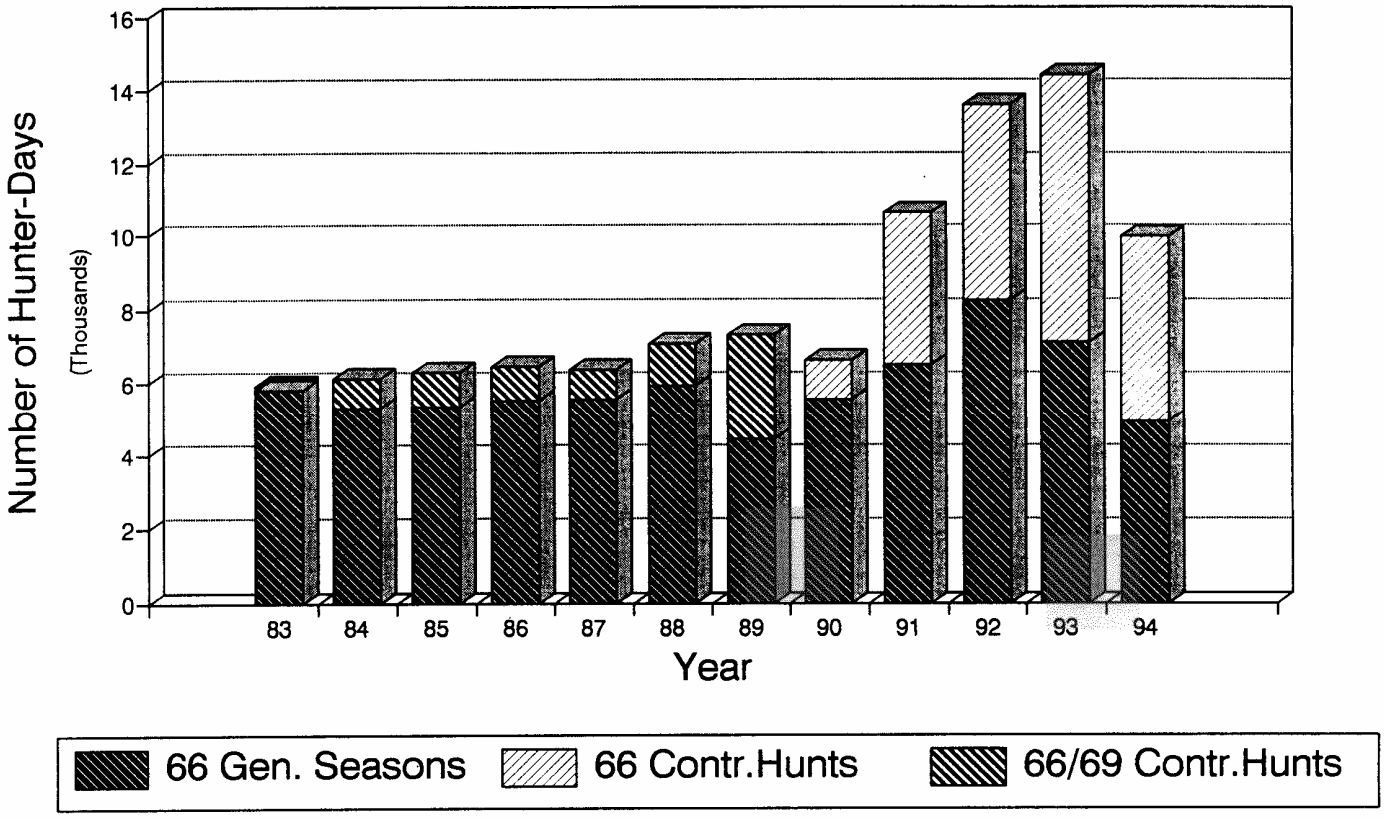


Fig. 27

(only the portion included in controlled hunts)

Units 66 & 69 Elk Harvest
1979 - 1994

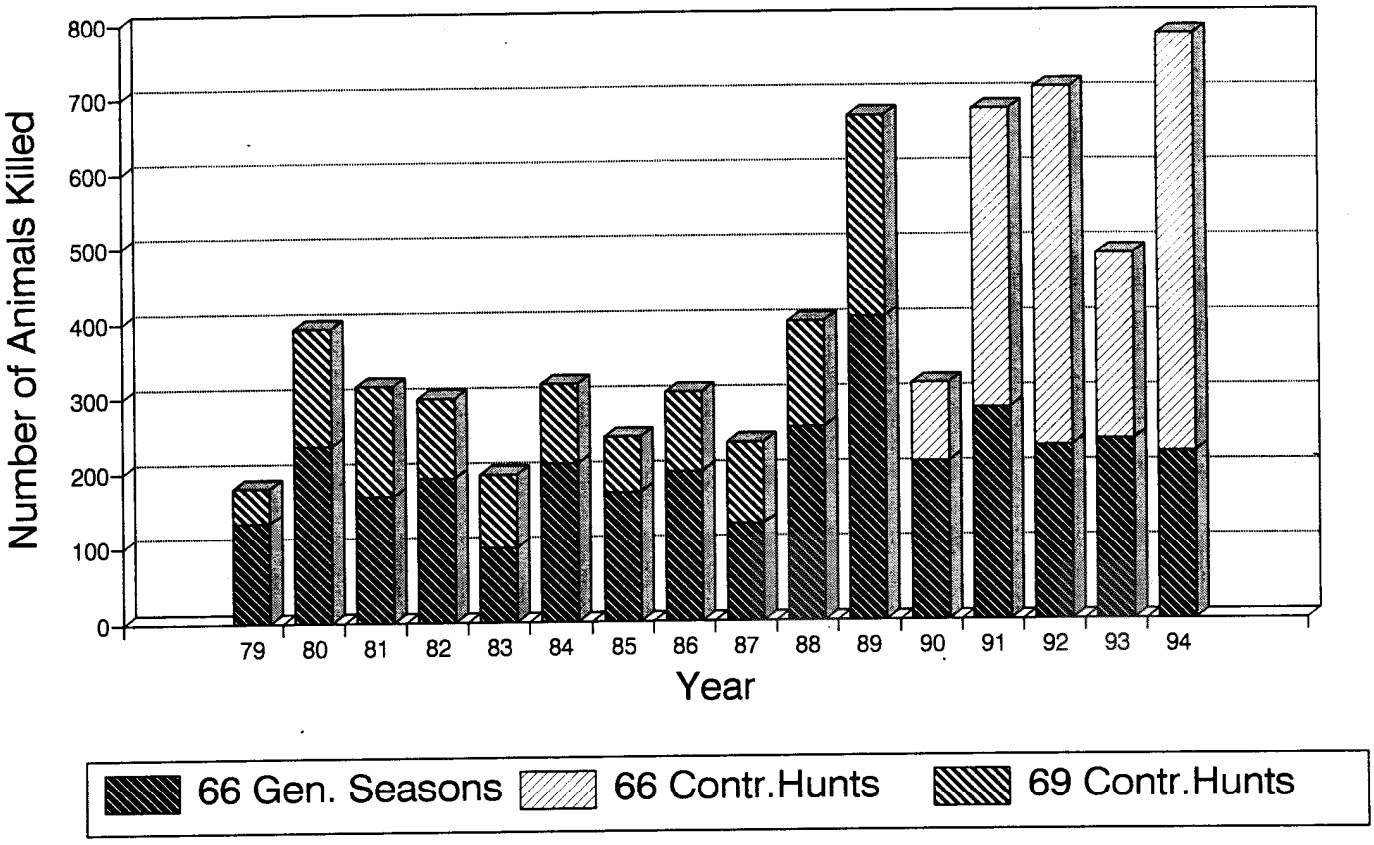


Fig 28

SUMMARY

Hunters: Figure 29 shows elk hunters from 1979 to 1994 for all GMU's.

The number of elk hunters for the general seasons ranged from 4,840 (1994) to 10,528 (1982).

Controlled hunting season permits have ranged from 760 (1979) to 5,621 (1993).

Combining the hunters from the general seasons with the controlled hunts, the highest number of hunters occurred in 1982. The second and third highest number of hunters occurred in 1983 and 1981, respectively.

Hunter-days: Figure 30 shows the number of hunter-days for all GMU's. (NOTE: For the year 1983, I could not separate the general seasons hunter-days from the controlled permits hunter-days with data received from IDFG. For 1983, hunter-days are shown as general season in the bar graphs).

Hunter-days for general seasons ranged from 19,900 (1984) to 36,063 (1988).

Hunter-days for controlled hunting seasons ranged from 6,447 (1984) to 37,830 (1993).

Combining the hunter-days from the general seasons with the controlled hunts, the highest hunter-days occurred in 1993. The second and third highest number of hunter-days occurred in 1994 and 1988, respectively.

Harvest: Figure 31 shows the elk harvest for all GMU's.

The elk harvests for general seasons ranged from 615 (1993) to 1,570 (1989).

The elk harvests for the controlled hunts ranged from 217 (1979) to 2,440 (1994).

Combining the elk harvest from the general seasons with the controlled hunts, the highest elk harvest occurred in 1994. Second and third highest elk harvests occurred in 1992 and 1988, respectively.

Elk Hunters for All GMU's
1979 - 1994

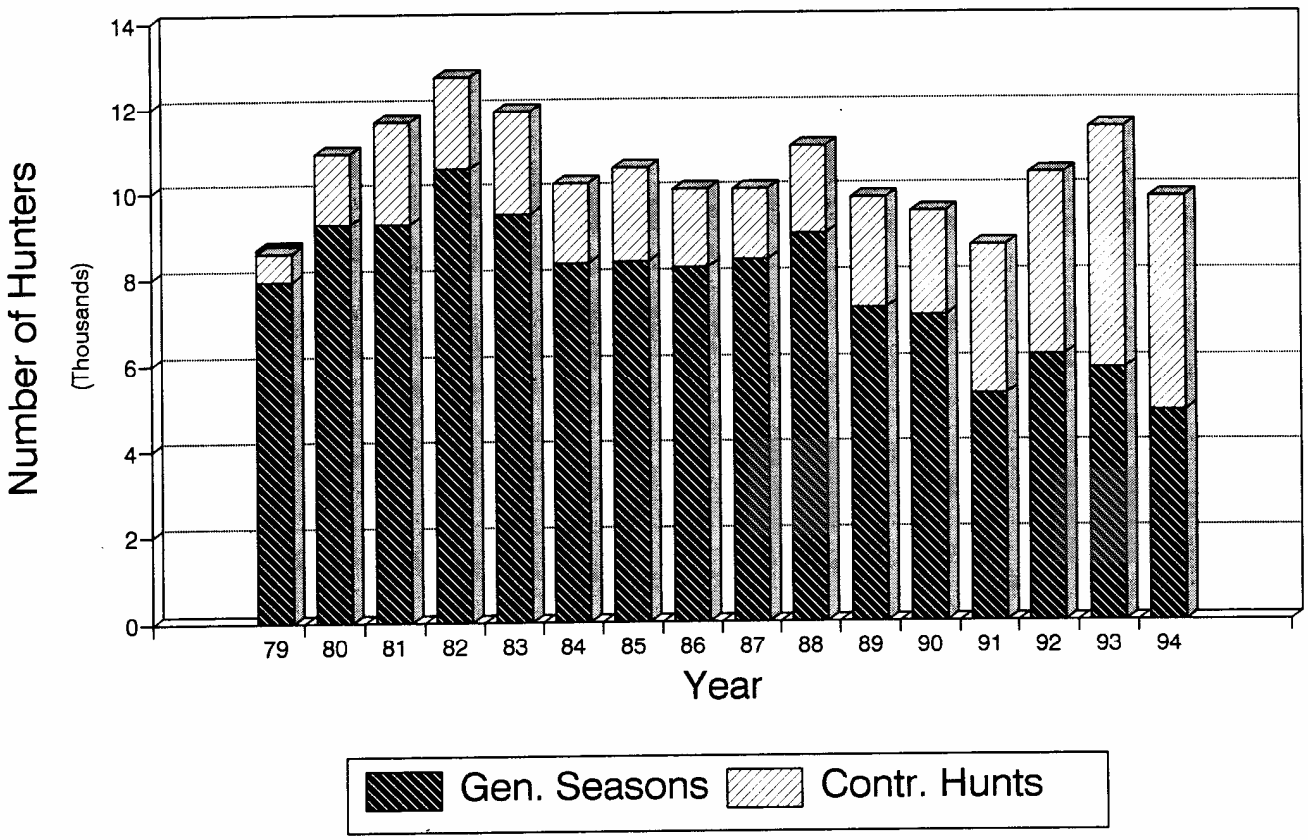


Fig. 29

Elk Hunter-Days for All GMU's
1983 - 1994

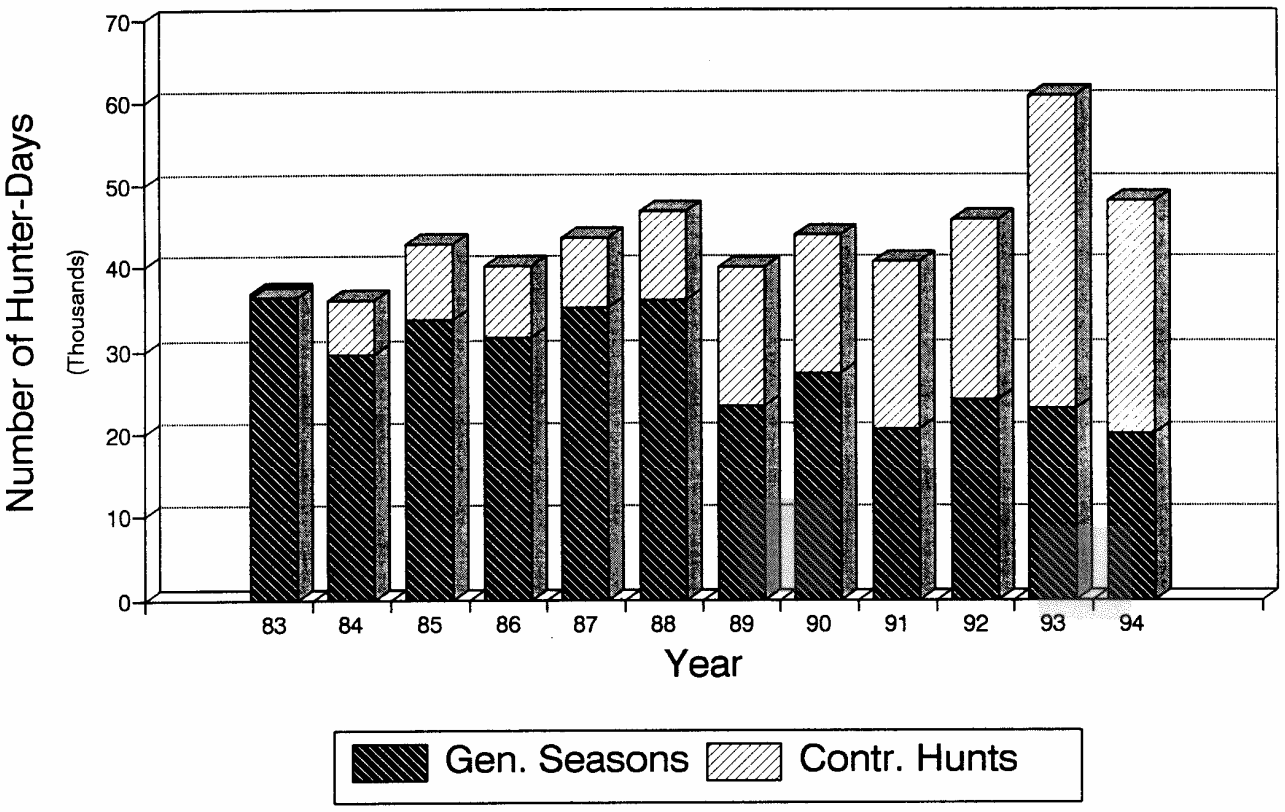


Fig. 30

Elk Harvest for All GMU's
1979 - 1994

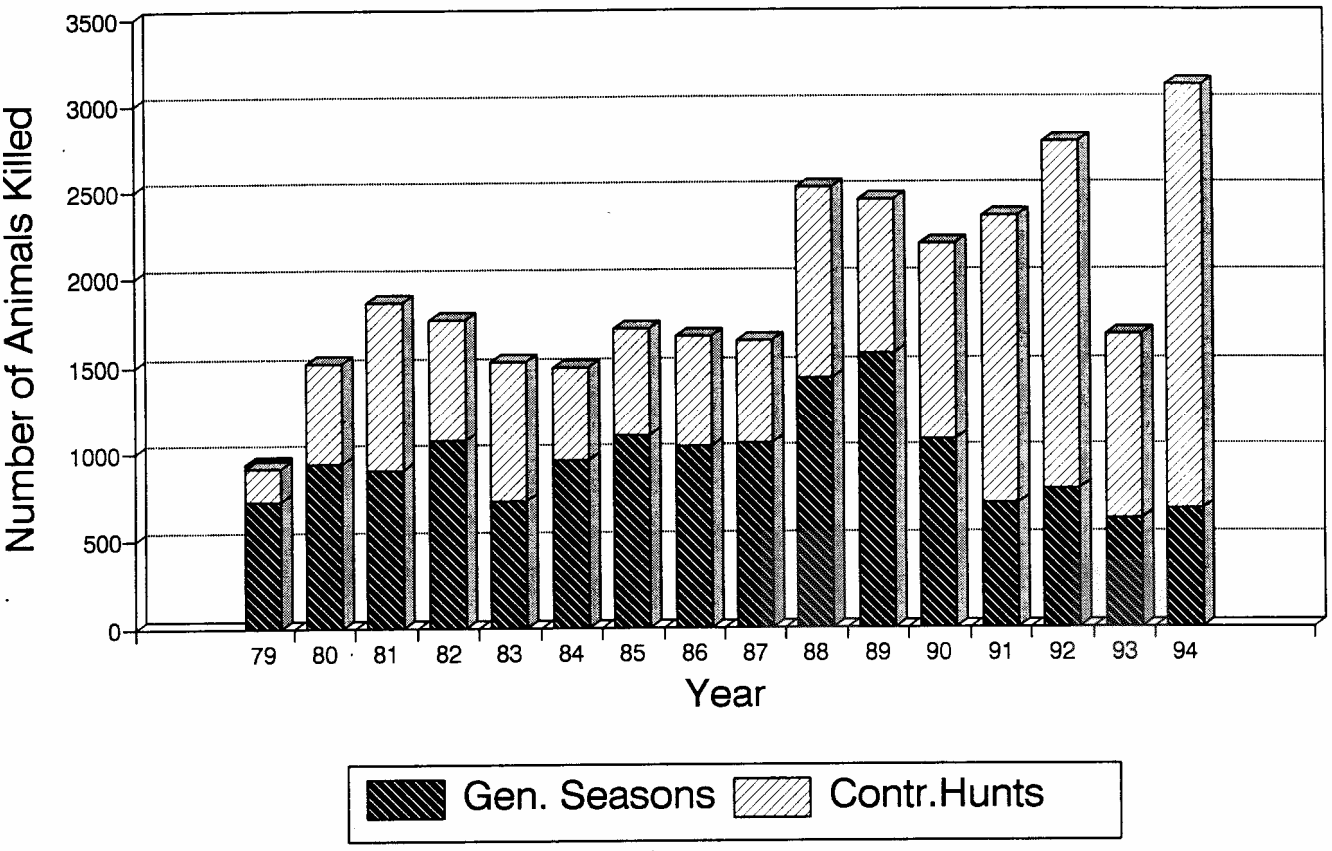


Fig. 31

Notes to - Elk Seasons (Number of Days to Hunt):

1. The numbers in ~~this~~ these tables are the number of days available for a hunter to hunt in various types of hunts. A brief example will help explain what the numbers mean: **Unit 58**: general rifle seasons were either sex seasons for the years 1970 through 1973; for the year 1970, this is shown as 23 days available for antlered hunting and 23 days for antlerless hunting. Beginning in 1974, the general rifle season became an antlered only season; this is shown as 3 days available for antlered hunting and 0 days for antlerless hunting.

   Hopefully, displaying seasons in this fashion helps illustrate what has changed over the years for the various types of hunts.

2. General archery seasons have always been either sex seasons (as indicated in the table), with the following exception: in 1976, Units 61,64,65,66,67 had antlered only archery seasons. Because all of the general archery seasons were either sex seasons, except for the one year, it was not necessary to display the seasons by antlered or antlerless to show changes between the years.

3. Prior to 1973, Unit 59 included the area of Unit 59A.

4. Controlled elk Hunt 259 has always included both Units 59 and 59A.

5. Unit 60 included the area of Unit 60A from 1970 through 1981.

6. Prior to 1974, Unit 62 included the area of Unit 62A. However, season regulations for the Unit were split using the boundaries of what would eventually become Unit 62A. This made it possible to show season lengths for Unit 62A prior to 1974 even though it was not called Unit 62A.

7. From 1972 through 1987, controlled elk Hunt 264 included Units 64, 65, and a part of Unit 67.

8. From 1972 through 1989, and 1991, controlled elk Hunt 266 included various combinations of Units 66 and 69.

9. In 1991, the controlled hunt in Unit 61 was an unlimited muzzleloader hunt for antlerless elk and spike antlered elk.

10. In 1991, all antlered hunts in Units 58, 59, 59A, 60, 61, and 62A were spike only hunts.

Notes to - Elk Hunters (Number of Hunters), and Bar Graphs:

1. The numbers are estimated number of elk hunters within each of the Units.

I did not use this data in the graphs

For the years 1970 through 1978, general season elk hunter estimates were compiled from hunter report card returns. Hunter report card returns were highly variable; however, this is the only available information. General season elk hunter data is not available for all years prior to 1979.

Beginning in 1979, general season elk hunter estimates were compiled from a telephone survey technique.

2. General Seasons include the number of hunters participating in the general rifle seasons (from the data provided by IDFG, it is unclear whether this also includes general archery seasons and general muzzleloader seasons).

   Controlled Permits include the total number of controlled hunt permits issued during all of the controlled hunts for each unit.

3. Prior to 1973, Unit 59 included the area of Unit 59A.

4. Controlled elk Hunt 259 has always included both Units 59 and 59A.

5. Unit 60 included the area of Unit 60A from 1970 through 1981.

6. Prior to 1974, Unit 62 included the area of Unit 62A. However, controlled hunt permits for the Unit were split using the boundaries of what would eventually become Unit 62A. This made it possible to show controlled hunt permit numbers for Unit 62A prior to 1974 even though it was not called Unit 62A. (It was not possible to separate the general season hunter data for the years prior to 1974.)

7. From 1972 through 1987, controlled elk Hunt 264 included Units 64, 65, and a part of Unit 67.

8. From 1972 through 1989, and 1991, controlled elk Hunt 266 included various combinations of Units 66 and 69.

9. In 1991, the controlled hunt in Unit 61 was an unlimited muzzleloader hunt for antlerless elk and spike antlered elk. The number of hunters participating in this hunt was not available.

10. In 1991, all antlered hunts in Units 58, 59, 59A, 60, 61, and 62A were spike only hunts.

11. The bar graphs only show data for the years 1979 to 1991, which are the years when data was collected by the telephone survey technique.

    Some bar graphs display data for a combination of units, for example Units 59 and 59A are combined. The reason this has been done is to be able to display data for a common geographic area. Using 59 and 59A as an example: Elk controlled hunts have always combined Units 59 and 59A; data is not available to separate how many of the elk hunters came from Unit 59

versus 59A. Therefore, to get a common geographic area to display elk hunters, the general season elk hunters for each unit are shown along with the controlled season elk hunters.

Notes to - Elk Harvest (Estimated Harvest), and Bar Graphs:

1. The numbers are estimated number of elk killed within each of the Units.

   For the years 1970 through 1978, elk harvest estimates were compiled from hunter report card returns. Hunter report card returns were highly variable; however, this is the only available information.

   For the year 1978, harvest data by individual Unit is not available.

   Beginning in 1979, elk harvest estimates were compiled from a telephone survey technique.

2. General Seasons include animals killed during general rifle seasons, general archery seasons, and general muzzleloader seasons.

   Controlled Hunts include animals killed during all of the controlled hunts for each unit.

3. Prior to 1973, Unit 59 included the area of Unit 59A.

4. Controlled elk Hunt 259 has always included both Units 59 and 59A.

5. Unit 60 included the area of Unit 60A from 1970 through 1981.

6. Prior to 1974, Unit 62 included the area of Unit 62A. Even though season regulations for the Unit were split using the boundaries of what would eventually become Unit 62A, it was not possible to separate the harvest data for the years prior to 1974.

7. From 1972 through 1987, controlled elk Hunt 264 included Units 64, 65, and a part of Unit 67.

8. From 1972 through 1989, and 1991, controlled elk Hunt 266 included various combinations of Units 66 and 69.

9. In 1991, the controlled hunt in Unit 61 was an unlimited muzzleloader hunt for antlerless elk and spike antlered elk.

10. In 1991, all antlered hunts in Units 58, 59, 59A, 60, 61 and 62A were spike only hunts.

11. The bar graphs only show data for the years 1979 to 1991, which are the years when data was collected by the telephone survey technique.

    Some bar graphs display data for a combination of units, for example Units 59 and 59A are combined. The reason this has been done is to be able to display data for a common geographic area. Using 59 and 59A as an example: Elk controlled hunts have always combined Units 59 and 59A; data is not available to separate how many of the harvested elk came from Unit 59 versus 59A. Therefore, to get a common geographic area to display elk harvest, the general season elk harvests for each unit are shown along with the controlled season elk harvest.

ELK	HARVEST											YEAR															
Unit	Type of Hunt	70	71	72	73	74	75	76	77	78	-----	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
58	General Seasons	3	6	3	28	3	3	3	6			0	0	10	25	0	6	23	35	34	64	22	46	32	7	32	17	36
58	Controlled Hunts	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	20	14	21	48	133	74	125	65
59	General Seasons	11	25	25	33	27	24	26	21			19	20	31	83	80	63	96	61	156	150	269	119	74	122	56	107	50
59A	General Seasons				11	0	12	10	3			0	28	10	42	11	55	22	65	0	37	46	9	30	7	40	8	8
59/59A	Controlled Hunts	0	0	0	0	0	0	0	0	5		5	6	7	26	31	33	32	29	36	30	33	27	40	292	202	169	153
60	General Seasons	210	78	78	88	162	199	139	118			210	284	283	192	174	187	246	262	191	253	249	174	12	42	56	74	64
60	Controlled Hunts			29		29	23	17	26	40		40	172	300	109	212	38	183	183	137	271	138	168	0	0	33	172	29
60A	Controlled Hunts																				60	59	387	427	260	68	428	11
61	General Seasons	246	108	132	224	53	96	62	97			133	185	157	259	156	134	239	211	250	309	213	286	43	81	80	84	17
61	Controlled Hunts	0	0	0	0	8	0	0	0	0		0	45	192	124	102	39	20	0	0	0	0	0	79	193	178	314	193
62	General Seasons	176	33	39	116	24	51	13	38			0	62	31	67	39	77	68	62	42	80	49	74	58	26	8	17	0
62	Controlled Hunts	0	0	3	0	8	20	0	8	30		21	24	85	125	92	87	30	74	70	156	78	90	151	77	49	134	99
62A	General Seasons					27	84	8	32			95	82	63	67	0	26	67	32	25	45	14	9	0	5	0	8	8
62A	Controlled Hunts					12	14	3	19	30		32	108	115	98	118	91	141	140	177	237	118	129	191	240	97	179	118
64	General Seasons	25	11	25	30	18	18	10	18			76	0	0	50	11	60	59	41	61	30	41	15	33	56	0	42	17
64	Controlled Hunts																				33	57	60	74	64	17	35	8
65	General Seasons	8	3	3	3	9	3	0	4			19	0	42	8	56	0	26	36	8	16	78	9	53	55	24	8	8
65	Controlled Hunts																				49	39	43	36	54	13	48	14
64/65/67	Controlled Hunts			30		0	0	0	0	24		16	15	30	38	43	37	67	29	31								
66	General Seasons	213	470	339	284	145	114	39	121			133	234	168	192	99	211	171	198	129	257	403	210	281	231	239	222	179
66	Controlled Hunts																						105	398	478	249	557	230
66/69	Controlled Hunts			195		47	35	0	0	0		47	157	147	106	98	106	75	107	109	142	269						
67	General Seasons	90	206	207	155	103	123	31	71			38	41	105	83	98	138	78	29	156	183	186	121	92	158	80	84	25
67	Controlled Hunts	0		41		40	54	9	26	49		56	55	86	72	109	102	66	72	32	95	78	94	202	205	79	279	51
TOTAL	HARVEST	982	940	1149	972	715	873	370	608	178	0	940	1518	1862	1766	1529	1490	1709	1666	1644	2517	2453	2196	2354	2786	1674	3111	1333
Total	General Seasons											723	936	900	1068	724	957	1095	1032	1052	1424	1570	1072	708	790	615	671	412
	Controlled Hunts											217	582	962	698	805	533	614	634	592	1093	883	1124	1646	1996	1059	2440	921

1995
General Archery - 142
Not broken out by GMU!

Elk Hunters (Number of Hunters)

Unit	Type	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
		YEAR																									
58	General Seasons	6		11		5	13				38	70	53	66	65	43	116	159	145	232	191	235	154	121	191	149	198
58	Controlled Permits	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30	30	50	250	300	300	229
59	General Seasons	19		49		56	36				382	549	435	456	392	803	794	781	738	774	1020	823	506	552	693	743	723
59A	General Seasons					7	11				76	222	180	141	363	152	165	209	118	149	233	184	157	159	136	109	82
59/59A	Controlled Permits	0	0	0	0	0	0	0	0	25	25	25	25	50	50	50	50	50	50	50	50	50	50	400	460	360	440
60	General Seasons	105		58		165	138				2085	2618	1908	2523	2245	1584	1676	1824	1522	1615	1245	1090	458	636	558	565	780
60	Controlled Permits	250	125	125	125	75	75	75	75	75	125	300	450	300	450	300	450	450	450	450	450	500	0	0	80	280	60
60A	Controlled Permits																			100	240	500	700	400	640	440	220
61	General Seasons	246		182		122	102				1855	1757	2438	3104	2450	2267	2215	1908	2448	2414	1597	1972	619	780	662	726	569
61	Controlled Permits	0	0	0	0	150	0	0	0	0	0	150	450	450	450	230	400	0	0	0	0	0	639	624	1366	970	440
62	General Seasons	213		93		44	44				401	337	350	489	498	404	479	439	460	494	341	349	315	403	279	234	416
62	Controlled Permits	0	0	0	0	80	80	80	80	80	80	100	200	250	250	165	215	215	215	215	215	250	250	250	250	250	250
62A	General Seasons					41	55				325	350	562	664	575	463	319	379	244	277	176	97	106	138	151	125	92
62A	Controlled Permits	0	0	5	5	115	115	16	65	70	130	280	550	575	550	405	430	450	320	490	490	500	500	500	500	505	355
64	General Seasons	12		19		35	23				267	326	413	298	198	448	403	320	351	367	254	279	371	446	359	267	268
64	Controlled Permits																			100	100	100	125	125	125	75	95
65	General Seasons	9		6		15	7				344	216	276	190	195	96	228	190	158	200	190	133	269	289	255	167	222
65	Controlled Permits																			100	100	100	100	100	100	100	100
64/65/67	Controlled Permits	75	125	125	125	0	0	0	0	75	75	75	115	150	200	200	200	200	200								
66	General Seasons	121		234		235	140				1530	2033	1855	1900	1551	1453	1369	1476	1356	1462	1340	1408	1631	1943	1921	1289	1,32
66	Controlled Permits																					200	700	1200	1200	1200	120
66/69	Controlled Permits	450	1200	1000	1000	500	500	0	0	0	200	600	500	300	300	250	200	200	200	250	500						
67	General Seasons	80		170		126	70				650	783	795	697	941	624	588	543	849	1029	663	503	671	682	638	466	3
67	Controlled Permits	0	100	120	10	330	325	50	50	75	125	125	125	125	200	250	250	250	200	250	400	200	400	400	600	505	505
TOTAL	HUNTERS	1586	1550	2197	1265	2101	1734	221	270	400	8713	10916	11680	12728	11923	10187	10547	10043	10024	11048	9825	9503	8771	10398	11464	9825	987
Total	General Seasons										7953	9261	9265	10528	9473	8337	8352	8228	8389	9013	7250	7073	5257	6149	5843	4840	4,99
	Controlled Permits										760	1655	2415	2200	2450	1850	2195	1815	1635	2035	2575	2430	3514	4249	5621	4985	4,88

99

1995
2,670
(11,1 brother out by 6#10)

ELK HUNTER-DAYS

Unit	Type	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
		YEAR															
58	General Seasons					326	113	470	705	612	922	695	823	963	442	821	850
58	Controlled Permits					0	0	0	0	0	126	111	172	163	1270	1706	1730
59	General Seasons					1503	3198	2959	2566	2471	2493	2897	2815	1624	1800	2893	2938
59A	General Seasons					1551	587	779	808	397	566	825	613	628	509	407	638
59/59A	Controlled Permits						182	243	187	216	252	199	213	182	1608	2103	1814
60	General Seasons					8148	5331	6161	6586	7033	6640	3747	3924	1585	2525	2176	2348
60	Controlled Permits						921	1921	2046	2847	2921	2903	4284	0	0	678	1689
60A	Controlled Permits										631	1837	3001	4016	1847	4857	2681
61	General Seasons					10487	8597	9831	7507	10061	9939	5574	8282	2296	3065	3164	3066
61	Controlled Permits						960	1435	0	0	0	0	0	2537	2959	9817	6597
62	General Seasons					1880	1450	1576	1672	1866	2046	1347	1930	1099	1539	1188	1021
62	Controlled Permits						540	969	1204	1013	792	1250	1555	1790	1487	1697	1810
62A	General Seasons					2543	1544	1228	1844	1214	1139	484	345	684	573	662	453
62A	Controlled Permits						1167	1629	2172	1930	2467	3138	3859	3793	3511	4283	3046
64	General Seasons					757	1318	2076	1341	1898	1413	711	739	1580	1775	1267	1147
64	Controlled Permits										649	663	803	806	669	1175	449
65	General Seasons					598	280	853	751	485	761	618	440	990	1194	988	598
65	Controlled Permits										471	484	730	654	796	702	632
64/65/67	Controlled Permits						812	1073	1168	816							
66	General Seasons					5890	5309	5340	5521	5531	5890	4435	5562	6475	8219	7078	4919
66	Controlled Permits												1070	4144	5374	7337	5067
66/69	Controlled Permits						847	969	963	823	1167	2853					
67	General Seasons					3255	1920	2313	2204	3563	4254	2035	1735	2550	2510	2367	1922
67	Controlled Permits						1018	943	895	767	1521	3088	934	2131	2315	3475	2617
TOTAL	HUNTER-DAYS					36938	36094	42768	40140	43543	47060	39894	43829	40690	45987	60841	48032
Total	General Seasons					36938	29647	33586	31505	35131	36063	23368	27208	20474	24151	23011	19900
	Controlled Permits						6447	9182	8635	8412	10997	16526	16621	20216	21836	37830	28132

Note: IDFG records showed 297 (1984) and 280 (1985) hunter-days for a general season in Unit 60A. However, a Unit 60A general season did not exist in 1984 + 1985.

Elk Seasons (Number of Days to Hunt)

Unit	Type of Hunt	YEAR																							
		70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
58	General Rifle Antlered	23	23	16	30	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
58	General Rifle Antlerless	23	23	16	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Gen. Archery Either Sex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	28	28	28	26	26	26	26
58	Gen. Muzzleloader Antlered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Gen. Muzzleloader Antlerles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	Controlled Antlered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
58	Controlled Antlerless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	26	26	31	31	31	31
59	General Rifle Antlered	23	23	16	16	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
59	General Rifle Antlerless	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Gen. Archery Either Sex	0	0	0	0	0	0	0	37	23	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
59	Gen. Muzzleloader Antlered	0	0	0	0	0	0	0	0	12	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Gen. Muzzleloader Antlerles	0	0	0	0	0	0	0	0	12	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59/59A	Controlled Antlered	0	0	0	0	0	0	0	0	0	0	13	12	0	0	0	0	0	0	0	0	0	0	0	0	31
59/59A	Controlled Antlerless	0	0	0	0	0	0	0	0	0	0	13	12	12	12	12	26	26	26	26	26	26	31	31	31	31
59A	General Rifle Antlered				16	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
59A	General Rifle Antlerless				16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
59A	Gen. Archery Either Sex				0	0	0	0	37	37	37	44	37	28	28	28	28	28	28	28	28	28	26	26	26	26
60	General Rifle Antlered	0	0	0	0	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
60	General Rifle Antlerless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Gen. Archery Either Sex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Controlled Antlered	37	16	16	16	14	15	12	12	12	12	0	5	0	0	0	0	0	0	0	0	0	0	0	0	31
60	Controlled Antlerless	30	16	16	16	14	15	12	12	12	12	25	19	12	28	28	40	40	40	40	37	35	0	0	0	31
60A	Controlled Antlered																			65	18	33	33	0	0	37
60A	Controlled Antlerless																			65	42	108	107	61	61	61
61	General Rifle Antlered	23	7	7	7	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
61	General Rifle Antlerless	23	7	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	Gen. Archery Either Sex	23	23	30	30	30	30	23	37	37	37	44	23	28	28	28	28	28	28	28	28	28	26	26	26	26
61	Gen. Muzzleloader Antlered	0	0	0	0	0	17	16	16	16	16	23	23	23	23	23	23	23	23	23	23	23	20	20	20	20
61	Gen. Muzzleloader Antlerles	0	0	0	0	0	0	0	0	0	16	23	23	16	16	16	23	23	23	23	23	23	20	20	20	20
61	Controlled Antlered	0	0	0	0	16	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	11
61	Controlled Antlerless	0	0	0	0	16	0	0	0	0	0	10	19	12	12	12	10	0	0	0	0	0	0	0	0	11

62	General Rifle Antlered	44	12	12	12	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
62	General Rifle Antlerless	44	12	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	Gen. Archery Either Sex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	28	28	28	26	26	26	26
62	Controlled Antlered	0	0	0	0	15	16	16	16	16	16	16	23	30	30	30	30	30	30	30	30	35	46	46	46	46
62	Controlled Antlerless	0	0	0	0	15	16	16	16	16	16	16	23	30	30	30	30	30	30	30	30	35	46	46	46	46
62A	General Rifle Antlered	23	7	7	7	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10	10	10
62A	General Rifle Antlerless	23	7	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62A	Gen. Archery Either Sex	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	28	28	28	26	26	26	26
62A	Controlled Antlered	0	0	16	16	32	40	16	32	32	32	37	37	37	37	37	44	51	21	21	37	35	46	46	46	54
62A	Controlled Antlerless	0	0	16	16	32	40	16	32	32	32	37	37	37	37	37	44	49	51	51	44	44	46	46	46	92
64	General Rifle Antlered	0	0	0	0	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
64	General Rifle Antlerless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	Gen. Archery Either Sex	0	23	30	30	30	30	23	37	23	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
65	General Rifle Antlered	0	0	0	0	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
65	General Rifle Anterless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	Gen. Archery Either Sex	0	23	30	30	30	30	23	37	23	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
64/65/67	Controlled Antlered	44	61	58	51	0	0	0	0	12	12	13	0	0	0	0	0	0	0							
64/65/67	Controlled Antlerless	37	37	30	51	0	0	0	0	12	12	13	28	12	12	12	26	26	26							
64	Controlled Antlered																			0	0	0	0	0	0	0
64	Controlled Antlerless																			26	40	45	31	31	31	31
65	Controlled Antlered																			0	0	0	0	0	0	0
65	Controlled Antlerless																			26	26	59	31	31	31	31
66	General Rifle Antlered	0	0	0	0	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
66	General Rifle Antlerless	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	Gen. Archery Either Sex	23	23	30	30	30	30	23	37	37	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
66/69	Controlled Antlered	46	61	58	51	14	15	0	0	0	12	0	0	0	0	0	0	0	0	0	0					
66/69	Controlled Antlerless	37	37	30	51	14	15	0	0	0	12	36	35	35	35	35	26	26	26	26	40					
66	Controlled Antlered																					0	0	0	0	0
66	Controlled Antlerless																					45	37	37	37	46
67	General Rifle Antlered	9	9	9	7	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
67	General Rifle Antlerless	9	9	9	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	Gen. Archery Either Sex	0	23	30	30	30	30	23	37	23	23	30	23	28	28	28	28	28	28	28	28	28	26	26	26	26
67	Gen. Muzzleloader Antlered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	Gen. Muzzleloader Antlerles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	23	0	0	0	0	0	0
67	Controlled Antlered	0	23	16	16	30	31	16	16	16	16	23	23	0	0	0	0	0	0	0	0	0	0	0	0	9
67	Controlled Antlerless	0	23	16	16	30	31	16	16	16	16	23	23	23	30	42	26	56	26	31	40	45	62	62	62	61

Wyoming Elk Harvest on the Targhee N. F.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Area 73*	23	70	68	57	46	46	34	30	65	74	96	81	129	131	60	84	89
Area 85**	79	67	65	41	20	39	48	44	60	63	108	76	75	74	62	119	55
Total	102	137	133	98	66	85	82	74	125	137	204	157	204	205	122	203	144

Wyoming Elk Hunters on the Targhee N. F.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Area 73*									296	298	448	534	484	514	464	402	
Area 85**									190	195	288	233	203	192	228	275	
Total									486	493	736	767	687	706	692	677	

Wyoming Elk Hunter-days on the Targhee N. F.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Area 73*									1,494	1,349	2,375	2,558	2,474	2,620	2,510	1,924	
Area 85**									928	955	1,469	1,033	942	866	1,028	1,180	
Total									2,422	2,304	3,844	3,591	3,416	3,486	3,538	3,104	

Wyoming Elk Hunter-days for EV Analysis on the Targhee N. F.***

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Area 73									1,270	1,147	2,019	2,174	2,103	2,227	2,134	1,635	
Area 85									789	812	1,249	878	801	736	874	1,003	
Total									2,059	1,959	3,268	3,052	2,904	2,963	3,008	2,638	

* 100% of Hunt Area 73 is considered to be on the Forest. For Hunt Area 73, data on hunters, harvest, and hunter-days is directly from WGF reports.

** For Hunt Area 85, for the years 1979-1986, WGF data combined Hunt Area 84 and 85 together; therefore, estimates of harvest for 1979-1986 are based on an estimate that 6.6% of the harvest came from the Forest. For 1987 to the present, WGF estimates that 15% of the hunting in Hunt Area 85 occurs on the Forest. For Hunt Area 85 for the years 1987 to present, data in WGF reports were multiplied by .15 to arrive at hunters, harvest, and hunter-days on the Forest. (Joe Bohne, personal communication, May 18 & 19, 1995).

*** Hunter=days for EV: Since WGF seasons are for any elk, and a portion of the season is for female elk, the elk hunter-days for both Hunt Areas 73 and 85 were reduced by 15% to account for those hunters who only hunted female elk. (Joe Bohne, personal communication, May 18 & 19, 1995)

ATTACHMENT N

Discussion and analysis about the issue of whether or not motorized trails should be equal in effects to motorized roads

To: Forest Leadership Team

Subject: Trails and Elk Habitat Effectiveness and Elk Vulnerability

From: Mark Orme

Date: July 9, 1996

The letter from Idaho Department of Parks and Recreation (IDPR) (June 20, 1996) takes issue with our EHE and EV analysis wherein we made motorized trails equal to motorized roads. Other letters from the public also include the same issue. The following is an attempt to give a brief overview of the debate and provide some recommendations for Leadership Team consideration.

ELK WORKSHOPS

We had a series of elk workshops with the State Fish and Game agencies to work on analysis steps for EHE and EV for the Forest Plan Revision. At an elk workshop on Sept. 21, 1992, we had a conference call with Dr. L. Jack Lyon to specifically ask him about including trails along with roads in our analysis. He said there was no research on the effects of motorized use on trails, but intuitively elk should respond to motorized use on trails the same as motorized use on roads. Based on that statement, motorized use on trails has been equal to motorized use on roads for the EHE and EV analysis. (Report of Elk Task Group Workshop, Held on Sept. 15 & 21, 1992).

CIG ACCESS MEETING, January 5, 1994

For the CIG access meeting of January 5, 1994, we had Dr. L. Jack Lyon provide a written response to questions from the public about motorized access. The questions and his answers are in Enclosure 1 to this memo. He stated on page 2 of the attachment that there has been no reported research on the effects of trails.

At the CIG access meeting, there were alternative views presented from the CIG about the effects of trails. Enclosure 2 to this memo was presented by Marty Morache at the CIG access meeting, and provides the perspective that trails do not have as much effect as roads.

1987-88 IDAHO RIFLE ELK HUNTING STUDY

IDPR has cited the 1987-1988 Idaho Rifle Elk Hunting Study. IDPR correctly cites the statistic from this study that only 1% of hunters use trail bikes to hunt (in 1987-88). The implied question is, should we equate motorized trails which provide access for 1% of the hunters equal to motorized roads which provide access for 99% of the hunters in EV analysis?

Enclosure 3 to this memo is the Executive Summary of the 1987-88 Idaho Rifle Elk Hunting Study.

CENTRAL IDAHO ELK GUIDELINES

IDPR cites work being done on "Draft Interagency Guidelines for Managing Elk Habitats and Populations on USFS Lands in Central Idaho" as providing new information regarding the effects of motorized trail use. In these guidelines, trails are given 1/10th of the effect of roads.

I called Steve Blair, Wildlife Biologist on the Nez Perce National Forest, about development and documentation for these guidelines. He said they are still draft. He stated there is no research supporting that trails be given 1/10th of the effect of roads. He said the biologists working on the draft guidelines agreed on the 1/10th criteria based on 1) fewer number of vehicles on trails and 2) lower sound levels. (Steve Blair, personal communication, July 9, 1996)

WHERE DO WE GO FROM HERE?

Three options come to my mind:

1) Continue with our current analysis procedures, citing the work from our own elk workshops as the basis for our decisions. This would maintain the agreements reached earlier with State Fish and Game Departments, but would not be responsive to input from other agencies and publics.

2) Develop a range in the analysis, using the current analysis procedures and the analysis procedures from the Draft Interagency Guidelines for the Central Idaho Forests. This would acknowledge the uncertainty with regard to the effects of trails. This would show response to the input received from other agencies and publics. But, State Fish and Game agencies who worked with us in the elk workshops would most likely see this as backing out on agreements.

   If this approach is taken, we would need to state how the OROMTRD for each Rx would be determined. Also, would this change the roads and trails which we plan to keep open, restrict, or obliterate?

3) Continue with our current analysis procedures, but add text about the lack of scientific studies and uncertainty. This would be less responsive to the input from other agencies and publics. But State Fish and Game agencies who worked with us in the elk workshops may not view this as backing out on agreements.

Decision by FLT: Display in Process Paper D a comparison of EHE and EV where motorized trails are equal to the effects of open roads versus motorized trails are equal to 1/10th the effects of open roads. Provide a summary of this comparison in the FEIS.

Table 1 displays OROMTRD and associated EHE value for the Existing Condition, when motorized trails are 1/10th the effect of roads. Compare Table 1 with Table 4.1 on page 78 of Process Paper D.

Table 2 displays total EHE for the Existing Condition when motorized trails are 1/10th the effect of roads. Compare Table 2 with Table 4.3 on page 80 of Process Paper D.

Table 3 displays OROMTRD and associated EHE value for Alternative 3M, when motorized trails are 1/10th the effect of roads. Compare Table 3 with Tables 4.4 and 4.5 on pages 81 and 82 of Process Paper D.

Table 4 displays total EHE for Alternative 3M when motorized trails are 1/10th the effect of roads. Compare Table 4 with Table 4.9 on page 86 of Process Paper D.

Table 5 displays total access density for the Existing Condition, when motorized trails are 1/10th the effect of roads. Compare Table 5 with Table 5.7 on page 97 of Process Paper D.

Table 6 displays EV for the Existing Condition when motorized trails are 1/10th the effect of roads. Compare Table 6 with Table 5.9 on page 101 of Process Paper D.

Table 7 displays total access density for Alternative 3M, when motorized trails are 1/10th the effect of roads. Compare Table 7 with Table 5.8 on page 98 of Process Paper D.

Table 8 displays EV for Alternative 3M when motorized trails are 1/10th the effect of roads. Compare Table 8 with Table 5.13 on page 109 of Process Paper D.

Tables 9, 10, and 11 display the complete data for roads and trails (trails are equal to 1/10th the effect of roads) by watershed for the Existing Condition and Alternative 3M. Compare Tables 9, 10, and 11 with the tables in Attachment I.

Table 1. Existing Condition OROMTRD with trails one tenth the effect of roads for each Watershed, and EHE Value.

1	2	3	4	5	6	7	8	9
Subsection	Watershed Number	Total Square Miles	Open Road Miles	Open Road Density mi/sq mi	Open Motorized Trail Miles	Open Motorized Trail Density mi/sq mi	OROMTRD mi/sq mi	EHE VALUE
Big Hole/Palisades	002I	13.35	15.00	1.12	0.34	0.03	1.15	0.58
Big Hole/Palisades	002W	41.69	16.50	0.40	4.35	0.10	0.50	0.80
Big Hole/Palisades	003I	34.47	16.90	0.49	0.51	0.01	0.51	0.80
Big Hole/Palisades	003W	38.35	0.00	0.00	1.13	0.03	0.03	0.99
Big Hole/Palisades	004I&W	79.85	19.10	0.24	0.79	0.01	0.25	0.90
Big Hole/Palisades	005	42.60	3.60	0.08	3.30	0.08	0.16	0.94
Big Hole/Palisades	006	70.12	23.60	0.34	6.27	0.09	0.43	0.83
Big Hole/Palisades	007 & 033	67.51	30.60	0.45	5.67	0.08	0.54	0.79
Centennial Mtns. & Island Park	008	184.53	219.80	1.19	1.78	0.01	1.20	0.58
Centennial Mtns.	009A	96.10	55.40	0.58	0.00	0.00	0.58	0.77
Island Park	009B	62.92	84.20	1.34	0.00	0.00	1.34	0.56
Island Park & Madison Plateau	010	68.59	124.10	1.81	0.70	0.01	1.82	0.51
Island Park	011	185.27	246.80	1.33	0.18	0.00	1.33	0.56
Island Park & Madison Plateau	012	130.94	105.10	0.80	3.18	0.02	0.83	0.67
Island Park & Madison Plateau	013	72.66	62.90	0.87	0.05	0.00	0.87	0.65
Island Park	014 & 034	48.20	33.60	0.70	0.00	0.00	0.70	0.72
Island Park & Madison Plateau	015I	25.57	25.60	1.00	0.00	0.00	1.00	0.60
Madison Plateau	015W	32.91	15.40	0.47	1.03	0.03	0.50	0.80
Island Park & Madison Plateau	016I	26.25	26.20	1.00	0.00	0.00	1.00	0.60
Madison Plateau	016W	66.46	30.00	0.45	0.81	0.01	0.46	0.81
Big Hole/Palisades	017I	10.70	7.60	0.71	0.53	0.05	0.76	0.70
Teton Range & Big Hole/Palisades	017W	52.03	13.60	0.26	0.77	0.01	0.28	0.89
Teton Range	018	37.00	10.70	0.29	0.23	0.01	0.30	0.88
Teton Range	019	51.84	14.60	0.28	1.29	0.02	0.31	0.88
Teton Range	020	45.82	17.70	0.39	1.24	0.03	0.41	0.83
Island Park & Madison Plateau	021I	27.53	25.40	0.92	0.87	0.03	0.95	0.62
Teton Range & Madison Plateau	021W	90.85	41.00	0.45	1.22	0.01	0.46	0.81
Big Hole/Palisades	022	66.68	49.40	0.74	5.03	0.08	0.82	0.67
Big Hole/Palisades	023 & 024	69.55	82.50	1.19	6.46	0.09	1.28	0.57
Centennial Mtns.	025	105.86	81.40	0.77	2.37	0.02	0.79	0.68
Centennial Mtns.	026A	69.22	83.30	1.20	2.07	0.03	1.23	0.57
Centennial Mtns.	026B	63.86	104.00	1.63	1.41	0.02	1.65	0.53
Medicine Lodge & Centennial Mtns	027 & 028	121.99	85.10	0.70	3.54	0.03	0.73	0.71
Medicine Lodge	029	113.45	97.00	0.86	1.24	0.01	0.87	0.65
Lemhi	030A	67.27	49.70	0.74	0.80	0.01	0.75	0.70
Medicine Lodge	030B	76.26	50.40	0.66	1.65	0.02	0.68	0.73
Lemhi	031A	75.84	25.10	0.33	1.18	0.02	0.35	0.86
Medicine Lodge	031B	23.14	31.90	1.38	0.05	0.00	1.38	0.56
Caribou	035	15.42	14.20	0.92	0.12	0.01	0.93	0.63
Caribou	036	27.51	18.90	0.69	1.03	0.04	0.72	0.71
Caribou	037	102.05	26.40	0.26	6.85	0.07	0.33	0.87
Caribou	038	123.97	75.10	0.61	6.64	0.05	0.66	0.74
Caribou	039	24.09	15.20	0.63	1.60	0.07	0.70	0.72
Caribou	040	29.41	35.60	1.21	0.00	0.00	1.21	0.58
			2210.20		78.28			

Col. 1: Subsection.
Col. 2: Watershed number.
Col. 3: Total square miles in each watershed; includes private, state, and BLM lands.
Col. 4: Road miles used by motorized vehicles during the spring, summer, fall seasons; includes "ghost" roads.
Col. 5: Column 4 divided by column 3.
Col. 6: 1/10th of trail miles used by motorized vehicles (this is to give trails 1/10th the effect of roads).
Col. 7: Column 6 divided by column 3.
Col. 8: Column 5 plus column 7.
Col. 9: This is the EHE road & trail value based on column 8 and Figure 1.

Table 2. Summary for Elk Habitat Effectiveness (EHE) for each Principle Watershed for the Existing Condition. Trails are one tenth the effect of roads.

1	2	3	4	5		
Subsection	Wtrshed No.	EHE Value Cover	EHE Value Road & Trail	TOTAL EHE VALUE	Total Square Miles	Weighted Average
Big Hole/Palisades	002I	0.45	0.58	0.54	13.35	7.27
Big Hole/Palisades	002W	0.38	0.80	0.66	41.69	27.69
Big Hole/Palisades	003I	0.36	0.80	0.66	34.47	22.59
Big Hole/Palisades	003W	0.40	0.99	0.79	38.35	30.27
Big Hole/Palisades	004I&W	0.38	0.90	0.73	79.85	57.93
Big Hole/Palisades	005	0.43	0.94	0.77	42.60	32.93
Big Hole/Palisades	006	0.40	0.83	0.69	70.12	48.49
Big Hole/Palisades	007/033	0.36	0.79	0.65	67.51	43.82
Centennial Mtns. & Island Park	008	0.58	0.58	0.58	184.53	107.03
Centennial Mtns.	009A	0.52	0.77	0.70	96.10	67.08
Island Park	009B	0.57	0.56	0.56	62.92	35.39
Island Park & Madison Plateau	010	0.57	0.51	0.52	68.59	35.97
Island Park	011	0.54	0.56	0.55	185.27	102.81
Island Park & Madison Plateau	012	0.59	0.67	0.65	130.94	84.98
Island Park & Madison Plateau	013	0.66	0.65	0.65	72.66	47.41
Island Park	014/034	0.66	0.72	0.70	48.20	33.96
Island Park & Madison Plateau	015I	0.61	0.60	0.60	25.57	15.41
Madison Plateau	015W	0.56	0.80	0.73	32.91	24.08
Island Park & Madison Plateau	016I	0.61	0.60	0.60	26.25	15.82
Madison Plateau	016W	0.67	0.81	0.77	66.46	51.34
Big Hole/Palisades	017I	0.54	0.70	0.66	10.70	7.02
Teton Range & Big Hole/Palisades	017W	0.42	0.89	0.74	52.03	38.38
Teton Range	018	0.32	0.88	0.68	37.00	25.28
Teton Range	019	0.33	0.88	0.69	51.84	35.70
Teton Range	020	0.38	0.83	0.68	45.82	31.28
Island Park & Madison Plateau	021I	0.54	0.62	0.60	27.53	16.49
Teton Range & Madison Plateau	021W	0.54	0.81	0.73	90.85	66.49
Big Hole/Palisades	022	0.48	0.67	0.62	66.68	41.10
Big Hole/Palisades	023/024	0.52	0.57	0.56	68.55	38.19
Centennial Mtns.	025	0.47	0.68	0.62	105.86	65.64
Centennial Mtns.	026A	0.31	0.57	0.49	69.22	33.88
Centennial Mtns.	026B	0.34	0.53	0.47	63.86	30.29
Medicine Lodge & Centennial Mtns.	027/028	0.27	0.71	0.56	121.99	68.02
Medicine Lodge	029	0.21	0.65	0.49	113.45	55.60
Lemhi	030A	0.32	0.70	0.58	67.27	38.72
Medicine Lodge	030B	0.30	0.73	0.58	76.26	44.57
Lemhi	031A	0.30	0.86	0.66	75.84	50.12
Medicine Lodge	031B	0.32	0.56	0.49	23.14	11.27
Caribou	035	0.35	0.63	0.54	15.42	8.39
Caribou	036	0.48	0.71	0.64	27.51	17.71
Caribou	037	0.40	0.87	0.72	102.05	73.11
Caribou	038	0.32	0.74	0.60	123.97	74.39
Caribou	039	0.33	0.72	0.59	24.09	14.27
Caribou	040	0.33	0.58	0.50	29.41	14.81
					2878.68	0.62

Table 3X. OROMTRD for EHE Analysis for Alt. 3M. Trails are one tenth the effect of roads.

Subsection	Watershed Number	Total Square Miles	OROMT Miles	OROMTRD	EHE VALUE
Big Hole/Palisades	002I	13.35	17.40	1.30	0.57
Big Hole/Palisades	002W	41.69	21.71	0.52	0.79
Big Hole/Palisades	003I	34.47	21.00	0.61	0.76
Big Hole/Palisades	003W	38.35	0.40	0.01	1.00
Big Hole/Palisades	004I&W	79.85	21.76	0.27	0.89
Big Hole/Palisades	005	42.60	6.05	0.14	0.94
Big Hole/Palisades	006	70.12	24.56	0.35	0.86
Big Hole/Palisades	007 & 033	67.51	37.86	0.56	0.78
Centennial Mtns. & Island Park	008	184.53	182.36	0.99	0.60
Centennial Mtns.	009A	96.10	50.40	0.52	0.79
Island Park	009B	62.92	73.50	1.17	0.58
Island Park & Madison Plateau	010	68.59	102.31	1.49	0.55
Island Park	011	185.27	221.79	1.20	0.58
Island Park & Madison Plateau	012	130.94	83.45	0.64	0.75
Island Park & Madison Plateau	013	72.66	56.00	0.77	0.69
Island Park	014 & 034	48.20	27.80	0.58	0.77
Island Park & Madison Plateau	015I	25.57	17.20	0.67	0.73
Madison Plateau	015W	32.91	13.17	0.40	0.84
Island Park & Madison Plateau	016I	26.25	16.20	0.62	0.75
Madison Plateau	016W	66.46	23.80	0.36	0.86
Big Hole/Palisades	017I	10.70	6.49	0.61	0.76
Teton Range & Big Hole/Palisades	017W	52.03	8.36	0.16	0.94
Teton Range	018	37.00	12.26	0.33	0.87
Teton Range	019	51.84	14.50	0.28	0.89
Teton Range	020	45.82	19.14	0.42	0.83
Island Park & Madison Plateau	021I	27.53	22.53	0.82	0.67
Teton Range & Madison Plateau	021W	90.85	32.30	0.36	0.86
Big Hole/Palisades	022	66.68	45.60	0.68	0.73
Big Hole/Palisades	023 & 024	69.55	58.40	0.84	0.66
Centennial Mtns.	025	105.86	67.17	0.63	0.75
Centennial Mtns.	026A	69.22	67.40	0.97	0.61
Centennial Mtns.	026B	63.86	46.13	0.72	0.71
Medicine Lodge & Centennial Mtns	027 & 028	121.99	55.36	0.45	0.82
Medicine Lodge	029	113.45	65.88	0.58	0.77
Lemhi	030A	67.27	42.89	0.64	0.74
Medicine Lodge	030B	76.26	30.66	0.40	0.84
Lemhi	031A	75.84	26.40	0.35	0.86
Medicine Lodge	031B	23.14	14.45	0.62	0.75
Caribou	035	15.42	17.12	1.11	0.59
Caribou	036	27.51	17.88	0.65	0.74
Caribou	037	102.05	28.19	0.28	0.89
Caribou	038	123.97	89.13	0.72	0.71
Caribou	039	24.09	16.55	0.69	0.73
Caribou	040	29.41	28.80	0.98	0.61
		2879.68	1852.31	0.64	

4.

Table xx. Summary for Elk Habitat Effectiveness (EHE) for each Principal Watershed for Alternative 3M. Trails are one tenth the effect of roads.

1	2	3	4	5		
Subsection	Wtrshed No.	EHE Value Cover	EHE Value Road & Trail	TOTAL EHE VALUE	Total Square Miles	Weighted Average
Big Hole/Palisades	002I	0.44	0.57	0.53	13.35	7.13
Big Hole/Palisades	002W	0.38	0.79	0.66	41.69	27.43
Big Hole/Palisades	003I	0.37	0.76	0.63	34.47	21.88
Big Hole/Palisades	003W	0.42	1.00	0.81	38.35	30.87
Big Hole/Palisades	004I&W	0.38	0.89	0.72	79.85	57.45
Big Hole/Palisades	005	0.43	0.94	0.77	42.60	32.93
Big Hole/Palisades	006	0.39	0.86	0.71	70.12	49.49
Big Hole/Palisades	007/033	0.35	0.78	0.64	67.51	43.10
Centennial Mtns. & Island Park	008	0.63	0.60	0.61	184.53	112.08
Centennial Mtns.	009A	0.54	0.79	0.72	96.10	69.03
Island Park	009B	0.61	0.58	0.59	62.92	36.96
Island Park & Madison Plateau	010	0.71	0.55	0.59	68.59	40.21
Island Park	011	0.65	0.58	0.60	185.27	110.56
Island Park & Madison Plateau	012	0.68	0.75	0.73	130.94	95.83
Island Park & Madison Plateau	013	0.71	0.69	0.69	72.66	50.49
Island Park	014/034	0.63	0.77	0.73	48.20	35.30
Island Park & Madison Plateau	015I	0.65	0.73	0.71	25.57	18.13
Madison Plateau	015W	0.57	0.84	0.76	32.91	25.09
Island Park & Madison Plateau	016I	0.57	0.75	0.70	26.25	18.38
Madison Plateau	016W	0.65	0.86	0.80	66.46	53.29
Big Hole/Palisades	017I	0.52	0.76	0.69	10.70	7.40
Teton Range & Big Hole/Palisades	017W	0.42	0.94	0.77	52.03	39.99
Teton Range	018	0.32	0.87	0.68	37.00	25.07
Teton Range	019	0.33	0.89	0.69	51.84	36.00
Teton Range	020	0.39	0.83	0.69	45.82	31.49
Island Park & Madison Plateau	021I	0.62	0.67	0.66	27.53	18.09
Teton Range & Madison Plateau	021W	0.57	0.86	0.78	90.85	70.50
Big Hole/Palisades	022	0.47	0.73	0.65	66.68	43.60
Big Hole/Palisades	023/024	0.51	0.66	0.62	68.55	42.42
Centennial Mtns.	025	0.46	0.75	0.66	105.86	70.26
Centennial Mtns.	026A	0.30	0.61	0.51	69.22	35.36
Centennial Mtns.	026B	0.32	0.71	0.58	63.86	37.15
Medicine Lodge & Centennial Mtns.	027/028	0.27	0.82	0.62	121.99	75.77
Medicine Lodge	029	0.23	0.77	0.57	113.45	64.58
Lemhi	030A	0.32	0.74	0.60	67.27	40.37
Medicine Lodge	030B	0.36	0.84	0.68	76.26	51.83
Lemhi	031A	0.30	0.86	0.66	75.84	50.12
Medicine Lodge	031B	0.31	0.75	0.60	23.14	13.92
Caribou	035	0.34	0.59	0.51	15.42	7.93
Caribou	036	0.48	0.74	0.66	27.51	18.27
Caribou	037	0.39	0.89	0.72	102.05	73.90
Caribou	038	0.32	0.71	0.58	123.97	72.12
Caribou	039	0.33	0.73	0.60	24.09	14.42
Caribou	040	0.32	0.61	0.52	29.41	15.27
					2878.68	0.66

Table 5 Existing Total Motorized Access (includes all roads & trails and 'infinitely open' analysis).
In this table, open motorized trails are 1/10th the effect of roads.

1	2	3	4	5	6	7	8	9	10
Watershed Number	Total Square Miles	Open Road Miles	Open Road Density mi/sq mi	Open Motorized Trail Miles	Open Motorized Trail Density mi/sq mi	OROMTRD mi/sq mi	Infinitely Open Acres	Infinitely Open Road Miles	Total Access Density Mi./Sq.Mi.
002I	13.35	15.00	1.12	0.34	0.03	1.15	966.00	9.06	1.83
002W	41.69	16.50	0.40	4.35	0.10	0.50	1,474.00	13.82	0.83
003I	34.47	16.90	0.49	0.51	0.01	0.51	265.00	2.48	0.58
003W	38.35	0.00	0.00	1.13	0.03	0.03	0.00	0.00	0.03
004I&W	79.85	19.10	0.24	0.79	0.01	0.25	572.00	5.36	0.32
005	42.60	3.60	0.08	3.30	0.08	0.16	473.00	4.43	0.27
006	70.12	23.60	0.34	6.27	0.09	0.43	8,413.00	78.87	1.55
007 & 033	67.51	30.60	0.45	5.67	0.08	0.54	6,148.00	57.64	1.39
008	184.53	219.80	1.19	1.78	0.01	1.20	24,961.00	234.01	2.47
009A	96.10	55.40	0.58	0.00	0.00	0.58	1,298.00	12.17	0.70
009B	62.92	84.20	1.34	0.00	0.00	1.34	12,355.00	115.83	3.18
010	68.59	124.10	1.81	0.70	0.01	1.82	37,767.00	354.07	6.98
011	185.27	246.80	1.33	0.18	0.00	1.33	90,051.00	844.23	5.89
012	130.94	105.10	0.80	3.18	0.02	0.83	79,700.00	747.19	6.53
013	72.66	62.90	0.87	0.05	0.00	0.87	9,073.00	85.06	2.04
014 & 034	48.20	33.60	0.70	0.00	0.00	0.70	506.00	4.74	0.80
015I	25.57	25.60	1.00	0.00	0.00	1.00	3,389.00	31.77	2.24
015W	32.91	15.40	0.47	1.03	0.03	0.50	1,195.00	11.20	0.84
016I	26.25	26.20	1.00	0.00	0.00	1.00	2,161.00	20.26	1.77
016W	66.46	30.00	0.45	0.81	0.01	0.46	1,397.00	13.10	0.66
017I	10.70	7.60	0.71	0.53	0.05	0.76	199.00	1.87	0.93
017W	52.03	13.60	0.26	0.77	0.01	0.28	585.00	5.48	0.38
018	37.00	10.70	0.29	0.23	0.01	0.30	2,471.00	23.17	0.92
019	51.84	14.60	0.28	1.29	0.02	0.31	4,003.00	37.53	1.03
020	45.82	17.70	0.39	1.24	0.03	0.41	1,810.00	16.97	0.78
021I	27.53	25.40	0.92	0.87	0.03	0.95	5,297.00	49.66	2.76
021W	90.85	41.00	0.45	1.22	0.01	0.46	1,360.00	12.75	0.61
022	66.68	49.40	0.74	5.03	0.08	0.82	7,360.00	69.00	1.85
023 & 024	69.55	82.50	1.19	6.46	0.09	1.28	10,333.00	96.87	2.67
025	105.86	81.40	0.77	2.37	0.02	0.79	9,179.00	86.05	1.60
026A	69.22	83.30	1.20	2.07	0.03	1.23	11,013.00	103.25	2.72
026B	63.86	104.00	1.63	1.41	0.02	1.65	18,382.00	172.33	4.35
027 & 028	121.99	85.10	0.70	3.54	0.03	0.73	24,944.00	233.85	2.64
029	113.45	97.00	0.86	1.24	0.01	0.87	33,781.00	316.70	3.66
030A	67.27	49.70	0.74	0.80	0.01	0.75	12,346.00	115.74	2.47
030B	76.26	50.40	0.66	1.65	0.02	0.68	9,202.00	86.27	1.81
031A	75.84	25.10	0.33	1.18	0.02	0.35	10,800.00	101.25	1.68
031B	23.14	31.90	1.38	0.05	0.00	1.38	3,041.00	28.51	2.61
035	18.62	14.20	0.76	0.12	0.01	0.77	2,679.00	25.12	2.12
036	27.51	18.90	0.69	1.03	0.04	0.72	4,004.00	37.54	2.09
037	102.05	26.40	0.26	6.85	0.07	0.33	9,134.00	85.63	1.16
038	123.97	75.10	0.61	6.64	0.05	0.66	23,211.00	217.60	2.41
039	24.09	15.20	0.63	1.60	0.07	0.70	3,030.00	28.41	1.88
040	29.41	35.60	1.21	0.00	0.00	1.21	7,661.00	71.82	3.65
	2882.88	2210.20		78.28				4668.65	

Col. 1: Watershed number.
Col. 2: Total square miles in each watershed; includes private, state, and BLM lands.
Col. 3: Road miles used by motorized vehicles during the general elk hunting season; includes "ghost" road miles.
Col. 4: Column 3 divided by column 2.
Col. 5: 1/10th of trail miles used by motorized vehicles (this is to give trails 1/10th the effect of roads).
Col. 6: Column 5 divided by column 2.
Col. 7: Column 4 plus column 6.
Col. 8: Acres which have vegetation and terrain allowing for cross country OHV use and there are no travel plan restrictions prohibiting such use.
Col. 9: For EV modeling purposes, a factor of 6 miles of road per sq. mile of infinitely open area is used.
Col. 10: Column 3 plus column 5 plus column 9 divided by column 2.

Table 6.

Water-shed	Hunter-day Density	Motorized Access Density	Existing Condition u	Eu	Trails 0.1 1+EU	Est. % Bull Elk Mortality
2I	8.5	1.83	-0.30445	0.73753	1.73753	42
3I	8.5	0.58	-1.0982	0.33347	1.33347	25
4iw	8.5	0.32	-1.2633	0.28272	1.28272	22
5	8.5	0.27	-1.29505	0.27388	1.27388	21
6	8.5	1.55	-0.48225	0.61739	1.61739	38
7/33	8.5	1.39	-0.58385	0.55775	1.55775	36
8	13.69	2.47	0.44968	1.56781	2.56781	61
9a	13.69	0.7	-0.67427	0.50953	1.50953	34
9b	37.1	3.18	2.469	11.81063	12.8106	92
10	13.69	6.98	3.31353	27.48197	28.482	96
11	19.95	5.89	3.0408	20.92197	21.922	95
12	7.81	6.53	2.63382	13.92687	14.9269	93
13	8.59	2.04	-0.16507	0.84783	1.84783	46
14/34	30.66	0.8	0.52622	1.69252	2.69252	63
15i	13.68	2.24	0.30296	1.35386	2.35386	58
16i	13.68	1.77	0.00451	1.00452	2.00452	50
17i	8.5	0.93	-0.87595	0.41647	1.41647	29
21i	13.68	2.76	0.63316	1.88355	2.88355	65
22	8.01	1.85	-0.32458	0.72283	1.72283	42
23/24	10.53	2.67	0.36496	1.44046	2.44046	59
25	13.69	1.6	-0.10277	0.90233	1.90233	47
26a	9.51	2.72	0.32837	1.38870	2.3887	58
26b	13.69	4.35	1.64348	5.17314	6.17314	84
27/28	9.51	2.64	0.27757	1.31992	2.31992	57
29	9.51	3.66	0.92527	2.52255	3.52255	72
30a	2.56	2.47	-0.29603	0.74377	1.74377	43
30b	2.56	1.81	-0.71513	0.48913	1.48913	33
31a	2.56	1.68	-0.79768	0.45037	1.45037	31
31b	2.56	2.61	-0.20713	0.81291	1.81291	45
36	19.99	2.09	0.63048	1.87851	2.87851	65
37	19.99	1.16	0.03993	1.04074	2.04074	51
38	19.99	2.41	0.83368	2.30177	3.30177	70
39	19.59	1.88	0.47033	1.60052	2.60052	62
40	19	3.65	1.55475	4.73390	5.7339	83
16W	4.97	0.66	-1.28391	0.27695	1.27695	22
15W	4.97	0.84	-1.16961	0.31049	1.31049	24
021W	4.97	0.61	-1.31566	0.26830	1.2683	21
020	4.97	0.78	-1.20771	0.29888	1.29888	23
019	4.97	1.03	-1.04896	0.35030	1.3503	26
018	4.97	0.92	-1.11881	0.32667	1.32667	25
017W	5.65	0.38	-1.41615	0.24265	1.24265	20
004W	9.86	0.32	-1.17218	0.30969	1.30969	24
003W	9.86	0.03	-1.35633	0.25760	1.2576	20
002W	9.86	0.83	-0.84833	0.42813	1.42813	30

Table 7. EV - Motorized Access
For Alt. 3M, trails are 1/10th the effect of roads.

OROMT miles	Alt. 3-M Inf.Open miles	Density mi/sq.mi
17.40	2.10	1.46
21.51	12.00	0.80
21.00	1.47	0.65
0.40	0.00	0.01
21.76	0.84	0.28
6.05	0.00	0.14
24.56	0.57	0.36
35.16	5.32	0.60
180.76	35.37	1.17
50.40	10.09	0.63
71.40	83.61	2.46
102.31	62.79	2.41
221.79	257.66	2.59
83.45	44.63	0.98
56.00	3.58	0.82
27.80	1.12	0.60
17.20	0.98	0.71
13.17	3.64	0.51
16.20	0.56	0.64
23.80	0.50	0.37
6.49	0.82	0.68
8.36	2.30	0.20
12.26	16.42	0.78
14.50	23.49	0.73
16.74	4.05	0.45
22.53	0.00	0.82
32.30	0.00	0.36
36.00	4.35	0.61
53.40	2.77	0.81
57.57	24.21	0.77
65.70	37.95	1.50
46.13	45.49	1.43
55.36	7.50	0.52
65.88	24.79	0.80
42.89	10.89	0.80
30.66	70.44	1.33
26.40	0.00	0.35
14.45	9.68	1.04
17.12	17.17	1.84
17.88	3.24	0.77
28.19	0.76	0.28
89.03	26.67	0.93
16.55	0.74	0.72
28.80	4.06	1.12
1,817.31	864.62	

Table 8.

Alt. 3M Trails 0.1

Water-shed	Hunter-day Density	Motorized Access Density	u	Eu	1+EU	Est. % Bull Elk Mortality
2l	8.5	1.46	-0.5394	0.58310	1.5831	37
3l	8.5	0.65	-1.05375	0.34863	1.34863	26
4iw	8.5	0.28	-1.2887	0.27563	1.27563	22
5	8.5	0.14	-1.3776	0.25218	1.25218	20
6	8.5	0.36	-1.2379	0.28999	1.28999	22
7/33	8.5	0.6	-1.0855	0.33773	1.33773	25
8	13.69	1.17	-0.37582	0.68673	1.68673	41
9a	13.69	0.63	-0.71872	0.48738	1.48738	33
9b	37.1	2.46	2.0118	7.47676	8.47676	88
10	13.69	2.41	0.41158	1.50920	2.5092	60
11	19.95	2.59	0.9453	2.57359	3.57359	72
12	7.81	0.98	-0.89043	0.41048	1.41048	29
13	8.59	0.82	-0.93977	0.39072	1.39072	28
14/34	30.66	0.6	0.39922	1.49066	2.49066	60
15i	13.68	0.71	-0.66859	0.51243	1.51243	34
16i	13.68	0.64	-0.71304	0.49015	1.49015	33
17i	8.5	0.68	-1.0347	0.35533	1.35533	26
21i	13.68	0.82	-0.59874	0.54950	1.5495	35
22	8.01	0.61	-1.11198	0.32891	1.32891	25
23/24	10.53	0.81	-0.81614	0.44214	1.44214	31
25	13.69	0.77	-0.62982	0.53269	1.53269	35
26a	9.51	1.5	-0.44633	0.63997	1.63997	39
26b	13.69	1.43	-0.21072	0.81000	1.81	45
27/28	9.51	0.52	-1.06863	0.34348	1.34348	26
29	9.51	0.8	-0.89083	0.41032	1.41032	29
30a	2.56	0.8	-1.35648	0.25757	1.25757	20
30b	2.56	1.33	-1.01993	0.36062	1.36062	27
31a	2.56	0.35	-1.64223	0.19355	1.19355	16
31b	2.56	1.04	-1.20408	0.29997	1.29997	23
36	19.99	0.77	-0.20772	0.81243	1.81243	45
37	19.99	0.28	-0.51887	0.59519	1.59519	37
38	19.99	0.93	-0.10612	0.89932	1.89932	47
39	19.59	0.72	-0.26627	0.76623	1.76623	43
40	19	1.12	-0.0518	0.94952	1.94952	49
16W	4.97	0.37	-1.46806	0.23037	1.23037	19
15W	4.97	0.51	-1.37916	0.25179	1.25179	20
021W	4.97	0.36	-1.47441	0.22891	1.22891	19
020	4.97	0.45	-1.41726	0.24238	1.24238	20
019	4.97	0.73	-1.23946	0.28954	1.28954	22
018	4.97	0.78	-1.20771	0.29888	1.29888	23
017W	5.65	0.2	-1.53045	0.21644	1.21644	18
004W	9.86	0.28	-1.19758	0.30192	1.30192	23
003W	9.86	0.01	-1.36903	0.25435	1.25435	20
002W	9.86	0.8	-0.86738	0.42005	1.42005	30

Table 9.

EXISTING CONDITION - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
002I	3.1	0.00	4.7	0.34	0.0	0.00	0.2	0.0	0.0	1.0	0.0	0.0	0.0	9.3
002I other	7.1	0.00	0.1	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2
002W	3.1	0.29	5.0	4.06	0.0	0.00	0.8	0.0	0.0	0.0	2.2	0.0	7.5	23.0
002W other	8.3	0.00	0.1	0.00	0.0	0.00	0.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
003I	0.7	0.15	6.3	0.36	0.0	0.00	0.0	0.0	0.0	0.0	0.8	0.0	20.0	28.3
003I other	9.9	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9
003W	0.0	0.00	0.0	1.13	0.0	0.00	0.0	0.0	0.0	0.0	8.0	0.0	29.4	38.5
004I	5.1	0.16	7.8	0.49	0.0	0.00	0.0	0.0	0.0	0.8	10.7	0.0	71.6	96.7
004I other	6.1	0.00	0.1	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.00	0.0	0.14	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	4.6	4.7
005	2.0	0.09	1.6	3.21	0.8	0.02	2.1	0.0	0.0	2.6	5.1	0.0	0.1	17.6
006	12.6	0.98	9.9	5.29	0.0	0.38	0.0	0.0	0.0	10.1	3.9	1.2	0.1	44.5
006 other	0.9	0.00	0.2	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
007/033	6.1	0.84	20.9	4.79	0.0	0.00	6.7	0.0	0.0	0.0	0.0	0.0	0.0	39.3
007 other	1.3	0.00	2.3	0.04	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6
008	72.1	0.00	106.2	1.78	0.0	0.00	0.0	0.0	0.0	13.7	8.3	52.2	32.8	287.1
008 other	34.3	0.00	7.2	0.00	0.0	0.00	0.0	0.0	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.00	20.4	0.00	0.0	0.00	0.0	0.0	0.0	0.8	0.0	0.0	0.0	113.1
009A	6.6	0.00	40.7	0.00	0.0	0.00	0.0	0.0	0.0	11.2	38.0	40.1	18.6	155.2
009A other	7.0	0.00	1.1	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1
009B	22.0	0.00	55.3	0.00	7.2	0.00	0.6	0.0	0.0	2.3	0.4	11.1	5.5	104.4
009B other	6.2	0.00	0.7	0.00	0.5	0.00	0.0	0.0	0.0	0.1	0.0	0.6	1.3	9.4
010	40.3	0.00	66.5	0.49	0.0	0.00	0.0	0.0	0.0	0.4	0.5	42.5	5.4	156.1
010 other	16.1	0.00	1.2	0.21	0.0	0.00	0.0	0.0	0.0	2.6	0.0	0.0	0.0	20.1
011	66.4	0.00	154.9	0.15	0.0	0.00	0.3	0.0	0.0	30.9	5.0	51.8	21.1	330.6
011 other	21.3	0.00	4.2	0.03	0.0	0.00	0.0	0.0	0.0	15.3	0.0	0.7	5.3	46.8
012	25.4	0.29	59.2	2.61	0.0	0.00	0.0	0.0	0.0	4.5	0.0	119.5	3.5	215.0
012 other	14.8	0.00	5.7	0.28	0.0	0.00	0.0	0.0	0.0	0.6	0.0	0.0	0.0	21.4
013I	3.0	0.05	54.6	0.00	0.0	0.00	0.0	0.0	0.0	1.4	0.0	84.2	0.0	143.3
013I other	3.1	0.00	1.2	0.00	0.0	0.00	0.0	0.0	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.00	1.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.5
014/034	9.0	0.00	23.1	0.00	2.0	0.00	3.1	0.0	0.0	0.0	0.0	3.2	0.0	40.4
014 other	0.3	0.00	1.2	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
015I	4.0	0.00	21.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	21.6	0.0	46.6
015I other	0.5	0.00	0.1	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
015W	1.2	0.11	14.0	0.92	0.0	0.00	0.0	0.0	0.0	0.0	2.2	13.6	8.7	40.7
015W other	0.2	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
016I	11.4	0.00	14.8	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	8.9	0.0	35.1
016W	4.9	0.62	24.5	0.19	0.0	0.00	0.0	0.0	0.0	0.0	13.4	0.4	11.1	55.1
016W other	0.6	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
017I	4.1	0.10	1.8	0.43	0.0	0.00	0.0	0.0	0.0	2.3	0.7	0.0	0.0	9.4
017I other	1.1	0.00	0.6	0.00	0.0	0.00	0.0	0.0	0.0	0.4	0.0	0.0	0.0	2.1
017W	12.4	0.00	1.2	0.77	0.0	0.00	0.0	0.0	0.0	0.0	4.6	0.0	35.5	54.5
018	5.5	0.00	4.6	0.22	0.0	0.00	0.8	0.0	0.0	0.0	4.8	0.0	9.8	25.7
018 other	0.0	0.00	0.6	0.01	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
019	3.5	0.64	10.3	0.65	0.0	0.00	0.5	0.0	0.0	0.0	3.0	0.0	29.7	48.3
019 other	0.2	0.00	0.6	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
020	4.6	1.01	13.1	0.23	0.0	0.00	0.0	0.0	0.0	1.7	7.1	12.0	27.4	67.1
021I	0.2	0.03	25.2	0.84	0.0	0.00	0.0	0.0	0.0	2.7	0.0	29.7	0.0	58.7
021W	0.0	0.00	41.0	1.22	0.0	0.00	0.0	0.0	0.0	4.0	4.6	31.5	51.9	134.2
022	21.0	2.16	25.9	2.84	0.0	0.00	0.0	0.0	0.0	8.4	7.0	0.1	0.0	67.4
022 other	1.0	0.03	1.5	0.00	0.0	0.00	0.0	0.0	0.0	0.1	0.0	0.3	0.0	2.9
023/024	29.9	1.64	50.5	4.74	0.0	0.00	12.8	0.0	0.0	0.0	0.9	11.0	0.0	111.5
023 other	1.6	0.08	0.5	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
025	26.1	0.60	47.8	1.77	5.0	0.00	12.0	0.0	0.0	20.0	5.9	34.8	34.3	188.3

Table 9 continued

025 other	5.2	0.00	2.3	0.00	0.0	0.00	0.0	0.0	0.0	0.3	0.0	0.0	0.0	7.8
026A	34.1	0.21	37.8	1.86	7.3	0.00	0.8	0.0	0.0	1.9	2.8	2.9	3.5	93.2
026A other	8.9	0.00	2.5	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.7
026B	64.6	0.56	35.1	0.85	0.3	0.00	0.0	0.0	0.0	3.5	0.7	6.5	0.0	112.1
026B other	3.1	0.00	1.2	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3
027/028	40.2	0.47	40.9	3.07	0.0	0.00	0.0	0.0	0.0	0.0	5.4	0.0	12.4	102.4
027 other	1.4	0.00	2.6	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
029	34.7	0.56	59.8	0.68	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	95.7
029 other	1.6	0.00	0.9	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
030A	36.0	0.19	13.0	0.61	0.0	0.00	0.0	0.0	0.0	1.5	8.3	0.0	0.0	59.6
030A other	0.7	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
030B	27.9	0.37	21.3	1.28	0.0	0.00	0.0	0.0	0.0	0.7	3.0	0.0	2.7	57.3
030B other	1.1	0.00	0.1	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
031A	15.7	0.11	9.4	1.07	0.0	0.00	0.0	0.0	0.0	0.0	3.4	0.0	0.0	29.7
031B	24.3	0.00	2.9	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.2
031B other	4.6	0.05	0.1	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
035I	1.2	0.00	5.5	0.12	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8
035I other	0.2	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
035W	0.1	0.00	1.4	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
035W other	5.6	0.00	0.2	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8
036	0.3	0.00	16.4	1.03	0.0	0.00	0.6	0.0	0.0	0.0	0.0	0.0	0.2	18.5
036 other	0.0	0.00	2.2	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
037	0.7	0.45	25.7	6.40	1.2	0.00	0.0	0.0	0.0	0.0	4.3	0.5	11.1	50.4
038	18.7	0.75	48.7	5.65	7.6	0.00	20.0	0.0	0.0	3.0	0.0	2.3	0.0	106.7
038 other	3.3	0.24	4.4	0.00	0.0	0.00	0.1	0.0	0.0	1.3	0.0	0.0	0.0	9.3
039	4.4	0.65	10.8	0.95	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.8
040	3.7	0.00	29.9	0.00	0.0	0.00	0.2	0.0	0.0	2.3	0.0	0.0	0.0	36.1
040 other	0.8	0.00	1.2	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	983.2	14.48	1,339.3	63.80	31.9	0.40	61.8	0.0	0.0	154.3	165.0	583.7	465.6	3,863.5

ALTERNATIVE 3M - MILES OF ROADS AND TRAILS IN EACH WATERSHED

WSH #	OPNRD	OPNTR	OPSRD	OPSTR	SRNRD	SRNTR	SRSRD	SRSTR	UNKWN	YRNRD	YRNTR	YRSRD	YRSTR	TOTAL
002I	5.0	0.00	5.1	0.10	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	2.3	12.5
002I other	7.1	0.00	0.1	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	7.2
002W	5.0	0.00	5.3	2.81	0.0	0.00	0.0	0.00	0.0	0.5	0.9	0.3	20.3	35.1
002W other	8.3	0.00	0.1	0.00	0.0	0.00	0.2	0.00	0.0	0.0	0.0	0.0	0.0	8.6
003I	6.5	0.00	4.6	0.00	0.0	0.00	0.0	0.00	0.0	0.0	1.1	1.6	25.5	39.3
003I other	9.9	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	9.9
003W	0.0	0.00	0.0	0.40	0.0	0.00	0.0	0.00	0.0	0.0	3.7	0.0	39.1	43.2
004I	10.5	0.06	5.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	5.8	0.0	77.4	98.8
004I other	6.1	0.00	0.1	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	6.2
004W	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	5.9	5.9
005	0.9	0.13	3.7	1.32	0.0	0.00	0.0	0.00	0.0	0.8	4.0	0.0	20.0	30.9
006	11.8	0.13	8.2	3.33	0.0	0.00	0.0	0.00	0.0	6.2	9.8	0.0	30.7	70.2
006 other	0.9	0.00	0.2	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	1.1
007/033	2.3	0.35	24.5	4.37	0.4	0.00	2.3	0.00	0.0	0.0	0.0	2.4	5.0	41.6
007 other	1.3	0.00	2.3	0.04	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	3.6
008	43.5	0.00	94.5	1.26	1.6	0.00	0.0	0.00	0.0	7.8	6.6	31.7	29.3	216.3
008 other	34.3	0.00	7.2	0.00	0.0	0.00	0.0	0.00	0.0	1.4	0.0	0.0	0.2	43.1
008 H.Flat	91.9	0.00	20.4	0.00	0.0	0.00	0.0	0.00	0.0	0.8	0.0	0.0	0.0	113.1
009A	5.8	0.00	36.5	0.00	0.0	0.00	0.0	0.00	0.0	0.0	34.7	24.5	16.8	118.3
009A other	7.0	0.00	1.1	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	8.1
009B	9.6	0.00	54.9	0.00	1.6	0.00	0.0	0.00	0.0	1.6	0.1	10.3	6.8	84.9
009B other	6.2	0.00	0.7	0.00	0.5	0.00	0.0	0.00	0.0	0.1	0.0	0.6	1.3	9.4

Table 9 continued

010	27.6	0.00	56.5	0.70	0.0	0.00	0.0	0.00	1.0	0.0	0.5	17.4	5.5	109.2
010 other	16.1	0.00	1.2	0.21	0.0	0.00	0.0	0.00	0.0	2.6	0.0	0.0	0.0	20.1
011	40.6	0.00	155.5	0.16	0.0	0.00	0.0	0.00	0.0	35.9	5.0	26.6	26.7	290.5
011 other	21.3	0.00	4.2	0.03	0.0	0.00	0.0	0.00	0.0	15.3	0.0	0.7	5.3	46.8
012	0.0	0.00	61.1	1.57	0.0	0.00	0.0	0.00	0.0	2.4	3.4	21.0	18.0	107.5
012 other	14.8	0.00	5.7	0.28	0.0	0.00	0.0	0.00	0.0	0.6	0.0	0.0	0.0	21.4
013I	0.0	0.00	50.7	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	16.2	1.5	68.4
013I other	3.1	0.00	1.2	0.00	0.0	0.00	0.0	0.00	0.0	0.5	0.0	0.0	0.0	4.8
013W	0.0	0.00	1.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	1.0
014/034	5.6	0.00	20.7	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	3.2	0.0	29.5
014 other	0.3	0.00	1.2	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	1.5
015I	0.0	0.00	16.6	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	2.3	0.0	18.9
015I other	0.5	0.00	0.1	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.6
015W	0.7	0.01	12.0	0.26	0.0	0.00	0.0	0.00	0.0	0.0	1.6	1.4	15.1	31.1
015W other	0.2	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.2
016I	2.5	0.00	13.7	0.00	0.0	0.00	0.0	0.00	0.0	3.4	0.0	3.8	0.0	23.4
016W	0.7	0.00	22.5	0.00	0.0	0.00	0.0	0.00	0.0	0.0	3.0	0.0	13.0	39.2
016W other	0.6	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.6
017I	3.8	0.00	0.8	0.19	0.0	0.00	0.0	0.00	0.0	0.0	1.8	0.0	4.3	10.9
017I other	1.1	0.00	0.6	0.00	0.0	0.00	0.0	0.00	0.0	0.4	0.0	0.0	0.0	2.1
017W	8.3	0.06	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	3.4	0.0	43.3	55.1
018	5.5	0.00	6.0	0.15	0.0	0.00	0.0	0.00	0.0	0.0	4.8	0.0	10.6	27.1
018 other	0.0	0.00	0.6	0.01	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.6
019	2.1	0.05	10.9	0.65	0.0	0.00	0.0	0.00	0.0	0.0	7.2	0.0	27.0	47.9
019 other	0.2	0.00	0.6	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.8
020	3.7	0.04	13.0	0.00	0.0	0.00	2.4	0.00	0.0	0.3	12.8	9.0	29.6	70.8
021I	0.0	0.03	22.5	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	13.2	8.4	44.1
021W	0.0	0.10	32.2	0.00	0.0	0.00	0.0	0.00	0.0	0.7	1.8	19.4	62.3	116.5
022	5.1	2.08	22.6	3.69	9.6	0.00	0.0	0.00	0.0	2.2	7.2	2.6	0.0	55.1
022 other	1.0	0.03	1.5	0.00	0.0	0.00	0.0	0.00	0.0	0.1	0.0	0.3	0.0	2.9
023/024	3.3	0.37	42.2	5.35	0.0	0.00	5.0	0.00	0.0	0.7	3.1	25.6	2.3	87.9
023 other	1.6	0.08	0.5	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	2.2
025	4.6	0.06	45.4	0.01	0.0	0.00	9.6	0.00	0.0	4.0	14.1	21.9	45.4	145.1
025 other	5.2	0.00	2.3	0.00	0.0	0.00	0.0	0.00	0.0	0.3	0.0	0.0	0.0	7.8
026A	20.3	0.03	32.8	1.17	0.0	0.00	1.7	0.00	0.0	0.0	2.3	0.0	9.4	67.7
026A other	8.9	0.00	2.5	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.3	11.7
026B	9.3	0.36	31.9	0.27	0.0	0.00	0.0	0.00	0.0	1.3	0.7	6.2	5.0	55.0
026B other	3.1	0.00	1.2	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	4.3
027/028	7.1	0.39	40.1	3.77	0.0	0.00	0.0	0.00	0.0	0.0	8.2	0.0	3.3	62.9
027 other	1.4	0.00	2.6	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	4.0
029	6.2	0.00	56.5	0.68	0.0	0.00	0.0	0.00	0.0	0.0	4.8	0.0	0.0	68.2
029 other	1.6	0.00	0.9	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	2.5
030A	31.7	0.09	10.4	0.00	0.0	0.00	0.0	0.00	0.0	0.3	9.8	0.0	6.1	58.4
030A other	0.7	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.7
030B	6.7	0.26	21.3	1.20	0.0	0.00	0.0	0.00	0.0	0.0	4.1	0.0	3.6	37.2
030B other	1.1	0.00	0.1	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	1.2
031A	15.2	0.44	9.7	1.06	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	26.4
031B	7.1	0.00	2.6	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	9.7
031B other	4.6	0.05	0.1	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	4.8
035I	1.2	0.00	4.7	0.12	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	6.0
035I other	0.2	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.2
035W	4.2	0.00	0.9	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	5.1
035W other	5.6	0.00	0.2	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	5.8
036	1.9	0.00	13.2	0.58	0.0	0.00	0.0	0.00	0.0	0.0	0.0	1.2	4.7	21.6
036 other	0.0	0.00	2.2	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	2.2
037	0.0	0.23	22.4	5.56	0.0	0.00	0.0	0.00	2.4	0.0	3.4	0.5	20.0	54.5
038	8.8	0.72	66.0	5.57	0.0	0.00	0.0	0.00	0.0	2.2	0.0	3.5	4.3	91.1
038 other	3.3	0.24	4.4	0.00	0.0	0.00	0.1	0.00	0.0	1.3	0.0	0.0	0.0	9.3

Table 9 continued

039	4.2	0.47	10.8	1.08	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	1.2	17.8
040	1.5	0.00	25.3	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	26.8
040 other	0.8	0.00	1.2	0.00	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.0	0.0	2.0
TOTAL	610.7	6.86	1,264.1	47.95	13.7	0.00	21.3	0.00	3.4	93.7	169.7	267.4	656.8	3,155.6

Table 10.

EXISTING CONDITION - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	7.80	0.34	0.20	0.00	1.00	0.00	0.00	0.00	9.34
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	8.10	4.35	0.80	0.00	0.00	9.70	0.00	0.00	22.95
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60
003I	7.00	0.51	0.00	0.00	0.00	20.80	0.00	0.00	28.31
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	1.13	0.00	0.00	0.00	37.40	0.00	0.00	38.53
004I	12.90	0.65	0.00	0.00	0.80	82.30	0.00	0.00	96.65
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	0.14	0.00	0.00	0.00	4.60	0.00	0.00	4.74
005	3.60	3.30	2.90	0.02	2.60	5.20	0.00	0.00	17.62
006	22.50	6.27	0.00	0.38	11.30	4.00	0.00	0.00	44.45
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	27.00	5.63	6.70	0.00	0.00	0.00	0.00	0.00	39.33
007 other	3.60	0.04	0.00	0.00	0.00	0.00	0.00	0.00	3.64
008	178.30	1.78	0.00	0.00	65.90	41.10	0.00	0.00	287.08
008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	47.30	0.00	0.00	0.00	51.30	56.60	0.00	0.00	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	77.30	0.00	7.80	0.00	13.40	5.90	0.00	0.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40
010	106.80	0.49	0.00	0.00	42.90	5.90	0.00	0.00	156.09
010 other	17.30	0.21	0.00	0.00	2.60	0.00	0.00	0.00	20.11
011	221.30	0.15	0.30	0.00	82.70	26.10	0.00	0.00	330.55
011 other	25.50	0.03	0.00	0.00	16.00	5.30	0.00	0.00	46.83
012	84.60	2.90	0.00	0.00	124.00	3.50	0.00	0.00	215.00
012 other	20.50	0.28	0.00	0.00	0.60	0.00	0.00	0.00	21.38
013I	57.60	0.05	0.00	0.00	85.60	0.00	0.00	0.00	143.25
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	1.50
014/034	32.10	0.00	5.10	0.00	3.20	0.00	0.00	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	25.00	0.00	0.00	0.00	21.60	0.00	0.00	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	15.20	1.03	0.00	0.00	13.60	10.90	0.00	0.00	40.73
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	26.20	0.00	0.00	0.00	8.90	0.00	0.00	0.00	35.10
016W	29.40	0.81	0.00	0.00	0.40	24.50	0.00	0.00	55.11
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
017I	5.90	0.53	0.00	0.00	2.30	0.70	0.00	0.00	9.43
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	13.60	0.77	0.00	0.00	0.00	40.10	0.00	0.00	54.47
018	10.10	0.22	0.80	0.00	0.00	14.60	0.00	0.00	25.72
018 other	0.60	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.61
019	13.80	1.29	0.50	0.00	0.00	32.70	0.00	0.00	48.29
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	17.70	1.24	0.00	0.00	13.70	34.50	0.00	0.00	67.14
021I	25.40	0.87	0.00	0.00	32.40	0.00	0.00	0.00	58.67
021W	41.00	1.22	0.00	0.00	35.50	56.50	0.00	0.00	134.22
022	46.90	5.00	0.00	0.00	8.50	7.00	0.00	0.00	67.40
022 other	2.50	0.03	0.00	0.00	0.40	0.00	0.00	0.00	2.93
023/024	80.40	6.38	12.80	0.00	11.00	0.90	0.00	0.00	111.48
023 other	2.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	2.18
025	73.90	2.37	17.00	0.00	54.80	40.20	0.00	0.00	188.27

Table 10 continued

025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	71.90	2.07	8.10	0.00	4.80	6.30	0.00	0.00	93.17
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	99.70	1.41	0.30	0.00	10.00	0.70	0.00	0.00	112.11
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	81.10	3.54	0.00	0.00	0.00	17.80	0.00	0.00	102.44
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	94.50	1.24	0.00	0.00	0.00	0.00	0.00	0.00	95.74
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
030A	49.00	0.80	0.00	0.00	1.50	8.30	0.00	0.00	59.60
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	49.20	1.65	0.00	0.00	0.70	5.70	0.00	0.00	57.25
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	25.10	1.18	0.00	0.00	0.00	3.40	0.00	0.00	29.68
031B	27.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.20
031B other	4.70	0.05	0.00	0.00	0.00	0.00	0.00	0.00	4.75
035I	6.70	0.12	0.00	0.00	0.00	0.00	0.00	0.00	6.82
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	16.70	1.03	0.60	0.00	0.00	0.20	0.00	0.00	18.53
036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	26.40	6.85	1.20	0.00	0.50	15.40	0.00	0.00	50.35
038	67.40	6.40	27.60	0.00	5.30	0.00	0.00	0.00	106.70
038 other	7.70	0.24	0.10	0.00	1.30	0.00	0.00	0.00	9.34
039	15.20	1.60	0.00	0.00	0.00	0.00	0.00	0.00	16.80
040	33.60	0.00	0.20	0.00	2.30	0.00	0.00	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
TOTAL	2322.50	78.28	93.70	0.40	738.00	630.60	0.00	0.00	3863.48

ALTERNATIVE 3M - MILES OF ROADS AND TRAILS IN EACH WATERSHED

WSH #	Open Roads	Open Trails	S.Restr. Roads	S.Restr. Trails	Yr.Restr. Roads	Yr.Restr. Trails	Oblit. Roads	Oblit. Trails	Total
002I	10.10	0.10	0.00	0.00	0.00	2.30	-1.10	-2.06	9.34
002I other	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20
002W	10.30	2.81	0.00	0.00	0.80	21.20	-2.20	-9.96	22.95
002W other	8.40	0.00	0.20	0.00	0.00	0.00	0.00	0.00	8.60
003I	11.10	0.00	0.00	0.00	1.60	26.60	-5.70	-5.29	28.31
003I other	9.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90
003W	0.00	0.40	0.00	0.00	0.00	42.80	0.00	-4.67	38.53
004I	15.50	0.06	0.00	0.00	0.00	83.20	-1.80	-0.31	96.65
004I other	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20
004W	0.00	0.00	0.00	0.00	0.00	5.90	0.00	-1.16	4.74
005	4.60	1.45	0.00	0.00	0.80	24.00	3.70	-16.93	17.62
006	20.00	3.46	0.00	0.00	6.20	40.50	7.60	-33.31	44.45
006 other	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
007/033	26.80	4.72	2.70	0.00	2.40	5.00	1.80	-4.09	39.33
007 other	3.60	0.04	0.00	0.00	0.00	0.00	0.00	0.00	3.64
008	138.00	1.26	1.60	0.00	39.50	35.90	65.10	5.72	287.08
008 other	41.50	0.00	0.00	0.00	1.40	0.20	0.00	0.00	43.10
008 H.Flat	112.30	0.00	0.00	0.00	0.80	0.00	0.00	0.00	113.10
009A	42.30	0.00	0.00	0.00	24.50	51.50	31.80	5.10	155.20
009A other	8.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.10
009B	64.50	0.00	1.60	0.00	11.90	6.90	20.50	-1.00	104.40
009B other	6.90	0.00	0.50	0.00	0.70	1.30	0.00	0.00	9.40

Table 10 continued

010	84.10	0.70	0.00	0.00	17.40	6.00	48.20	-0.31	156.09
010 other	17.30	0.21	0.00	0.00	2.60	0.00	0.00	0.00	20.11
011	196.10	0.16	0.00	0.00	62.50	31.70	45.70	-5.61	330.55
011 other	25.50	0.03	0.00	0.00	16.00	5.30	0.00	0.00	46.83
012	61.10	1.57	0.00	0.00	23.40	21.40	124.10	-16.57	215.00
012 other	20.50	0.28	0.00	0.00	0.60	0.00	0.00	0.00	21.38
013I	50.70	0.00	0.00	0.00	16.20	1.50	76.30	-1.45	143.25
013I other	4.30	0.00	0.00	0.00	0.50	0.00	0.00	0.00	4.80
013W	1.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.50
014/034	26.30	0.00	0.00	0.00	3.20	0.00	10.90	0.00	40.40
014 other	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50
015I	16.60	0.00	0.00	0.00	2.30	0.00	27.70	0.00	46.60
015I other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
015W	12.70	0.27	0.00	0.00	1.40	16.70	14.70	-5.04	40.73
015W other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
016I	16.20	0.00	0.00	0.00	7.20	0.00	11.70	0.00	35.10
016W	23.20	0.00	0.00	0.00	0.00	16.00	6.60	9.31	55.11
016W other	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
017I	4.60	0.19	0.00	0.00	0.00	6.10	3.60	-5.06	9.43
017I other	1.70	0.00	0.00	0.00	0.40	0.00	0.00	0.00	2.10
017W	8.30	0.06	0.00	0.00	0.00	46.70	5.30	-5.89	54.47
018	11.50	0.15	0.00	0.00	0.00	15.40	-0.60	-0.73	25.72
018 other	0.60	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.61
019	13.00	0.70	0.00	0.00	0.00	34.20	1.30	-0.91	48.29
019 other	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
020	16.70	0.04	2.40	0.00	9.30	42.40	3.00	-6.70	67.14
021I	22.50	0.03	0.00	0.00	13.20	8.40	22.10	-7.56	58.67
021W	32.20	0.10	0.00	0.00	20.10	64.10	24.20	-6.48	134.22
022	27.70	5.77	9.60	0.00	4.80	7.20	13.30	-0.97	67.40
022 other	2.50	0.03	0.00	0.00	0.40	0.00	0.00	0.00	2.93
023/024	45.50	5.72	5.00	0.00	26.30	5.40	27.40	-3.84	111.48
023 other	2.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	2.18
025	50.00	0.07	9.60	0.00	25.90	59.50	60.20	-17.00	188.27
025 other	7.50	0.00	0.00	0.00	0.30	0.00	0.00	0.00	7.80
026A	53.10	1.20	1.70	0.00	0.00	11.70	30.00	-4.53	93.17
026A other	11.40	0.00	0.00	0.00	0.00	0.30	0.00	0.00	11.70
026B	41.20	0.63	0.00	0.00	7.50	5.70	61.30	-4.22	112.11
026B other	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30
027/028	47.20	4.16	0.00	0.00	0.00	11.50	33.90	5.68	102.44
027 other	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00
029	62.70	0.68	0.00	0.00	0.00	4.80	31.80	-4.24	95.74
029 other	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
030A	42.10	0.09	0.00	0.00	0.30	15.90	8.10	-6.89	59.60
030A other	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
030B	28.00	1.46	0.00	0.00	0.00	7.70	21.90	-1.81	57.25
030B other	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20
031A	24.90	1.50	0.00	0.00	0.00	0.00	0.20	3.08	29.68
031B	9.70	0.00	0.00	0.00	0.00	0.00	17.50	0.00	27.20
031B other	4.70	0.05	0.00	0.00	0.00	0.00	0.00	0.00	4.75
035I	5.90	0.12	0.00	0.00	0.00	0.00	0.80	0.00	6.82
035I other	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20
035W	5.10	0.00	0.00	0.00	0.00	0.00	-3.60	0.00	1.50
035W other	5.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80
036	15.10	0.58	0.00	0.00	1.20	4.70	1.00	-4.05	18.53
036 other	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20
037	22.40	5.79	0.00	0.00	0.50	23.40	5.20	-6.94	50.35
038	74.80	6.29	0.00	0.00	5.70	4.30	19.80	-4.19	106.70
038 other	7.70	0.24	0.10	0.00	1.30	0.00	0.00	0.00	9.34

Table 10 continued

039	15.00	1.55	0.00	0.00	0.00	1.20	0.20	-1.15	16.80
040	26.80	0.00	0.00	0.00	0.00	0.00	9.30	0.00	36.10
040 other	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
TOTAL	1874.80	54.81	35.00	0.00	361.10	826.50	883.30	-172.03	3863.48

Table 11.

EXISTING CONDITION - MILES OF ROADS AND TRAILS IN EACH WATERSHED.

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	15.20	0.34	1.16	15.00	0.34	1.15	1.24	15.54	15.34	002I
002I other											
002W	41.69	17.50	4.35	0.52	16.50	4.35	0.50	0.52	21.85	20.85	002W
002W other											
003I	34.47	16.90	0.51	0.51	16.90	0.51	0.51	0.51	17.41	17.41	003I
003I other											
003W	38.35	0.00	1.13	0.03	0.00	1.13	0.03	0.03	1.13	1.13	003W
004I&W	79.85	19.10	0.79	0.25	19.10	0.79	0.25	0.26	19.89	19.89	004I&W
004I other											
004W											
005	42.60	6.50	3.32	0.23	3.60	3.30	0.16	0.29	9.82	6.90	005
006	70.12	23.60	6.65	0.43	23.60	6.27	0.43	0.59	30.25	29.87	006
006 other											
007/033	67.51	37.30	5.67	0.64	30.60	5.67	0.54	0.64	42.97	36.27	007/033
007 other											
008	184.53	219.80	1.78	1.20	219.80	1.78	1.20	1.57	221.58	221.58	008
008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	55.40	0.00	0.58	55.40	0.00	0.58	1.11	55.40	55.40	009A
009A other											
009B	62.92	92.50	0.00	1.47	84.20	0.00	1.34	1.69	92.50	84.20	009B
009B other											
010	68.59	124.10	0.70	1.82	124.10	0.70	1.82	2.48	124.80	124.80	010
010 other											
011	185.27	247.10	0.18	1.33	246.80	0.18	1.33	1.87	247.28	246.98	011
011 other											
012	130.94	105.10	3.18	0.83	105.10	3.18	0.83	1.78	108.28	108.28	012
012 other											
013I&W	72.66	62.90	0.05	0.87	62.90	0.05	0.87	2.06	62.95	62.95	013I&W
013I other											
013W											
014/034	48.20	38.70	0.00	0.80	33.60	0.00	0.70	0.87	38.70	33.60	014/034
014 other											
015I	25.57	25.60	0.00	1.00	25.60	0.00	1.00	1.85	25.60	25.60	015I
015I other											
015W	32.91	15.40	1.03	0.50	15.40	1.03	0.50	0.91	16.43	16.43	015W
015W other											
016I	26.25	26.20	0.00	1.00	26.20	0.00	1.00	1.34	26.20	26.20	016I
016W	66.46	30.00	0.81	0.46	30.00	0.81	0.46	0.47	30.81	30.81	016W
016W other											
017I	10.70	7.60	0.53	0.76	7.60	0.53	0.76	1.01	8.13	8.13	017I
017I other											
017W	52.03	13.60	0.77	0.28	13.60	0.77	0.28	0.28	14.37	14.37	017W
018	37.00	11.50	0.23	0.32	10.70	0.23	0.30	0.32	11.73	10.93	018
018 other											
019	51.84	15.10	1.29	0.32	14.60	1.29	0.31	0.32	16.39	15.89	019
019 other											
020	45.82	17.70	1.24	0.41	17.70	1.24	0.41	0.71	18.94	18.94	020
021I	27.53	25.40	0.87	0.95	25.40	0.87	0.95	2.13	26.27	26.27	021I
021W	90.85	41.00	1.22	0.46	41.00	1.22	0.46	0.86	42.22	42.22	021W
022	66.68	49.40	5.03	0.82	49.40	5.03	0.82	0.95	54.43	54.43	022
022 other											
023/024	69.55	95.30	6.46	1.46	82.50	6.46	1.28	1.62	101.76	88.96	023/024
023 other											
025	105.86	98.40	2.37	0.95	81.40	2.37	0.79	1.47	100.77	83.77	025

Table 11 continued

025 other											
026A	69.22	91.40	2.07	1.35	83.30	2.07	1.23	1.42	93.47	85.37	026A
026A other											
026B	63.86	104.30	1.41	1.66	104.00	1.41	1.65	1.81	105.71	105.41	026B
026B other											
027/028	121.99	85.10	3.54	0.73	85.10	3.54	0.73	0.73	88.64	88.64	027/028
027 other											
029	113.45	97.00	1.24	0.87	97.00	1.24	0.87	0.87	98.24	98.24	029
029 other											
030A	67.27	49.70	0.80	0.75	49.70	0.80	0.75	0.77	50.50	50.50	030A
030A other											
030B	76.26	50.40	1.65	0.68	50.40	1.65	0.68	0.69	52.05	52.05	030B
030B other											
031A	75.84	25.10	1.18	0.35	25.10	1.18	0.35	0.35	26.28	26.28	031A
031B	23.14	31.90	0.05	1.38	31.90	0.05	1.38	1.38	31.95	31.95	031B
031B other											
035I&W	15.42	14.20	0.12	0.93	14.20	0.12	0.93	0.93	14.32	14.32	035I&W
035I other											
035W											
035W other											
036	27.51	19.50	1.03	0.75	18.90	1.03	0.72	0.75	20.53	19.93	036
036 other											
037	102.05	27.60	6.85	0.34	26.40	6.85	0.33	0.34	34.45	33.25	037
038	123.97	102.80	6.64	0.88	75.10	6.64	0.66	0.94	109.44	81.74	038
038 other											
039	24.09	15.20	1.60	0.70	15.20	1.60	0.70	0.70	16.80	16.80	039
040	29.41	35.80	0.00	1.22	35.60	0.00	1.21	1.30	35.80	35.60	040
040 other											
TOTAL		2416.20	78.68		2322.50	78.28					

ALTERNATIVE 3M - MILES OF ROADS AND TRAILS IN EACH WATERSHED

WSH #	Square Miles	EHE-Open Roads	EHE-Open Trails	EHE OROMTRD	EV-Open Roads	EV-Open Trails	EV OROMTRD	TMARD	EHE OROMT	EV OROMT	WSH #
002I	13.35	17.30	0.10	1.30	17.30	0.10	1.30	1.30	17.40	17.40	002I
002I other											
002W	41.69	18.90	2.81	0.52	18.70	2.81	0.52	0.54	21.71	21.51	002W
002W other											
003I	34.47	21.00	0.00	0.61	21.00	0.00	0.61	0.66	21.00	21.00	003I
003I other											
003W	38.35	0.00	0.40	0.01	0.00	0.40	0.01	0.01	0.40	0.40	003W
004I	79.85	21.70	0.06	0.27	21.70	0.06	0.27	0.27	21.76	21.76	004I&W
004I other											
004W											
005	42.60	4.60	1.45	0.14	4.60	1.45	0.14	0.16	6.05	6.05	005
006	70.12	21.10	3.46	0.35	21.10	3.46	0.35	0.44	24.56	24.56	006
006 other											
007/033	67.51	33.10	4.76	0.56	30.40	4.76	0.52	0.60	37.86	35.16	007/033
007 other											
008	184.53	181.10	1.26	0.99	179.50	1.26	0.98	1.21	182.36	180.76	008
008 other											
008 H.Flat	54.95	112.30	0.00	2.04	112.30	0.00	2.04	2.06	112.30	112.30	008 H.F.
009A	96.10	50.40	0.00	0.52	50.40	0.00	0.52	0.78	50.40	50.40	009A
009A other											
009B	62.92	73.50	0.00	1.17	71.40	0.00	1.13	1.37	73.50	71.40	009B
009B other											

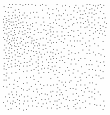
Table II continued

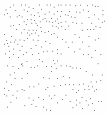
010	68.59	101.40	0.91	1.49	101.40	0.91	1.49	1.78	102.31	102.31	010
010 other											
011	185.27	221.60	0.19	1.20	221.60	0.19	1.20	1.62	221.79	221.79	011
011 other											
012	130.94	81.60	1.85	0.64	81.60	1.85	0.64	0.82	83.45	83.45	012
012 other											
013I	72.66	56.00	0.00	0.77	56.00	0.00	0.77	1.00	56.00	56.00	013I&W
013I other											
013W											
014/034	48.20	27.80	0.00	0.58	27.80	0.00	0.58	0.64	27.80	27.80	014/034
014 other											
015I	25.57	17.20	0.00	0.67	17.20	0.00	0.67	0.76	17.20	17.20	015I
015I other											
015W	32.91	12.90	0.27	0.40	12.90	0.27	0.40	0.44	13.17	13.17	015W
015W other											
016I	26.25	16.20	0.00	0.62	16.20	0.00	0.62	0.89	16.20	16.20	016I
016W	66.46	23.80	0.00	0.36	23.80	0.00	0.36	0.36	23.80	23.80	016W
016W other											
017I	10.70	6.30	0.19	0.61	6.30	0.19	0.61	0.64	6.49	6.49	017I
017I other											
017W	52.03	8.30	0.06	0.16	8.30	0.06	0.16	0.16	8.36	8.36	017W
018	37.00	12.10	0.16	0.33	12.10	0.16	0.33	0.33	12.26	12.26	018
018 other											
019	51.84	13.80	0.70	0.28	13.80	0.70	0.28	0.28	14.50	14.50	019
019 other											
020	45.82	19.10	0.04	0.42	16.70	0.04	0.37	0.62	19.14	16.74	020
021I	27.53	22.50	0.03	0.82	22.50	0.03	0.82	1.30	22.53	22.53	021I
021W	90.85	32.20	0.10	0.36	32.20	0.10	0.36	0.58	32.30	32.30	021W
022	66.68	39.80	5.80	0.68	30.20	5.80	0.54	0.76	45.60	36.00	022
022 other											
023/024	69.55	52.60	5.80	0.84	47.60	5.80	0.77	1.22	58.40	53.40	023/024
023 other											
025	105.86	67.10	0.07	0.63	57.50	0.07	0.54	0.88	67.17	57.57	025
025 other											
026A	69.22	66.20	1.20	0.97	64.50	1.20	0.95	0.97	67.40	65.70	026A
026A other											
026B	63.86	45.50	0.63	0.72	45.50	0.63	0.72	0.84	46.13	46.13	026B
026B other											
027/028	121.99	51.20	4.16	0.45	51.20	4.16	0.45	0.45	55.36	55.36	027/028
027 other											
029	113.45	65.20	0.68	0.58	65.20	0.68	0.58	0.58	65.88	65.88	029
029 other											
030A	67.27	42.80	0.09	0.64	42.80	0.09	0.64	0.64	42.89	42.89	030A
030A other											
030B	76.26	29.20	1.46	0.40	29.20	1.46	0.40	0.40	30.66	30.66	030B
030B other											
031A	75.84	24.90	1.50	0.35	24.90	1.50	0.35	0.35	26.40	26.40	031A
031B	23.14	14.40	0.05	0.62	14.40	0.05	0.62	0.62	14.45	14.45	031B
031B other											
035I	15.42	17.00	0.12	1.11	17.00	0.12	1.11	1.11	17.12	17.12	035I&W
035I other											
035W											
035W other											
036	27.51	17.30	0.58	0.65	17.30	0.58	0.65	0.69	17.88	17.88	036
036 other											
037	102.05	22.40	5.79	0.28	22.40	5.79	0.28	0.28	28.19	28.19	037
038	123.97	82.60	6.53	0.72	82.50	6.53	0.72	0.78	89.13	89.03	038
038 other											

Table 11 continued

039	24.09	15.00	1.55	0.69	15.00	1.55	0.69	0.69	16.55	16.55	039
040	29.41	28.80	0.00	0.98	28.80	0.00	0.98	0.98	28.80	28.80	040
040 other											
TOTAL		1909.80	54.81		1874.80	54.81					

Enclosure 1





Questions Brainstormed for the Speakers for the CIG Access Meeting.
January 5, 1994

Answers by L. Jack Lyon, Research Wildlife Biologist
Intermountain Research Station, USFS, Missoula, MT

21. How would you handle the issue of roads/wildlife conflicts in the Targhee NF Plan Revision?

I moved this one up to the top because my initial read through on these questions left a strong impression the whole discussion is running off on a tangent about access management rather than going right to the problem with a discussion of management objectives. The point, I think, is that there is no issue until the Targhee Forest, the State of Idaho, the Park Service, and the involved publics define management objectives and desired future conditions. My answer is that I would describe the potential management objectives and then determine whether there are roads/wildlife conflicts that must be resolved.

It is also unfortunate that several of these 21 questions are rhetorical, ie. they are based on invalid assumptions and can't really be answered without refuting the assumption or at least questioning its validity. I've done as well as I can with these.

1. How has the scientific literature defined and measured access? Such things as motorized access, non-motorized access, roads, trails, open road, etc.

Lyon and Christensen (1992:2) mention, but do not define, an "Accessibility Index" as a needed essential component for managing elk security during the hunting season. It should consider roads, trails, terrain, vegetation, season length, and legal restrictions. Note, however, that this index is only mentioned in relation to security during the hunting season.

The existing literature has reported research on elk response to open forest roads with motor vehicle traffic. There are only a few reports of closed road effects on elk. McLellan has published several papers on grizzly bears and roads in British Columbia, Mace is currently completing his analysis of road effects on grizzly bears in Montana. In all the studies I am familiar with, the base data consists of habitat use records at various distances from roads. Trails and non-motorized access have not been studied as far as I know.

I ran this by Alan Christensen, and he had two additions. First, he'll send you a copy of Frederikson (a fairly recent roads/wildlife compilation). Second, he suggested you contact Tom Puchlerz (R01A) about the IGBC access committee.

2. How has road and/or trail density been measured/calculated in the published literature? What are the current recommendations for

measuring/calculating road and/or trail density?

Road density has been reported as miles/section in most cases. A few management applications (the CEM for grizzly bears) have applied a single coefficient to a 1/4 to 1/2 mile belt adjacent to roads, but this is difficult without a GIS. There has been no reported research on the effects of trails.

Density (miles/section) is still probably the best way to treat roads because all roads that are open will be used, and the alternative is actually counting traffic flow. The real problem is in determining the geographic unit of application. Consider the square mile that has 6 miles of open road concentrated on 320 acres. Clearly, a 1/2 section has been trashed for elk habitat, but the average goes down quite quickly as additional unroaded acres are added to the calculation unit. By the time the calculation unit gets up to 4000 acres, road density is getting down below one. That might meet the objective for elk habitat effectiveness as far as paper targets are concerned. For this round of planning, I think forest plans ought to go beyond paper targets. If elk are important, then specify habitat effectiveness above 70 with no road density concentrations. If there are tradeoffs, say so. Don't, as some forests did in the last round, take credit for managing elk habitat and then specify 25 as an acceptable level of habitat effectiveness.

Trails might be better handled with a belt of lesser use in a GIS. The problem is clear, however. What are you going to us for a coefficient when there hasn't been any research done?

Mace has been using an exciting new approach in which a very large sample of animal locations is overlaid on a GIS raster coverage of roads. Road density for every animal pixel is calculated by counting all roads within 2979 feet (radius of a circular mile). Analysis is based on frequency distributions of animal locations in various density categories.

3. In terms of effects on wildlife, are roads and trails equal?

Probably not. Any answer to this question requires definitions of the road, the trail, and the wildlife. It is generally assumed, I think correctly, that open forest roads with vehicle traffic have more effect than trails with horses and hikers. During the hunting season, some trails may be equivalent to roads in reducing elk security. The real question is probably how much use by people?

4. Do motorized use and foot travel have similar effects on wildlife?

There's not a whole lot of comparative research available, but I'd say yes. Similar effects, quite different intensities. Ward and Cupal (1979) reported a study of heart rate in elk disturbed with a variety of disturbances. Heart rates went up similarly in response to hikers (with and without dogs and/or guns),

motorcycles, and pickup trucks. However, the tolerance distance (required to provoke flight) was somewhat greater for larger and noisier disturbances.

5. Why is there so much wildlife in Yellowstone National Park when it has so many roads and many people?

This is one of those rhetoricals based on one or more wrong assumptions. First, there's the unsupported implication that Yellowstone Park has more wildlife than the adjacent lands. Grizzly bears, probably, bison, because they get shot if they step out. Otherwise, who knows?. Yellowstone is a high, harsh, plateau with extremely low biotic productivity. Outside of the fact that wildlife viewing is best in the meadows and riparian zones which are wildlife rich, is there any valid data showing that Yellowstone has more wildlife than somewhere else? Second, Yellowstone National Park is a wilderness area with a couple paved roads in it. Road densities are, in fact, very low by comparison with similar sized units in any direction. And, finally, the people are concentrated at a few points of high density along those roads. Excluding about 5 percent of the total area, I'd bet Yellowstone has lower road densities and lower people densities than any comparable sized geographic unit within 500 miles.

If this question comes up, it should be evaluated in a far different context than that of access. The Forest Service is clearly not managing Yellowstone Park, and any reference to the Park in the Forest Plan has to be very carefully considered. In the big picture, however, the Targhee is a major player in the Yellowstone ecosystem. We both know that the last attempt to develop a Greater Yellowstone management plan contributed to the disappearance of John Mumma and Lorraine Mintzmeyer. That doesn't mean they were wrong, and the current climate of ecosystem management suggests the broad picture should at least be considered again.

6. Any study on if or how elk (and other wildlife) acclimate to roads over time?

I published some data (Lyon 1985) suggesting that it takes about 3 years for the full behavioral response to develop after construction of a new road in elk habitat. It appears the learning curve is fairly long for new construction. Once learned, however, the amount of disturbance required for behavioral reinforcement seems to be quite low.

Relative to other wildlife, I'm enclosing a literature review done nine years ago. There have been a number of studies of wildlife habituation to roads and people (see p.7). Most wildlife species can become habituated -- and almost never has it proved beneficial.

7. In studies on access, how were roads defined and measured? How was motorized and/or non-motorized use defined or measured?

Scientific rigor has not been one of the trademarks of this area of wildlife research. Roads have been defined as primary, secondary, and primitive; but maintenance level and surface condition were usually greater considerations than actual traffic counts. When vehicle traffic has been guesstimated into numbers, primary roads were assigned over 30 vehicles a week, secondary 10-30, and primitive less than 10. I believe these numbers are all too high because I think elk behavioral response (see 6. above) can be maintained by one vehicle a week.

Non-motorized used has not been defined, measured, or reported as far as I know.

8. Some say one motorized vehicle use on a single-track trail per week equals Highway 20. Highway 20 including its right-of-way is about 200' wide. How can they be the same?

Obviously they are not. What I see in this question is some sort of overinterpretation of the disturbance needed for maintenance reinforcement of avoidance behavior in elk. I'm not familiar with Highway 20, but there has been some research indicating that steady traffic flow on a paved highway is far less disruptive for wildlife than intermittent traffic on a gravel surface. There might also be a seasonal situation involved. In the Lochsa, elk are found fairly close to highway 12 in the winter because they have no other choice. I'm not sure I understand why this is important to the Targhee Forest since there is very little opportunity to do much about Highway 20 other than acknowledge its presence.

9. Is there a difference in effects on wildlife depending on type of road? (Paved, gravel, # of lanes, etc.) Is there a difference in effects on wildlife depending on level or type of human use occurring along a road?

Yes, and Yes. It also depends on the type of wildlife and the kind of effect being described. Pavement and traffic lanes are substantial physical barriers to many small creatures. For the charismatic megafauna, they may only represent a short term threat unless they hit by a truck. Some highways are famous for the number of deer that get killed. Gravel roads are more likely to have slow traffic, start and stop traffic, and hunters -- the things that make avoidance a reasonable behavior.

10. Major highways like Highway 20 don't seem to be a barrier to elk migration.

Except for the ones that get hit by trucks. I'm not sure whether this is a rhetorical question based on an unproved assumption, or whether it's a question at all. The major highways around Banff have been such a barrier to elk that the Alberta government has invested multi-megabucks in hundreds of miles of game-proof fence and major four-lane underpasses. Colorado and Wyoming have many

similar examples, mostly on a smaller scale along the interstates. Unless the Targhee plans to assist the State of Idaho in building game underpasses I'd consider it a blessing rather than a question.

11. What does published literature say on effects of roads through cover versus non-cover? How is cover defined in this literature?

Most of the habitat guidelines for elk conclude that roads through cover have less effect than roads in openings. "Cover" has usually been defined on canopy density as taken from aerial photographs (closed canopy, open canopy, no trees). Although I've published a paper describing the relationships (Lyon 1979), I've since come to the conclusion that this is a relatively minor consideration by comparison with road management. Elk, possibly more than some other wildlife species, have to be managed within a total landscape rather than on site by site considerations. Hiding a road in a forested environment can be an aesthetic consideration, but closing it is far more meaningful for elk.

12. Is there consensus on what level of road density begins to affect elk?

Any density will have an effect. Rephrase the question to specify management objectives. Our current models indicate that any open road density greater than 1/square mile will reduce habitat effectiveness by 25 percent or more, and will probably result in bull mortality greater than 25 percent. These results only have meaning if they are better or worse than the agreed upon desired future condition specified by the Targhee Forest and the Idaho Game Department.

13. Any documented studies of effects of ATV's on wildlife (ATV's on roads, trails, or cross country)? Horses on wildlife? Hikers on wildlife? Any scientific studies showing that motorized use has greater effects on wildlife than do horse riders and/or hikers?

Other than Ward and Cupal's heart rate study, not that I am aware of. I'm always a little bit amazed that some of this fairly obvious stuff (ATVs) has to be documented and proved. Gasoline engines do have different tones, but I wouldn't think it would take a very bright elk to recognize the general sound as always accompanied by people.

14. Does use on a road or trail (motorized or nonmotorized) have any greater effect than human use going cross-country?

Any answer to this one is purely intuitive. I would guess the short term impact of cross country to be greater because of the unexpected nature of the disturbance. Over the long term, road and/or trail disturbances can be expected to build a behavior pattern that impinges on habitat use. At some extremely low level of probability, I'd expect more heart attacks from the former and more nutritional problems from the latter.

15. Do effectively-closed roads have negative impact on wildlife (presence of road)? ("Effectively closed" meaning closed to motorized traffic only.)

Possibly, probably, yes and no. Depends on the wildlife species, the season, and maybe past experience. Most research with elk indicates closed roads as neutral with regard to habitat effectiveness. Vulnerability during the hunting season is probably increased, but the research in this area intercorrelates roads, openings, and gentle topography. Hunted elk move out of areas with high open-road densities. They move to area with either high closed-road densities or to no-road densities if that option is available. Road management to improve habitat effectiveness can be achieved through individual road closures. Management to reduce vulnerability is usually more effective when it involves area closure.

16. What effect do roads have on grizzlies?

Same as on elk... only more so. Mace's recent work on the Flathead Forest indicates that grizzly bears cannot differentiate, ie. a road is a road, whether open or closed. All roads are avoided at all times. McLellan's work in British Columbia confirms an intolerance for open roads, but he had no closed roads in the study.

17. What is the effect of roads (motorized use and/or non-motorized use) on elk habitat effectiveness? on elk vulnerability? Do trails have the same effect?

Roads are, without any question, the single most important variable managed by the Forest Service -- whether the consideration is elk habitat effectiveness or elk vulnerability. There are models describing the measured motorized (open road) effects on both effectiveness and vulnerability (see Christensen, Lyon, and Unsworth 1993) but very little work has been reported for non-motorized and trail effects.

18. What effect do trails have on water quality and fish?

I'd guess very little, but this is a question better handled by a professional hydrologist. If a trail is so poorly designed or located it delivers sediment to a creek, it's a problem. Alan supplied these additional thoughts:

- Studies by Bjorn in Idaho show that cutthroat trout are highly susceptible to fishermen where access is good
- There are significant sediment problems from some heavily used trails in the Bob Marshall Wilderness

19. What are the effects of motorized and/or non-motorized access (roads, trails, cross country) on non-game wildlife?

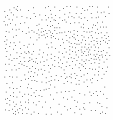
Let us assume that access, in this context, means people, machinery and noise in wildlife habitats where there were no

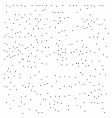
people, machinery or noises. The question almost answers itself unless you can think of some wildlife species that benefits from people, machinery and noise. At best, the effects would be neutral. In the context of ecosystem management for small bird populations, there is a developing concern about roads being pathways for nest parasitism and/or predation.

20. Should roads on adjacent non-forest lands (private lands, state lands, etc.) be included in analysis?

Yes, and so should all the other components of forest landscapes. The designated management policy of the Forest Service is called ecosystem management, and this kind of decision is what ecosystem management is all about. This would be a great question to use as a launching platform for a discussion of management scales with an ecosystem context: site, landscape, subregion, ecoregion.

Enclosure 2





WILDLIFE TRAIL CYCLE INTERACTION

- January 1994 -

IN THE PROCESS OF REFINING ELK MANAGEMENT IN OUR NATIONAL FORESTS, ONE ELEMENT OF THE FOREST USER CONSTITUENCY, THE TRAIL BIKE RIDER, IS BEING DISCRIMINATED AGAINST. I'M SPEAKING PRIMARILY OF THE OPPORTUNITY TO RIDE TRAIL BIKES ON SINGLE TRAILS THROUGH KNOWN ELK HABITAT. WHETHER THIS DISCRIMINATION IS WARRANTED, THE RESULT OF PREJUDICE OR BIAS, OR INTUITIVE JUDGEMENTS, IT IS MOST DIFFICULT TO ASCERTAIN.

THE WASHINGTON DEPARTMENT OF WILDLIFE RECOGNIZED THE POTENTIAL FOR INTERACTIONS TO OCCUR WITH FISH AND WILDLIFE AS THE NUMBERS OF BACK COUNTRY RECREATIONISTS INCREASE. IN 1988 THAT DEPARTMENT CONDUCTED A DETAILED COMPUTER SEARCH OF OVER 300 SOURCES ON THE EFFECTS OF ORV USE ON WILDLIFE IN WASHINGTON (FOX, ET AL 83). THE SEARCH WAS FURTHER EXPANDED TO INCLUDE THE EFFECTS OF PEDESTRIAN AND EQUESTRIAN BACK COUNTRY INTERACTIONS WITH WILDLIFE. THIS SEARCH IDENTIFIED AN ADDITIONAL 75 SOURCES. IT WAS DETERMINED THERE WERE NO SCIENTIFIC STUDIES THAT QUANTITATIVELY DOCUMENTED THE EFFECTS OF ORV'S ON WILDLIFE IN WASHINGTON. "THE LACK OF QUANTITATIVE DOCUMENTATION FOR ORV, PEDESTRIAN AND EQUESTRIAN INTERACTIONS WITH WILDLIFE IN THE FORESTED PACIFIC NORTHWEST IS CLEAR. UNTIL ADEQUATE RESEARCH IS CONDUCTED THE ABILITY TO MANAGE ORV, EQUESTRIAN AND PEDESTRIAN BACK COUNTRY RECREATION IN RELATION TO DEFINITIVE WILDLIFE INTERACTIONS IS RESTRICTED TO JUDGEMENT CALLS AND MAY BE CONTROVERSIAL."

MONTANA WILDLIFE FEDERATION DIRECTOR PERRY NELSON, A RETIRED MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS BIOLOGIST, STATED IN THE MONTANA TRAIL RIDER 86 "THERE ARE DOZENS OF STUDIES WHICH SHOW THAT HIKERS DISTURB ANIMALS MORE THAN VEHICLES. THIS SEEMS LOGICAL IN VIEW OF THE FACT THAT THOUSANDS OF YEARS OF GENETIC PROGRAMMING ALERTS ANIMALS TO THE PRESENCE OF TWO AND FOUR-LEGGED PREDATORS. WILDLIFE ARE NOT PROGRAMMED TO BE AFRAID OF VEHICLES. IT'S WHEN YOU GET OUT OF A VEHICLE THAT WILDLIFE RECOGNIZE YOU AS A POSSIBLE THREAT." HE FURTHER STATED, AND I CONCUR, "IF THERE ARE SITUATIONS WHERE WILDLIFE NEED MORE SECURITY FROM RECREATIONAL USES (HORSES, PEDESTRIAN AND ORV'S) ALL USERS NEED TO SHARE IN THE REDUCTION OF USE, NOT JUST MOTORIZED."

- ELK MANAGEMENT PRESCRIPTIONS -

GETTING TO THE IMPLICATIONS OF THE STATE OF THE ART OF ELK MANAGEMENT, FOLLOWING ARE SOME CITATIONS AND OBSERVATIONS LEADING TO MY PERCEPTION OF WHAT ACTIVITIES REALLY BEAR ON THE OVERALL WELFARE OF ELK. "DURING THE PAST TEN YEARS ELK HABITAT MANAGEMENT IN THE NORTHERN ROCKIES, PARTICULARLY ON NATIONAL FORESTS, HAS BEEN STRUCTURED AROUND A MODEL THAT RECOGNIZED COVER, FORAGE AND ROAD MANAGEMENT AS THE DETERMINING PARAMETERS OF HABITAT QUALITY" (LYON CANFIELD 91). "MORE DIFFICULT TO KNOW IS IF THE MODELS ACCURATELY REFLECT HABITAT EFFECTIVENESS FOR ELK. SUCH EVALUATIONS ARE EXTREMELY COMPLICATED AND MOST ELK-HABITAT MODELS PREDICT ONLY EFFECTIVENESS OF THE HABITAT TO

FACILITATE ELK USE. THEY ARE NEITHER DESIGNED NOR EXPECTED TO PREDICT ELK NUMBERS OR PRODUCTIVITY" (THOMAS, ET AL 88). "ELK IS THE BIG GAME SPECIES MOST VULNERABLE TO ROAD ACTIVITIES (I.E. CONSTRUCTION AND SUBSEQUENT TRAFFIC), AND THIS IS WELL DOCUMENTED IN THE LITERATURE" (MASTEL, ET AL 91). IT IS OBVIOUS THAT OPEN ROAD CLOSURES IMPROVE HABITAT EFFECTIVENESS RATINGS AND PROVIDE SECURITY FOR ELK, PARTICULARLY DURING HUNTING SEASONS. ANYONE CONCERNED ABOUT THE VULNERABILITY OF ELK SHOULD SUPPORT THE REASONABLE APPLICATION OF ROAD CLOSURES. "ROAD MANAGEMENT IS A POWERFUL MEANS OF MANIPULATING HABITAT FOR ELK, BUT ROADS SHOULD NOT BE CONSIDERED INDEPENDENT OF OTHER CRITERIA BY WHICH ELK HABITAT IS EVALUATED" (LYON 79). "THE JUDITH ROAD CLOSURE STUDY INDICATED THAT TRAVEL RESTRICTIONS DID NOT CHANGE ELK DISTRIBUTION OR TEMPORAL DISTRIBUTION OF HUNTERS. APPARENTLY THIS AREA CLOSURE WAS NOT NEEDED TO 'PROTECT' ELK WHERE ESCAPE COVER WAS ADEQUATE AND WELL DISTRIBUTED--AT LEAST TWO-THIRDS COVER TO ONE-THIRD OPEN" (LYON, ET AL 85).

"HABITAT EFFECTIVENESS IN OCCUPIED ELK RANGE PROBABLY CANNOT BE REDUCED BELOW 10 TO 15% BY ROADS ALONE. AT VERY LOW LEVELS OF HABITAT EFFECTIVENESS SUCH FACTORS AS TOPOGRAPHY, COVER PATCHES, AND BEHAVIOR PATTERNS OF ELK WILL OVERRIDE THE INFLUENCE OF OPEN FOREST ROADS AND TRAFFIC" (LYON 79).

THE NEXT QUOTE CUTS RIGHT TO THE HEART OF THE MATTER CONCERNING ELK MANAGEMENT: "ROAD CLOSURES, EITHER PERMANENT

OR SEASONAL, WILL EFFECTIVELY INCREASE SECURITY FOR HUNTED ELK BUT A MORE PRODUCTIVE CONSIDERATION INVOLVES PREVENTION OF HABITAT FRAGMENTATION. RETENTION AND CREATION OF LARGE CONNECTED BLOCKS OF HOMOGENEOUS CANOPY STRUCTURE SHOULD BECOME A PRIMARY GOAL IN ELK HABITAT MANAGEMENT FOR SECURITY" (LYON-CANFIELD 91). DOES THE INTERMITTENT RECREATIONAL USE OF SINGLE TRACK TRAILS BY TRAIL BIKES OR OTHER USERS DISPLACE ELK IN SUCH HABITAT? I THINK NOT. RELATING THE EFFECTS OF MOTORIZED USE ON ROADS TO WILDLIFE TO TRAIL CYCLE USE ON SINGLE TRACK FOREST TRAILS SHOULD BE INTERPRETED WITH DUE CAUTION AT BEST. FOREST TRAILS NORMALLY EXHIBIT NARROWER CORRIDORS, SMALLER CUT AND FILL SLOPES, SHORTER SIGHT DISTANCES AND DENSER TRAIL-SIDE VEGETATION. "SECURITY AREA: ANY AREA THAT WILL HOLD ELK DURING PERIODS OF STRESS BECAUSE OF GEOGRAPHY, TOPOGRAPHY, VEGETATION OR A COMBINATION OF THESE FEATURES" (LYON-CHRISTENSON 92).

I WOULD LIKE TO COMMENT ON A COUPLE OF CURRENT PERSONAL EXPERIENCES INVOLVING ELK/HUMAN INTERACTIONS THAT SO GRAPHICALLY ILLUSTRATE THE TWO PREVIOUS QUOTES. BOTH SITUATIONS SERVE TO REINFORCE SCENARIOS INVOLVING NUMEROUS WILDLIFE SPECIES THAT I HAVE HUNTED OVER THE YEARS. FOR EIGHT CONSECUTIVE YEARS SEVERAL FRIENDS AND MYSELF HAVE HUNTED FOREST GROUSE ON WEST MOUNTAIN RIDGE NEAR CASCADE. THE AREA HAS BOTH A MULE DEER AND ELK POPULATION AND SINGLE TRACK TRAILS. THESE WILD UNGULATES ARE EXPOSED TO HUNTERS WITH DOGS SEVERAL DAYS EACH WEEK FOR NEARLY TWO STRAIGHT

MONTHS (SEPT. & OCT.). THE AREA HAS THE LARGE CONNECTED BLOCKS OF HOMOGENEOUS CANOPY ALLUDED TO EARLIER. THE DEER AND THE ELK CERTAINLY DO BECOME MORE CIRCUMSPECT AROUND THE HUNTERS AND THE DOGS, BUT THEY DO NOT VACATE THE AREA.

A SIMILAR SITUATION EXISTS CLOSE TO BOISE ON THE BOISE RIDGE BETWEEN BOGUS BASIN SKI AREA AND ALDAPE SUMMIT TO THE EAST. THE NORTH SIDE OF THIS RIDGE HAS A PROLIFERATION OF SINGLE TRACK TRAILS THAT EXPERIENCE ALMOST DAILY USE BY TRAIL BIKES, MT. BIKES AND EQUESTRIANS DURING THE ENTIRE RIDING SEASON OF JUNE THROUGH OCTOBER. THIS IS PROBABLY THE MOST INTENSE WHEELED VEHICLE USE ON TRAILS IN IDAHO. THE RESIDENT ELK HERD HAS ADAPTED TO THIS LEVEL OF USE. AGAIN, ADEQUATE SECURITY AREAS ARE IN JUXTAPOSITION TO THE OTHER HABITAT ELEMENTS.

WILDLIFE HAS CONSIDERABLE RESILIENCE TO AND TOLERANCE OF HUMAN INTRUSION PROVIDED THEIR LIFE SUPPORT SYSTEM, WITH EMPHASIS ON ADEQUATE SECURITY AREAS, IS REASONABLY INTACT. THE MODE OF TRAVEL BY HUMANS (HIKER, MT. BIKE, HORSE, LLAMA OR TRAIL BIKE) INTO OR THROUGH ELK HABITAT ON TRAILS IS NOT THE TRAUMATIC EVENT PEOPLE OFTENTIMES IMAGINE. "IF MAMMALS ARE HARASSED THEY WILL LEARN TO MINIMIZE ENCOUNTERS BY REDUCING ACTIVITIES TO AREAS, HABITATS AND TIME OF DAY WHERE ENCOUNTERS ARE MINIMAL" (GEIST 71).

- ELK CALVING -

TRAIL CLOSURES ASSOCIATED WITH ELK MANAGEMENT ARE OFTEN JUSTIFIED TO PROTECT CALVING AREAS. TRAIL BIKE USE IS

SPECIFICALLY SINGLED OUT FOR RESTRICTION. "CALVING AREAS: ANY AREA BETWEEN WINTER RANGE AND SUMMER RANGE WHERE COWS GIVE BIRTH TO CALVES. DISCUSSION: THIS MAY BE A SPECIFIC AREA WHERE A MAJORITY OF CALVING FOR A HERD TAKES PLACE. IT MAY ALSO BE SCATTERED LOCATIONS THROUGHOUT THE HERD HOME RANGE" (LYON-CHRISTENSEN 92). I FIND IT DIFFICULT TO BELIEVE THE INCIDENTAL PASSAGE OF TRAIL BIKES ON TRAILS HAS ANY DISCERNIBLE OR MEASURABLE IMPACT ON CALF ELK. OVER THE PAST 30 YEARS I HAVE RIDDEN HUNDREDS OF MILES OF TRAILS IN ELK HABITAT. I HAVE YET TO ENCOUNTER A SINGLE NEW BORN CALF ELK. COWS ARE EXTREMELY DISCREET IN BIRTHING SITES AND CONCEALING NEW CALVES.

"CALVING NORMALLY OCCURS BETWEEN MAY 15 AND JUNE 15 WITH A PEAK ACTIVITY ABOUT JUNE 1" (MOROZ 76, SCHLEGEL 76). "TYPICAL CALVING HABITAT COMMONLY CONTAINS OPEN FORAGING AREAS ADJACENT TO DENSE WOODY VEGETATION THAT CAN SERVE AS HIDING COVER. MOST COWS APPEAR TO HAVE TRADITIONAL AREAS THEY RETURN TO EACH YEAR AT CALVING TIME. SOMETIMES ELK CALVE ON OR ADJACENT TO WINTER RANGES WHEREAS OTHER TIMES THEY MIGRATE TO SUMMER RANGE BEFORE CALVING DEPENDING ON THE RATE OF SNOW MELT AND PLANT DEVELOPMENT" (HERSHEY AND LEEGE 82). "THE VALUE OF CALVING AREAS IS NOT YET FULLY KNOWN AND IT IS NOT NOW POSSIBLE TO DETERMINE HOW HABITAT ALTERATIONS OF THESE AREAS WILL AFFECT ELK POPULATIONS" (THOMAS, ET AL 79).

HOW CAN THE EXCLUSION OF ONE TRAIL USER GROUP--TRAIL BIKES--ON SINGLE TRACK TRAILS AFFECT CALF SURVIVAL WHEN CALVING CAN BE SO WIDELY DISTRIBUTED? THIS IS PARTICULARLY TRUE WHEN MOST TRAIL BIKE RIDING OCCURS WELL AFTER THE PEAK OF PARTURITION.

THERE ALSO SEEMS TO BE AN INCLINATION TO REGARD CALVING AREAS AND NURSERY AREAS AS ONE AND THE SAME. "NURSERY AREAS: AREAS USED BY A TEMPORARY ELK SOCIAL UNIT CONSISTING OF COWS AND YOUNG CALVES. DISCUSSION: IT IS NOT CERTAIN THAT THE TERM HAS A SPECIFIC MEANING BEYOND NORMAL EARLY SUMMER RANGE FOR LARGE ELK COW/CALF GROUPS IN RELATIVELY OPEN HABITAT" (LYON-CHRISTENSON 92).

THE POINT TO BE MADE HERE IS BY THE TIME THESE COW/CALF GROUPS ARE FORMED THE CALVES ARE PERFECTLY CAPABLE OF FOLLOWING THE COWS IN ANY AVOIDANCE OR FLIGHT SITUATION TO MINIMIZE CONTACT WITH HUMANS ON TRAILS IRRESPECTIVE OF THE MODE OF TRAVEL.

- ELK MORTALITY -

CLOSING TRAILS TO RECREATIONAL TRAIL BIKE RIDING TO ENHANCE ELK SURVIVAL ABSOLUTELY PALES INTO INSIGNIFICANCE COMPARED TO THE PRIMARY ACTIVITY THAT BEARS SO DIRECTLY ON THE DESTINY OF ANY ELK HERD--HUNTER MORTALITY. "HUNTING MORTALITY ACCOUNTS FOR 95% OF ELK MORTALITY" (LYON 92). RELATIVE TO ELK MORTALITY I WOULD EVEN QUESTION THE NEED TO CLOSE ROADS OR TRAILS TO RIFLE ELK HUNTERS USING TRAIL BIKES. ACCORDING TO THE 87-88 IDAHO RIFLE ELK HUNTING

STUDY, RECORDING METHOD OF TRAVEL TO HUNT ELK, "82.9% OF THE HUNTERS NEVER USE A DIRT BIKE AND ONLY .9% ALWAYS USE A DIRT BIKE" TO HUNT ELK. AGAIN, ONE HAS TO WONDER WHY DO WE SINGLE OUT ELK HUNTERS USING TRAIL BIKES AND LEAVE THE SAME ROADS AND TRAILS OPEN TO HUNTERS USING HORSES, LLAMAS, OR MT. BIKES. IRRESPECTIVE OF THE MODE OF TRAVEL, THE ELK GETS KILLED. IT WOULD SEEM IF THE GOAL IS TO IMPROVE ELK SURVIVAL (ESPECIALLY BRANCH ANTLERED BULLS) THE CLOSURES SHOULD BE APPLIED AND SHARED EQUITABLY. "ROADS ARE THE SINGLE MOST IMPORTANT RESOURCE PARAMETER THAT THE FOREST SERVICE MANAGES. ROADS NOT ONLY DIRECTLY AFFECT ELK MORTALITY, BUT ALSO AFFECT HUNTER OPPORTUNITY BY ACCELERATING BULL MORTALITY" (CHRISTENSEN, ET AL 93).

"CLOSED ROADS LOCATED WITHIN SECURITY AREAS MAY INCREASE ELK VULNERABILITY BY PROVIDING HUNTERS WITH WALKING AND SHOOTING LANES. USE OF HORSES AND INCREASING USE OF MT. BIKES BY HUNTERS ON CLOSED ROADS ALLOWS THEM BETTER ACCESS AND INCREASES ELK VULNERABILITY, COMPARED TO UNROADED HABITATS" (HILLIS, ET AL 91). YET AGAIN WE DENY ACCESS TO TRAIL BIKES ONLY.

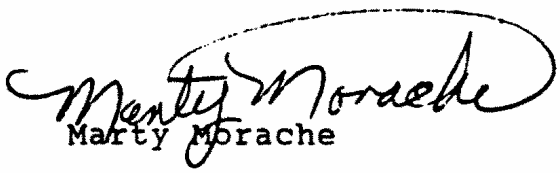
"IN IDAHO, RECENT INVESTIGATIONS OF BULL SURVIVAL HAVE SHOWN THAT EVEN WILDERNESS AREAS MAY NOT PROVIDE ADEQUATE PROTECTION IF HUNTER NUMBERS AND PERSISTENCE ARE HIGH" (LYON 90). IT SEEMS PATENTLY OBVIOUS LIMITED ENTRY IRRESPECTIVE OF THE MODE OF TRAVEL DURING HUNTING SEASONS IS THE PROPER RECOURSE TO CONTROL ELK MORTALITY.

IN SUMMARY, ONE WOULD HAVE TO LIVE IN A VACUUM NOT TO REALIZE OPEN ROAD MANAGEMENT IS ESSENTIAL TO ELK SURVIVAL. THE DATA IS CONCLUSIVE BUT THIS DOES BEAR QUALIFICATION. "COMMONLY, MILES OF SECONDARY AND PRIMITIVE ROAD ARE CONVERTED TO EQUIVALENT PRIMARY ROAD MILES. DATA ARE AVAILABLE TO SUPPORT SUCH CONVERSIONS. VARIOUS ATTEMPTS HAVE BEEN MADE TO EXTRAPOLATE THE CONCEPT TO CLOSED ROADS, TO TRAILS, AND TO ROADS AND TRAILS DURING THE HUNTING SEASON. THERE ARE NO DATA TO SUPPORT SUCH CONVERSIONS" (LYON-CHRISTENSEN 92).

IT IS ALSO ABUNDANTLY CLEAR THAT WHENEVER AND WHEREVER POSSIBLE WE MUST PREVENT HABITAT FRAGMENTATION AND RETAIN AND CREATE LARGE CONNECTED BLOCKS OF HOMOGENEOUS CANOPY STRUCTURE. THIS IS PARTICULARLY APPLICABLE AS IT RELATES TO SECURITY AREAS FOR ELK. AGAIN, OPEN ROADS WITH DAILY VEHICULAR TRAVEL, AND TIMBER HARVEST ACTIVITIES, NOT THE INTERMITTENT USE OF TRAILS, CONTRIBUTE TO THIS FRAGMENTATION. OCCASIONAL SUMMER AND EARLY FALL USE OF TRAILS BY TRAIL BIKES, TO MY KNOWLEDGE, HAS NO DOCUMENTED MEANINGFUL IMPACT ON ELK.

OBVIOUSLY, HUNTER CAUSED ELK MORTALITY NEEDS ADDRESSING, PARTICULARLY AS IT RELATES TO ADULT BULLS. IF LIMITED ENTRY FOR ELK HUNTERS ON ROADS AND TRAILS IS CALLED FOR, THEN ALL HUNTERS SHOULD SHARE EQUALLY. THOSE USING TRAIL BIKES SHOULD NOT BE DISCRIMINATED AGAINST.

THE STATE-WIDE MEMBERSHIP OF THE ITMA WANTS TO BE SUPPORTIVE OF AND COOPERATE WITH THE FOREST SERVICE AND THE DEPT. OF FISH & GAME IN THE MANAGEMENT OF THE ELK RESOURCE. IF IT IS FELT TRAVEL RESTRICTIONS ARE NEEDED TO REDUCE ELK VULNERABILITY DURING HUNTING SEASONS, EXPLAIN THAT NEED FULLY. THEN ADMINISTER THE CLOSURES EQUITABLY IRRESPECTIVE OF THE MODE OF TRAVEL.



Marty Morache

Wildlife Advisor

ITMA

January 1994

References

Sachet, Glen A. 1988. Wildlife Evaluation Processes For ORV, Hiking, and Horse Backcountry Recreation Use in Washington Forests.

Montana Trail Rider. 1986.

Lyon, L. Jack and Jodie Canfield. 1991. Habitat Selections by Rocky Mtn. Elk Under Hunting Season Stress.

Thomas, Jack Ward, Donavin A. Leckenby, L. Jack Lyon, Lorin L. Hicks, and C. Les Marcum. 1988. Integrated Mgt. of Timber-Elk-Cattle: Interior Forests of Western North America.

Mastel, Jerry, Scot Posner, Roger Wilson, Vern Stelter, Ihor Mereszcak, and Barry Parrish. 1991. Report of the Bighorn National Forest Wildlife Task Force Elk Hiding Cover and Habitat Effectiveness Standards.

Lyon, L. Jack. 1979. Habitat Effectiveness for Elk as Influenced by Roads and Cover.

Lyon, L. Jack, Terry N. Lonner, John P. Weigand, C. Les Marcum, W. Daniel Edge, Jack D. Jones, David R. McCleery, and Lorin L. Hicks. 1985. Coordinating Elk and Timber Mgt., Final Report of the Montana Cooperative Elk-Logging Study. 1970-1985.

Lyon, L. Jack, Alan G. Christensen. 1992. A Partial Glossary of Elk Management Terms.

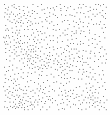
Leege, Thomas A. 1984. Guidelines For Evaluating and Managing Summer Elk Habitat in Northern Idaho.

Thomas, Jack Ward, Hugh Black, Jr., Richard J. Scherzinger and Richard J. Pederson. 1979. Deer and Elk P. 104-127 in Wildlife Habitats in Managed Forests: The Blue Mtns. of Oregon and Washington.

Christensen, Alan G., L. Jack Lyon, James W. Unsworth. 1993. Elk Mgt. in The Northern Region: Considerations in Forest Plan Updates or Revisions.

Hillis, J. Michael, Michael J. Thompson, Jodie E. Canfield, L. Jack Lyon, C. Les Marcum, Patricia M. Dolan and David W. McCleerey. 1991. Defining Elk Security: The Hillis Paradigm.

Enclosure 3





1987-88 IDAHO RIFLE ELK HUNTING STUDY

EXECUTIVE SUMMARY

Prepared for

Idaho Department of Fish and Game

Prepared by[1]

William J. McLaughlin, Ph.D.
Nick Sanyal
Jim Tangen-Foster
Joanne F. Tynon
Stewart Allen, Ph.D.
Charles C. Harris, Ph.D.

October 1989

---

[1] William J. McLaughlin, Stewart Allen and Charles C. Harris are faculty and Nick Sanyal, Jim Tangen-Foster and Joanne F. Tynon are Ph.D. students in the Department of Wildland Recreation Management, College of Forestry, Wildlife and Range Sciences, University of Idaho. This document is published as contribution number 499, Idaho Forest, Wildlife and Range Experiment Station, University of Idaho, Moscow.

CHAPTER 1. EXECUTIVE SUMMARY

OVERVIEW

The main goal of the Idaho Rifle Elk Hunter Opinion Study is to assist the Idaho Department of Fish and Game in developing information about the views of people who hunt elk with a rifle in Idaho. Descriptions of elk hunters, quality Idaho rifle elk hunting experiences, characteristics of preferred elk hunting settings, and hunters' opinions about various game management issues were explored.

This executive summary focuses on the key findings of a mail questionnaire administered in 1988-89 to resident and nonresident general season license holders who purchased an elk tag[1] in 1987. A total of 1,545 resident and nonresident Idaho rifle elk hunters composed the data set used in the analyses.

These data are representative only of the largest group of elk hunters, those that hunt with a rifle. They do not include archery and muzzle loader hunters. Two other reports from this project describe rifle deer hunters and shotgun hunters.

KEY FINDINGS

Characteristics of Rifle Elk Hunters

- A true cross-section of Idahoans, from all age and income groups, hunt elk with a rifle. Most were male (91%) and employed full-time (72%). Nonresident hunters were more affluent and older than resident hunters.

- Five distinct types of rifle elk hunters, differing in the relative importance they placed on four reasons for hunting (nature, hunting skills, social orientation, trophy hunting and harvest orientation), were identified.

- Resident hunters exhibited greater diversity in their reasons for hunting elk; nonresidents were motivated to a greater extent by trophy hunting.

- Fewer than a third of all rifle elk hunters were members of hunting, conservation, or sportsmen's organizations. Nonresident rifle elk hunters were more likely to be members of hunting, sportsmen's and/or conservation groups than resident rifle elk hunters. Hunters in Region 4 were less likely to be members of organizations.

Desired Kinds of Elk

- Large bulls (6 or more points a side) were the most desired kind of elk.

- Resident elk hunters found spike elk as desirable as small bulls (2 - 5 points a side); nonresident hunters had a clear preference for trophy quality animals. Over three-quarters of the nonresident, but only a third of the resident rifle elk hunters found antlerless elk not very desirable.

- Small bulls (2 - 5 points a side) were the most frequent type of elk bagged (38%). Antlerless and spike elk were taken by about one quarter of successful hunters, while large bulls were taken by only 15 percent of successful hunters.

Rifle Elk Hunting in Idaho

- Not all rifle elk hunters want the same type of hunting experience; different experiences for elk are desired and marketable. In most market segments, harvesting, and to even a lesser degree

1 Juvenile and senior resident license holders were excluded from the sample.

harvesting a trophy, is not the most important aspect of elk hunting.

- Unequal proportions of residents (about 27%) and nonresidents (about 66%) took elk hunting trips lasting seven or more days. A much larger proportion of residents than nonresidents took shorter trips, especially one-day and weekend trips.

- Region 2 (Clearwater) receives the highest visitation from nonresidents, whereas residents are more equally distributed across all regions with the exception of Regions 4 (Southcentral) and 5 (Southeast), which received proportionately less use by the resident elk hunters.

- Throughout Idaho, elk hunters primarily hunt in only one region. About 10% of resident hunters and only 5% of the nonresident rifle elk hunters hunt elk in more than one region of the state.

- Access by foot (97.3%) and 4-wheel drive vehicles (83%) were the most common travel modes while hunting elk. Over half of all hunters used horses or pack animals, and almost half used 2-wheel drive vehicles at least "sometimes." Dirt bikes and ATV's were used by fewer than one in every five hunters. Snowmobiles, boats, aircraft and mountain bikes were each used by fewer than 7 percent of elk hunters.

Quality Rifle Elk Hunting in Idaho

- The most important reasons for elk hunting in Idaho, selected by rifle elk hunters from a set of 33 possible reasons, were not harvest related, but rather focused on other aspects of the hunting experience, such as being out in nature, viewing scenery, seeing elk in natural settings, bringing back pleasant memories and getting away from the usual demands of life.

- Descriptions of quality rifle elk hunting in Idaho, in response to an open-ended question, revealed that hunters feel knowing elk are abundant, the naturalness of the setting, being around few other hunters, seeing elk, and harvesting a trophy are key attributes of quality. Other lesser important attributes of quality include killing an elk, getting away, and being with family and friends.

- Almost two-thirds of all rifle elk hunters feel they experienced a quality hunt more than half the time when hunting in Idaho. Residents are slightly more likely than nonresidents to feel they obtained a quality hunt more than half the time.

- Over 90 percent of all elk hunters are positively affected by seeing unique species or hunting in an area they are attached to. Seeing non-game, the opportunity to hunt more than one species, encountering few other hunters, hunting an area that is close to the hunter's home or that has no roads are setting characteristics that add to the quality of the hunting experience of at least two-thirds of all rifle elk hunters.

- Things that detract from the hunting quality of at least two-thirds of the hunters include encountering other hunting groups, motorized vehicles being used either on or off of roads, areas with many open roads, or areas currently being logged.

How Rifle Elk Hunters Feel About Selected Issues

- Over three-quarters of resident and two-thirds of nonresident rifle elk hunters support fee increases to offset the increasing costs of game management.

- Hunting in an area with no roads strongly added to the elk hunting experiences of 44% of all hunters. This attitude was further supported because almost three quarters said hunting in an area having many open roads detracted somewhat or a lot from their rifle elk hunting experience in Idaho.

- For the most part, hunters said they accepted encountering closed roads while hunting elk in Idaho. Only 10% said closed roads were never acceptable. Nonresidents were more accepting of road closures than residents.

- In general, respondents were clearly not willing to trade elk security in return for increased motorized access to hunting areas. And there is a strong belief that every type of vehicle (truck, trailbike, snowmobile, etc.) should be treated the same under a road closure policy.

- Hunters are cognizant of and sympathetic about the problem of crop depredation. When presented with alternative actions that could be taken to address big game depredation, rifle elk hunters tended to favor options that required both the landowner and the Department to contribute. The most favored options were to provide materials that the landowner would have to install to keep wildlife away or have the Department chase the animals away from the fields. The least acceptable options specified either direct payment to landowners or providing materials at no cost.

- The majority of hunters did not support options of managing the current high hunting pressure on elk by reducing or limiting the opportunity of hunters to pursue elk.

- Elk hunters do support controls on the harvesting of elk during the vulnerable bugling season; shortening the season for all hunters, or establishing controlled hunts or designating backcountry zones where all hunters have an equal chance of getting a tag are preferred management options.

- Rifle elk hunters favored the alternatives that limited the way that people can hunt black bear (using bait and hounds), rather than limiting the basic opportunities for bear hunting.

- More than half of all rifle elk hunters feel that the Department of Fish and Game is doing an excellent or good job of elk management and general fish and wildlife management. About one of every ten elk hunters feels the Department is doing a poor or very poor job of management.

MAJOR POLICY IMPLICATIONS

The results of the 1987-88 Idaho Rifle Elk Hunting Study lead to many conclusions. What these findings mean for the future management of Idaho's wildlife resources can only be assessed by examining them in the context of wildlife management policy. Seven key policy implications that address elk management from the perspective of sport hunting are presented below.

- Managers formulating policy need to explicitly recognize that the Department presently manages a diversity of hunting opportunities or products. Also, the potential exists to market these to definable hunter market segments. Presently, Idaho's highest quality hunting product as defined by the hunter is an unroaded natural setting (particularly those designated as Wilderness) with an abundance of wildlife species (particularly unique ones), few other hunters, the opportunity to pursue animals in all age classes, and a chance to use and practice hunting skills with companions.

- Managers formulating policy need to describe non-hunting opportunities or products to be developed based upon the findings of this study and the national trends that suggest increasing numbers of people are interested in wildlife for non-harvest reasons. If trend measurements prove to be accurate, the development of new wildlife products (wildlife viewing, photography contests, etc.) will play a critical role in the future of the Department and its programs.

- Quality rifle elk hunting in Idaho is the result of packages of attributes that include natural setting characteristics, an uncrowded feeling, a healthy elk population with a diverse age structure, regulations that recognize that people hunt in groups, perceived game abundance, the chance for trophy hunting, and harvesting an animal. Therefore, the department's effort, energy and money need to be balanced among these to ensure that multiple attributes are considered in the management and species planning process -- rather than just the number of animals available for harvest or how many licenses can be sold.

- Rifle hunters have little interest in limiting their hunting opportunities, but are willing to trade off things like road access and increased fees to ensure that a quality game population is maintained. This provides managers an opportunity to manage from both a biological and sociological perspective.

- Management issues are often perceived differently by diverse groups such as residents and nonresidents, Idahoans from different regions of the state, and hunters who seek distinct hunting products. Therefore, it is important to monitor these opinion trends and consider them when analyzing impacts and making decisions.

- Channels for communicating with the hunting public must be expanded to ensure that the opinions of formal, organized groups are not over-represented in the Department's policy, planning and management processes. Many of the hunters surveyed expressed the need for additional information to more effectively evaluate wildlife management alternatives -- and they are eager to learn more about wildlife management.

- This study points out the need to integrate social science expertise into the day-to-day management operations and research and planning programs of the Idaho Department of Fish & Game.