3.11. WILDLIFE

INTRODUCTION

SCOPE OF THE ANALYSIS

The scope of this analysis and extent of cumulative effects varies depending on each species' relative home range size. The effects of alternatives on small bodied species with relatively limited home range sizes such as boreal toad and black-backed woodpecker are addressed predominantly within the analysis area acknowledging the relative effects of the actions, where applicable, that may extend to the larger South Fork Clearwater River Subbasin. The effects of alternatives on larger species, particularly the larger bodied animals (i.e., elk) or wide-ranging predators such as the gray wolf, fisher, and lynx, whose home range sizes may exceed the boundaries of the analysis area and take into account even larger landscapes extending to or beyond the Forest boundaries. In some cases, the subbasin, or even the forest as a whole, is assessed within the context of the purpose and uses of the habitats used within the analysis area boundary, but also includes discussion elements pertinent to the relative overall effects at the larger scale beyond the subbasin, where applicable by species.

REGULATORY FRAMEWORK

Analysis and evaluation of wildlife and terrestrial TES species data in this EIS is based on direction contained in the National Environmental Management Act (NFMA), and its implementing regulations at 36 CFR 219; the National Environmental Policy Act (NEPA); the Endangered Species Act (ESA), and conforms with direction in the relatively new National Memorandum of Understanding #MU-11130117-028, which addresses Neotropical migrant land bird management.

The Nez Perce Forest Plan Amendment #23 amended habitat objectives for Elk Analysis Units (EAUs). The Crooked and American Salvage Project area contains six EAUs with objectives ranging from 50-75 percent. Refer to the effects analysis pertinent to each alternative in the EIS.

SUMMARY CONCLUSIONS

This analysis tiers to the Nez Perce Forest Plan and EIS (1987) and includes updated habitat information from the South Fork Clearwater River Landscape Assessment (SFLA), which is incorporated by reference. Refer to the South Fork Clearwater River Landscape Assessment and its accompanying Wildlife Technical Report for a synthesis and summary of existing broad-scale landscape habitat and terrestrial wildlife species conditions within and surrounding the analysis area. See the table titled, "Wildlife Species Preliminary Effects Determinations" (below), for a summary of environmental consequences and conclusions for this analysis.

ANALYSIS METHODS

Outputs from the habitat suitability index model for north Idaho (Leege, T.A. 1984), were used to analyze summer elk habitats. Very little of the analysis area occurs in elk winter range. The analysis of effects for most other species used relative comparisons of resultant effects of each alternative and any past, present, and reasonably foreseeable future actions on the most limiting habitat factors, habitat components, or species sensitivities known relative to the analysis area or larger landscapes as appropriate. Data from the SFLA refer to Ecological Response Units (ERU) that are 13 geographic subdivisions of the South Fork Clearwater Subbasin, each composed of an individual watershed or aggregates of watersheds that help characterize place-specific units and

are a basis for relating to ecological characteristics, processes and functions within the South Fork Subbasin.

The analysis for Canadian lynx followed conservation measures and habitat criteria direction from the Canada Lynx Conservation Assessment and Strategy (LCAS, 2000). Analysis of effects to lynx or their habitat were done by lynx analysis units, as directed by the LCAS. In addition, this EIS incorporates the effects on terrestrial sensitive species (i.e., Biological Evaluation), per direction pertaining to streamlining (Per FSM File Code 2670/1950, August 17, 1995; Streamlining Biological Evaluations and Conclusions for Determining Effects to Listed, Proposed and Sensitive Species).

Table 3.97: Wildlife Species Preliminary Effects Determinations
(Includes Summary BA/BE conclusions)

Primary Status	Species and Status	Guild/ Priority Habitat	A	B	C	D	E
Threatened and Endangered Species	Canada Lynx (T/S)	Early Seral Security	No Impact	May affect, but not likely to adversely affect; May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species			
	Gray Wolf (T/MIS)_	Early Seral Security	Not likely to jeopardize; (no habitat improvement)	Not likely to jeopardize continued existence of the species; would lead to modest improvements in longer term wolf prey habitats related to reduced open road densities			
	Bald Eagle (T/MIS)	Early Seral	May affect, but not likely to adversely..	May affect, but not likely to adversely affect; indirect effects to downstream aquatic habitats			
Sensitive Species	Northern Goshawk (S/MIS)	Late Seral / Old Growth	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species. See Appendix J.			
	Boreal Toad	Aquatic	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species			
	Harlequin Duck	Aquatic	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species			
	Fisher (S/MIS)	Late seral/Old Growth Security	No impacts on old growth; road densities remain unchanged; fire risks to habitat; May impact individuals…	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species; additional fragmentation of landscape habitats			
	Northern leopard frog	Aquatic	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species			
	Wolverine	Security	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species			
	Townsend's bat	Caves	No Impact	No Impact			
	Coeur d' Alene salamander	Aquatic	No Impact	No Impact			
	Flammulated Owl	P. Pine dependant	No Impact	No Impact			

Primary Status	Species and Status	Guild/ Priority Habitat	A	B	C	D	E
	White-headed Woodpecker	P. Pine dependant	No Impact				
	Black-backed Woodpecker	Fire/insect disturbance	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species; some direct habitat losses will occur				
Management Indicator Species	Elk	Fire/Early seral Security	Moderate summer habitat effectiveness; no forage improvement	Improved habitat effectiveness.	Improved habitat effectiveness	Improved habitat effectiveness.	Improved habitat effectiveness
	Shira's Moose	Late seral/Old Growth grand fir/ Pacific yew (MA21)	No significant impacts, but fire risk to MA21 remains unchanged	Minor impacts on MA21; Low fuel reduction levels near MA21	Same as Alt B	Same as Alt B	Same as Alt B
	Pileated woodpecker	Late seral/Old Growth	No measurable impacts; slightly higher fire risks to old growth (OG)	Minor negative impacts; fire risks to OG remain	Similar to B	Highest impacts; fire risks to OG remain	Similar to B
	American Marten	Late seral/Old Growth Security	No impacts on late seral; current open road densities remain unchanged	Modest impacts on late seral; security moderately improved	Modest impacts on late seral; security moderately improved	Highest impacts on late seral; security moderately improved	Low impacts on late seral; security improved at highest level
	Neotropical Migratory Birds (Not MIS; National MOU requires discussion)	P.Pine/Old Growth (priority)	No measurable effects; no direct loss of nesting habitats; fire risks to old growth (OG) remain	Old growth maintained; Low nesting habitat loss; fire risks to OG remain	Similar to B, but higher direct loss of nesting habitat; fire risks to OG remain	Old growth maintained; greatest nesting loss impacts; some fire risks to OG remain	Similar to B; lowest direct loss of nesting habitat; fire risks to OG remain

Status Legend: T = Federally Threatened
S = Regionally sensitive
MIS = Management Indicator Species in Forest Plan

EXISTING CONDITION AND ENVIRONMENTAL EFFECTS

3.11.1. INDICATOR 1 – THREATENED OR ENDANGERED SPECIES

The U.S. Fish & Wildlife Service species listing (File #106.0000 1-4-04 -SP-254, dated March 5, 2004) was used in the draft analysis. Listed or proposed species that may occur on the Nez Perce Forest include gray wolf (endangered /10 J), Canadian lynx (threatened), and bald eagle (threatened). Due to lack of occurrence of the grizzly bear on the Forest, the Fish & Wildlife Service has temporarily released the Forest from analysis requirements, thus grizzly bear and its habitat will not be discussed.

WOLF

EXISTING CONDITION

Wolves were reintroduced into north central Idaho beginning in 1995. Local wolf populations have since multiplied dramatically on the Nez Perce National Forest and throughout the state. Based on most recent monitoring results, north Idaho wolf populations continue to increase to meet or exceed local recovery population goals. A more complete discussion on wolves and their habitat use and conservation needs on the larger landscape scale is available by reference in the South Fork Clearwater River Landscape Assessment, p. 103. Within the analysis area, one new pack denning site was documented in the American River drainage and a newly discovered rendezvous site in the Crooked River drainage was detected by the Nez Perce Tribal Wolf Recovery personnel in the summer of 2003. In September, 2003 a total of at least 5 packs were confirmed on the Red River Ranger District (Sharon Seim, Pers.Com.). Across the landscape of the Nez Perce National Forest, wolf packs are active and thriving (FY2002 Nez Perce National Forest Plan Monitoring & Evaluation Report - Wolf Populations).

There are currently a total of at least 20 active packs in the Central Idaho Wolf Recovery Area. The Wolf Reintroduction Final Rule (Federal Register Nov. 22, 1994) stated that, "when six or more breeding pairs are established in an experimental population area, no land-use restrictions may be employed outside of national parks or national wildlife refuges, unless wolf populations fail to maintain positive growth rates toward population recovery levels for 2 consecutive years". Currently, wolf populations locally are increasing.

Based on most recent Forest Plan populations monitoring and statewide monitoring results, wolf populations are at or exceed recovery levels now. The Red River Ranger District is home to 5 confirmed wolf packs: Red River pack, O'Hara Point pack, Selway pack, Gospel Hump pack, and Magruder pack. Relative to the American-Crooked Salvage proposal, only one known wolf den (south of Lick Point) is known to exist in the analysis area. The nearest harvest unit is just over 2 miles to the east. Though denning and rearing take place in early spring/summer, proximity of the harvest unit and related activities is not expected to interfere with denning or rearing at this location. In addition, the "no land-use restrictions may be employed" provision of the Wolf Reintroduction Final Rule is now applicable to wolves throughout the entire Nez Perce Forest including the project area.

ENVIRONMENTAL EFFECTS

Based on available information, the analysis criteria for wolves and their habitat for this project is relative impact on ungulate prey (elk) habitat potentials. Watershed restoration actions, and post-harvest slash treatments using fire are not expected to negatively impact elk or their habitats to a significant degree regardless of alternative, except that fire use would help cycle plant nutrients back to the soil increasing vigor and nutritive quality of post-burn forage plants. Noxious weeds that could pioneer burned sites would negatively impact elk foraging areas by displacing desirable plants, but this would not be expected to be sufficiently extensive or widespread enough to be of major significance under any alternatives.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

Alternative A would have few direct effects on wolves, but moderately high levels of motorized access in both drainages would continue to limit elk habitat effectiveness and thus quality prey habitat in the short term. Indirectly, as dead lodgepole trees within planned units begin to fall and eventually "jackstraw" increasing fuels buildup, the indirect effect of no action in some areas may

eventually begin to discourage elk and deer prey from using the units because of difficulty of travel and the appearance of these habitats as "entrapment" areas. In the longer term, the no action alternative would increase the probability that untreated sites would add cumulatively to overall fuel loads, increasing total landscape acres of fuel-loading. As a result of fuel continuity, more extensive, stand-replacing fires may become more likely which may eventually put elk hiding cover in short supply (Refer to fire effects analysis for more details).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative A would have relatively little immediate cumulative effect on wolves or their habitats since no habitat-altering impacts would be directly added to the roading, harvesting, human disturbances, and other vegetative impacts imposed by past management. However, indirect effects of tree deaths and unabated fuel buildups, when added to existing cumulative effects would negatively affect wolf prey habitats particularly during post-wildfire recovery.

A preliminary effects determination of "not likely to jeopardize the continued existence of the species or result in destruction or adverse modification of proposed critical habitat" is concluded.

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would directly provide moderate reductions in motorized access in the American River portion of the analysis area, but access would remain essentially unchanged from Alternative A in the Crooked River portion of the area. Prey forage in treated sites would be improved at a comparatively moderate levels relative to other action alternatives. Overall, prey habitat effectiveness would remain slightly improved over Alternative A, except for moderate improvements in the Kirk's Fork elk analysis area. Indirect effects would be similar to, but slightly less impactive than those of Alternative A.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would have moderate immediate cumulative effects because harvests would be directly added to the roading, harvesting, human disturbances, and other vegetative impacts imposed by past management. Longer term cumulative effects may be less impactive than Alternative A because of modest fuel reduction and staged regeneration of harvested areas in the event of eventual wildfires. A preliminary effects determination of "not likely to jeopardize the continued existence of the species or result in destruction or adverse modification of proposed critical habitat" is concluded.

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would directly improve wolf prey habitats to a degree slightly higher than Alternative B, particularly in the American River drainage, but habitat effectiveness would be similar to Alternatives A and B in the Crooked River portion. Indirect effects would be similar to Alternative B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C would have moderately higher immediate cumulative effects than Alternative B because more harvest acres would be directly added to the roading, harvesting, human disturbances, and other vegetative impacts imposed by past management. Longer term cumulative effects may be less impactive because of modest fuel reduction and staged regeneration of harvested areas in the event of eventual wildfires. A preliminary effects

determination of "not likely to jeopardize the continued existence of the species or result in destruction or adverse modification of proposed critical habitat" is concluded.

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D harvests the most and reduces motorized access to the highest levels, thus it does the most to improve wolf prey habitats, particularly in the American River portion of the analysis area. In the Crooked River portions, the overall habitat impact is similar to Alternatives B & C however, due principally to modest levels of motorized access reduction.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D would have the highest immediate cumulative effects because more harvest acres would be directly added to the roading, harvesting, human disturbances, and other vegetative impacts imposed by past management. Longer term cumulative effects may be less impactive because of greatest fuel reduction and staged regeneration of harvested areas in the event of eventual post-harvest wildfires. A preliminary effects determination of "not likely to jeopardize the continued existence of the species or result in destruction or adverse modification of proposed critical habitat" is concluded.

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E would yield the highest overall wolf prey habitat effectiveness principally due to highest levels of motorized access restrictions in both drainages, although actual harvest and ungulate forage treatment acres are lowest of any action alternative. Indirect effects would be similar to but less than those of Alternative B. Post-harvest indirect wildfire risks would be similar to and between Alternatives A and B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E would be less than and to a lower overall degree than with Alternative B.

COMMON TO ALL ALTERNATIVES

All alternatives support conditions necessary to maintain local wolf subpopulation viability (See Habitat-based Terrestrial Vertebrate Populations Viability related to the American/Crooked River Salvage Project, in project files).

LYNX

EXISTING CONDITION

Canada lynx have been federally listed as a threatened species and is also a Region 1 sensitive species. Although lynx have sometimes been portrayed as a late-successional forest species, lynx appear to be more closely associated with a mosaic of late- and early-successional stages (Roloff, G. 1995).

No formal surveys for actual lynx occupation on the Forest or the analysis area have been completed to date, but confirmed reports and unconfirmed sightings of lynx presence have been documented within the Forest boundary. Lynx analysis unit (LAU) delineations and habitat mapping actions directed by the Canada Lynx Conservation Assessment and Strategy (LCAS, 2000), have been completed for the entire Forest including the project area.

Most of the American and Crooked river project analysis area contains no designated lynx habitats (refer to the updated lynx habitat map dated January, 2004). However, the overall project analysis area does partially overlap portions of two large lynx analysis units (LAUs #3020306 and #3050401) that may be partially affected by some of the harvest units or project actions.

Table 3.98: The no action (Alternative A) habitat conditions and acreage within these LAUs are listed below:

LAU	% Denning	% Foraging	% Unsuitable	Total Habitat Acres	Drainage
3020306	18	81	1	19763	American
3050401	27	72	1	25421	Crooked

The South Fork Clearwater River Landscape Assessment management theme for both American and Crooked River drainages proposes to "produce early seral habitat" as a very high priority, and identifies treatment objectives which include "creating forest openings by fire or timber harvest". From the perspective of the landscape assessment, the goal to benefit lynx habitat would be to "create dense stands of deciduous brush and young conifers, attractive to snowshoe hare". Despite substantial past harvesting in the analysis area, advanced regeneration of trees and cover in plantations has maintained habitat connectivity and travel corridors as defined for lynx in the analysis area. Habitat management for lynx primarily addresses maintenance or improvement of vegetation structure for lynx and their prey.

Lynx are considered relatively tolerant of human presence and activities. Preliminary information (from the Lynx Conservation Assessment & Strategy (2000), page 7-10), suggests that lynx may not avoid roads, except at high traffic volumes. Therefore, at this time, there is little compelling evidence to recommend management of road density to conserve lynx.

Several important landscape vegetation limitations must be followed when conducting timber harvest and fuel reduction actions in designated lynx habitats in order to comply with measures in the Lynx Conservation Assessment and Strategy, 2000 (LCAS). LAUs must maintain at least 10 percent denning habitat, unsuitable acres created cannot exceed the total 30 percent maximum threshold, and no more than 15 percent of the suitable habitat can be converted to unsuitable within a decade.

Both LAUs within the project area currently hold more than 10 percent denning habitat and neither LAU is near the 30 percent maximum unsuitable habitat threshold. For this reason, since denning habitat is relatively abundant, and unsuitable habitat acres (before planned harvest), are well below LCAS thresholds, there is ample opportunity for creation of lynx foraging habitat while staying within all LCAS guidelines. The analysis criteria for lynx and their habitats will be relative amounts of suitable condition lynx habitats that are converted to early seral foraging habitat condition while meeting all LCAS measures.

ENVIRONMENTAL EFFECTS

The analysis criteria for lynx will be related to desirable acres of mature forest within designated lynx habitats converted to early seral foraging habitat for lynx. None of the alternatives treats sizeable amounts of designated lynx habitats or converts significant acres to foraging habitats. Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact lynx or their habitats to a significant degree regardless of alternative, because of the limited extent and habitat impact in the analysis area. A summary of effects on designated lynx habitat by alternative is listed below**:**

Table 3.99 – Summary of Effects on LAU 3020306

LAU 3020306	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
% denning retained	18	18	17.9	17.9	17.9
% converted to early seral	0	0.09	0.09	0.09	0.09

Table 3.100 – Summary of Effects on LAU 3050401

LAU 3050401	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
% denning retained	27	26.5	26.6	26.4	26.4
% converted to early seral	0	2.9	2.6	2.9	2.9

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

The no action alternative neither affects lynx directly, nor converts any acres to early seral habitat. This alternative will have relatively little if any indirect effects on lynx or their habitats. With no action, early seral stages will continue succeeding to older stages and fire risks will increase. Eighteen percent and 27 percent denning habitat are maintained in LAUs 3020306 and 3050401 respectively , well above the 10 percent required minimum cited in the Lynx Conservation Assessment and Strategy (LCAS).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The No Action Alternative will not add any measurable cumulative effects to lynx or their habitats since no habitat-altering impacts will be added to the roading, harvesting, human travel disturbances, and other vegetative impacts imposed by past and present management. Harvest activities and related project work inside very small amounts of designated habitat would add additionally to human disturbance potential in the area which could disturb lynx, but the predicted impacts to lynx, if present, would not be considered significant. This alternative meets all LCAS measures. The sensitive species determination for lynx would be “no impact”.

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B harvests within 5 acres of lynx denning habitat and 14 acres of lynx foraging habitat, converting less than 0.1 percent of the suitable habitat in LAU 3020306 to unsuitable. In LAU 3050401, 147 acres of denning and 626 acres of foraging habitat are harvested converting 2.9 percent of the lynx habitat to unsuitable. Substantially more than the minimum 10 percent denning habitat is maintained in both LAUs. The alternative does relatively little indirectly to improve lynx habitat. All conservation measures cited in the LCAS are met.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Relatively minimal acres of designated lynx habitat are impacted by this alternative. Given the current condition of the habitat due to past fire impacts, harvests, roading, human disturbance, motorized travel and other land-disturbing activities, this alternative adds few positive or negative effects cumulatively to the habitat conditions for lynx.

The sensitive species determination for lynx would be “may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species”. A preliminary determination of effect for lynx as a listed species would be “may affect, but not likely to adversely affect”.

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would harvest 5 acres of denning and 14 acres of foraging habitat in LAU 3020306, converting about 0.09 percent to unsuitable. In LAU 3050401, 110 acres of denning and 577 acres of foraging habitat would be harvested converting less than 3 percent to unsuitable. Substantially more than the 10 percent minimum denning habitat would be maintained in both LAUs. The alternative does relatively little indirectly to improve lynx habitat. All conservation measured cited in the LCAS are met.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Relatively minimal acres of designated lynx habitat are impacted by this alternative. Given the current condition of the habitat due to past fire impacts, harvests, roading, human disturbance, motorized travel and other land-disturbing activities, this alternative adds few positive or negative effects cumulatively to the habitat conditions for lynx.

The sensitive species determination for lynx would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species". A preliminary determination of effect for lynx as a listed species would be "may affect, but not likely to adversely affect".

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D would harvest 5 acres of denning and 14 acres of foraging habitat in LAU 3020306, converting 0.09 percent of the habitat to unsuitable. In LAU 3050401, 148 acres of denning and 626 acres of foraging habitat would be harvested converting a little over 2.9 percent to unsuitable. More than the 10 percent minimum denning habitat would be maintained in both LAUs. The alternative matches Alternatives B&E to treat modestly more than other alternatives indirectly to improve lynx habitat. All conservation measured cited in the LCAS are met.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D (along with alternatives B&E) convert the most acres to early seral foraging habitat for lynx. Nevertheless, relatively limited acres of designated lynx habitat are impacted by this alternative despite having the greatest effects to habitats. Given the current condition of the habitat due to past fire impacts, harvests, roading, human disturbance, motorized travel and other land-disturbing activities, this alternative adds minor negative effects and the greatest positive effects cumulatively to the habitat conditions for lynx.

The sensitive species determination for lynx would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species". A preliminary determination of effect for lynx as a listed species would be "may affect, but not likely to adversely affect".

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E harvests within 5 acres of lynx denning habitat and 14 acres of lynx foraging habitat, converting 0.09 percent of the suitable habitat in LAU 3020306 to unsuitable. In LAU 3050401, 148 acres of denning and 626 acres of foraging habitat are harvested converting nearly 3 percent of the lynx habitat to unsuitable. Substantially more than minimum denning habitat is maintained in both LAUs. This alternative (as well as alternatives D &B) does modestly more than other action

alternatives to indirectly improve lynx habitat. All conservation measured cited in the LCAS are met.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Relatively minimal acres of designated lynx habitat are impacted by this alternative. Given the current condition of the habitat due to past fire impacts, harvests, roading, human disturbance, motorized travel and other land-disturbing activities, this alternative adds the fewest positive or negative effects cumulatively to the habitat conditions for lynx.

BALD EAGLE

EXISTING CONDITION

No bald eagle nesting is known to take place anywhere on the Nez Perce Forest or within the South Fork Clearwater River subbasin. Bald eagles use the major river corridors at lower elevations of the Nez Perce Forest primarily during winter or early spring. Most South Fork Clearwater River eagles use the lower elevations from Mill Creek to Lightning Creek due to availability of ungulate carcasses there and relatively ice-free river conditions during winter. Sites most commonly used are at least 20 miles DOWNSTREAM FROM THE ANALYSIS AREA. IF AVAILABLE, bald eagles will also use fish and waterfowl on wintering areas. Due to ice-up of the South Fork Clearwater river at higher elevations in winter and lack of fish and waterfowl availability, relatively little or no use of the analysis area drainages occurs by bald eagles during most winters. A more complete discussion of bald eagle ecology and use of the Forest is referenced in the South Fork Clearwater River Landscape Assessment, pages 102-103.

Forest Plan monitoring of bald eagle populations over nearly 20 years indicates the local population trends on the Forest are stable or slightly increasing (FY2002 Nez Perce National Forest Plan Monitoring & Evaluation Report Draft - Bald Eagle Populations).

ENVIRONMENTAL EFFECTS

There are no lakes in the analysis area large enough to support bald eagles. There are no known concentrated feeding or roosting sites in the analysis area. Bald eagles are regularly seen perched along the South Fork Clearwater River during the winter season. Bald eagles principally utilize ungulate carrion during winter occupation of the major river corridors on the Forest. Increasing and maintaining early seral habitat conditions on ungulate winter ranges is a high priority however very little winter range occurs within the project area. Based on winter use patterns of bald eagles on the Forest, to be effective, winter range improvements which may benefit eagles need to take place at elevations well below and downstream from the analysis area. For this reason, there is relatively little direct relationship between planned activities in American or Crooked River drainages and bald eagles or their habitats. Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact bald eagles or their habitats to a significant degree regardless of alternative, because of the extent and habitat impact in the analysis area.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

This alternative will have no direct and few indirect effects on bald eagles or their habitats. Indirect risks of high intensity, broad scale fires due to fuel-loading and high intensity fires will remain which could indirectly impact downstream water quality and fish habitats however.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

No direct, habitat-altering impacts will be added to the roading, harvesting, human disturbances, and other vegetative changes imposed by past management. Cumulative effects would only include potential indirect effects to downstream water quality and habitats of fish prey related to future risks from eventual fires.

A preliminary determination of effect for bald eagle as a listed species would be "may affect, but not likely to adversely affect

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would have no direct impacts on bald eagles or their habitats. Downstream changes in water quality in the South Fork Clearwater River due to harvests, restoration actions, roads and other actions would have relatively minimal impact on bald eagle foraging habitats.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The indirect and cumulative effects of planned activities on water quality and fish habitats downstream from the analysis area are expected to impose only minor, limited cumulative impacts on foraging habitats (i.e., potential secondary winter food sources -anadromous fishes), but the magnitude of these impacts are considered very limited.

A preliminary determination of effect for bald eagle as a listed species would be, "may affect, but not likely to adversely affect".

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would have no direct impacts on bald eagles or their habitats. Downstream changes in water quality in the South Fork Clearwater River due to harvests, restoration actions, roads and other actions would have relatively minimal impact on bald eagle foraging habitats

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The indirect and cumulative effects of planned activities on water quality and fish habitats downstream from the analysis area are expected to bear minor, limited cumulative impacts on foraging habitats (i.e., potential secondary winter food sources such as anadromous fishes), but the magnitude of these impacts are considered very minor.

A preliminary determination of effect for bald eagle as a listed species would be, "may affect, but not likely to adversely affect".

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D would have no direct impacts on bald eagles or their habitats. Downstream changes in water quality in the South Fork Clearwater River due to harvests, restoration actions, roads and other actions would be the highest of all alternatives, but would bear relatively minimal impact on bald eagle foraging habitats

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The indirect and cumulative effects of planned activities on water quality and fish habitats downstream from the analysis area are expected to bear minor, limited cumulative impacts on

foraging habitats (i.e., potential secondary winter food sources -anadromous fishes), but the magnitude of these impacts are considered very minor.

A preliminary determination of effect for bald eagle as a listed species would be, "may affect, but not likely to adversely affect".

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E would have no direct impacts on bald eagles or their habitats. Downstream changes in water quality in the South Fork Clearwater River due to harvests, restoration actions, roads and other actions would have the least of all action alternatives which would bear minimal impact on bald eagle foraging habitats.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The indirect and cumulative effects of planned activities on water quality and fish habitats downstream from the analysis area are expected to bear minor, limited cumulative impacts on foraging habitats (i.e., potential secondary winter food sources -anadromous fishes), but the magnitude of these impacts are considered very minor.

A preliminary determination of effect for bald eagle as a listed species would be, "may affect, but not likely to adversely affect".

3.11.2. INDICATOR 2 - SENSITIVE SPECIES

FLAMMULATED OWL

EXISTING CONDITION

Flammulated owls are very small, secretive owls that are widely distributed in western North America. They migrate seasonally to and from the tropics but return to North America during breeding season. They feed on aerial insects (moths, beetles, & grasshoppers principally) and are restricted to forests of mid and large sized trees. Flammulated owls prefer ponderosa pine and/or Douglas-fir forests and the insectivorous prey available in the more open, grass/forb/shrub subcanopy layers in the understory.

High quality flammulated owl habitat is nonexistent within the American River Ecological Response Unit (ERU). Flammulated owl habitat is extremely limited in its extent (an estimated 161 acres) within the Crooked River ERU (SFLA Wildlife Technical Report, Table #1 – Flammulated owl). Habitat for flammulated owls within Crooked River ERU is highly isolated and is not considered extensive enough to support a distinct breeding population. The very limited extent and lack of connectedness of these small patches to other habitat patches on the Forest, essentially preclude managing it for this species to any meaningful degree within the Crooked River drainage (South Fork Clearwater River Landscape Assessment Wildlife Technical Report).

ENVIRONMENTAL EFFECTS

Environmental Effects - No alternatives directly or indirectly impact low elevation stands of ponderosa pine that may be considered flammulated owl habitat. While individual ponderosa pine trees within some mixed conifer stands or individual dead/dying pines along haul routes may be harvested, these components are not part of lower elevation pine stands suitable in elevation for this owl. No significant indirect or cumulative negative effects of the project have been identified relative to this bird or its habitats. For this reason, no impacts are projected for flammulated owls under any alternative and they will not be analyzed or discussed further in this document. The

sensitive species determination for flammulated owl would be " no impact" for all alternatives. None of the project alternatives negatively affect conditions necessary for species viability (See Habitat-based Terrestrial Vertebrate Populations Viability related to the American/Crooked River Salvage Project, in project files).

WHITE-HEADED WOODPECKER

EXISTING CONDITION

White-headed woodpeckers range from southern British Columbia to southern California and western Nevada. Their preferred habitat is characterized by open-grown, fire-climax, mature to old growth ponderosa pine, but mixed ponderosa pine/Douglas-fir forests are also used where pure stands of ponderosa pine are absent. Across the larger landscape, white-headed woodpeckers are not considered to be regular residents anywhere within American River, Crooked River drainages or even within the larger landscape of the South Fork Clearwater River subbasin. High quality white-headed woodpecker habitat is nonexistent within the American River ERU. It is extremely limited in its extent within the Crooked River ERU (Table #1 – SFLA Wildlife Technical Report – White-headed woodpecker). Habitat for white-headed woodpecker within Crooked River ERU is highly isolated and is not considered extensive enough to support a distinct breeding population. The very limited extent and lack of connectedness of these small patches to other habitat patches on the Forest, essentially preclude managing it for this species to any meaningful degree within the Crooked River drainage (South Fork Clearwater River Landscape Assessment Wildlife Technical Report – White-headed woodpecker).

ENVIRONMENTAL EFFECTS

No white-headed woodpeckers have been observed or otherwise reported from within either the American or Crooked River drainages to date. Low elevation Ponderosa pine is not planned for harvest as part of the project objectives. While restoration of fire dependent conifer species (i.e. ponderosa pine) is a secondary part of the overall strategy of the project in mixed conifer stands, these treatments will have no impact on white-headed habitats. Individual dead or dying ponderosa pine which may be harvested from along haul routes would be considered components of "mixed conifer" stands, and do not constitute ponderosa pine habitat types. No significant direct, indirect or cumulative negative effects have been identified for any alternative relative to this bird or its habitats. For this reason, no impacts are predicted for white-headed woodpecker under any alternative, thus white-headed woodpecker will not be analyzed or discussed further in this document. Further, the project does not negatively affect habitat conditions necessary to maintain local subpopulations viability (See Habitat-based Terrestrial Vertebrate Populations Viability related to the American/Crooked River Salvage Project, in project files).

BOREAL TOAD

EXISTING CONDITION

Across its range the boreal toad is generally found near some form of water and inhabits a variety of habitats from sagebrush desert to montane meadows. Boreal toads are relatively uncommon throughout Idaho and Montana. Global amphibian declines and similarly timed region-wide declines in this species have occurred in recent years and the causes are likely related, but a complete explanation of population decline causes are not completely certain. Substantial local evidence from Montana suggests that the Chytrid fungus (Batrachochytrium dendrobatidis), acting alone or synergistically with other stressors, is a potential cause and should be regarded as a threat (Maxell, B.A., et. al. tech. paper 2003). Available information is limited concerning the

abundance and distribution of boreal toads within the South Fork Clearwater River subbasin or the analysis area.

At the larger scale, most reports of habitat occupation by boreal toads within the South Fork Clearwater River subbasin have been at considerably lower elevations and in warmer, dryer habitat types than any of those within the analysis area. A 1997 amphibian survey along American River (above and below Mane's Place), found no boreal toads. Likewise, harvest-site pre-project surveys in 2003 revealed spotted frogs in wet areas commonly, but no boreal toads were observed, which indicates that boreal toad occupation of the analysis area is rare or extremely limited at best. However, two lone observations of boreal toads were reported on dryer upland locations near Elk City during May of 2001 by a Forest Service biologist (Seim, S. 2002 Persons.). Implementation of PACFISH riparian habitat protection standards has aided protection of potential breeding habitats for this toad throughout the project area.

ENVIRONMENTAL EFFECTS

The analysis criteria for the boreal toad will be relative impacts on aquatic habitats, since these are considered key to reproduction. Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact boreal toads or their most important habitats to a significant degree regardless of alternative, because of riparian breeding habitat protections designed for fish species.

While aquatic environments are key to toad reproduction, boreal toads may travel through and occupy upland habitats during warmer portions of the year. Research and other information is very limited about the kinds of upland habitats preferred by this toad or how it uses them. Likewise, little is known allowing project design or mitigation to eliminate all potential risks to these toads when using upland habitats. Harvest and ground-disturbing activities occurring during spring or summer would likely expose them to marginal risks of direct harm, since they retreat from activity, hibernating in soft mud or other protected sites during cold seasons. Due to this information gap, the effects of management actions on boreal toad occupation of upland habitats remains a matter of relative uncertainty. However, based on their probable absence from the project area, these risks are considered negligible.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

This alternative would have no measurable direct or indirect effects on boreal toads or their aquatic breeding habitats.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The no action alternative would have no cumulative effects on the toad or its habitat cumulative to past harvest, roading, human disturbance, recreation, minerals or other activities.

The sensitive species determination for boreal toads would be "no impact".

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B modifies no riparian habitat conservation areas directly, thus no direct impacts to toads or their breeding sites are predicted. Alternative B treats 2550 upland acres, which may place toads at some indirect risk for harm to individuals that may be present, including minor potential indirect impacts on riparian habitat conditions from changes due to off-site generated silt and water quality impacts.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would have limited, indirect cumulative effects on riparian breeding habitats in addition to those produced from past harvest, roading, mining, public access, fire exclusion and other habitat impacts.

The sensitive species determination for boreal toads would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C modifies no riparian habitat conservation areas directly, thus no direct impacts to toads or their breeding sites are predicted. Alternative C treats 2,773 upland acres, which may place toads at some indirect risk for harm to individuals that may be present, including minor potential indirect impacts on riparian habitat conditions from changes due to off-site generated silt and water quality impacts.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C would have limited, indirect cumulative effects on riparian breeding habitats similar to Alternative B, in addition to those produced from past harvest, roading, mining, public access, fire exclusion and other habitat impacts.

The sensitive species determination for boreal toads would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D modifies no riparian habitat conservation areas directly, thus no direct impacts to toads or their breeding sites are predicted. Alternative D treats the highest amount (3,402 upland acres), which may place toads at slightly higher indirect risk for harm to individuals that may be present, including minor potential indirect impacts on riparian habitat conditions from changes due to off-site generated silt and water quality impacts.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D would have the greatest limited, indirect cumulative effects on riparian breeding habitats of all alternatives in addition to those produced from past harvest, roading, mining, public access, fire exclusion and other habitat impacts.

The sensitive species determination for boreal toads would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E modifies no riparian habitat conservation areas directly, thus no direct impacts to toads or their breeding sites are predicted. Alternative E treats the lowest amount (2,082 upland acres), which may place toads at slightly lower indirect risk for harm to individuals that may be present, including minor potential indirect impacts on riparian habitat conditions from changes due to off-site generated silt and water quality impacts.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E would have the lowest limited, indirect cumulative effects on riparian breeding habitats of all action alternatives in addition to those produced from past harvest, roading, mining, public access, fire exclusion and other habitat impacts.

The sensitive species determination for boreal toads would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

NORTHERN LEOPARD FROG

EXISTING CONDITION

The northern leopard frog has not been reported from the Nez Perce National Forest in recent times and based on Idaho Dept. of Fish & Game records, does not occur within the north central portion of the state (Idaho Dept. of Fish & Game Nongame Program, Idaho's Amphibians and Reptiles, Nongame Wildlife Leaflet #7, Boise, Idaho). A 1997 amphibian survey along American River (above and below Mane's Place), found only spotted frogs. In addition, no amphibian surveys conducted anywhere on the Nez Perce Forest have ever yielded evidence of occupation by Northern leopard frogs. Global amphibian declines and region-wide declines in this species have occurred in recent years but causes are not completely certain. Substantial evidence from Montana suggests that the Chytrid fungus (Batrachochytrium dendrobatidis), acting alone or synergistically with other stressors, is a potential cause and should be regarded as a threat (Maxell, B.A., et. al., tech. paper 2003).

ENVIRONMENTAL EFFECTS

For reasons and rationale stated above, the project activities are expected to produce no direct, indirect, or cumulative impacts on the Northern leopard frog or any occupied habitats in the analysis area, thus the northern leopard frog will not be analyzed or discussed further in this document.

LYNX - (REFER TO THE ANALYSIS SECTION FOR LYNX AS A FEDERALLY LISTED SPECIES).

NORTHERN GOSHAWK

EXISTING CONDITION

In Idaho, goshawks are typically found in montane coniferous forest, where they occupy relatively large home ranges. Mature to old growth timber stands are their favored nesting habitat. In northern Idaho and western Montana, goshawks nest in stands or groups of trees in the mature to over-mature age classes principally on the mid to lower 1/3 of slopes. Douglas fir and Western larch are preferred nest tree species (Hayward & Escano, 1989).

Data from the SFLA is referenced to gain broader scale perspective on habitat availability within and around the project analysis area. Within the larger landscape of the South Fork Clearwater River subbasin, closed canopy old growth comprises some 24 percent of the subbasin coniferous forests, but historically this habitat would likely have accounted for only about 15 percent of the same area (USDA, Nez Perce National Forest – SFLA, p. 104, 1998). Within the American and Crooked River ERUs, age class distributions are currently more favorable to goshawk habitats than historically. The current (1997) amount of goshawk habitat is more prevalent than it was historically. In American River ERU, there is currently 205 percent as much suitable habitat as

historically. In the Crooked River ERU, there is currently 179 percent of historic amounts (USDA, Nez Perce National Forest; South Fork Clearwater River Landscape Assessment 1998 – Wildlife Technical Report, Northern Goshawk, Table #3).

Current conditions of stands in the analysis area reflect more than 80 years of fire suppression. In the absence of fire, conifer densities have increased substantially over pre-settlement times. As a result, goshawk habitat is more prevalent in the analysis area now than historically. A more complete discussion of goshawks and their preferred habitats is hereby referenced in the South Fork Clearwater River Landscape Assessment – Wildlife Technical Report – Northern Goshawk, (1998). While overall, habitat important to goshawk nesting is more prevalent now in the American and Crooked river drainages, the distribution and connectivity of late seral and old growth stands is somewhat less effective due principally to past harvest and fire disturbance. Habitat in the American River drainage is somewhat less impacted and fragmented by past timber harvest than the Crooked river drainage.

Goshawks are relatively common and widely distributed across the Nez Perce National Forest. Based on populations monitoring information, there are currently at least a dozen known goshawk nest territories (14 known nests) widely distributed throughout the Nez Perce National Forest (See Forestwide Sightings and Next Locations for Goshawk, project files). Based on formal populations monitoring results, widely scattered incidental sightings, and inventoried habitat information, local goshawk population trends remain relatively stable on the Forest (NPNF 15th Annual Monitoring & Evaluation Report Draft for 2002 ;Northern goshawk monitoring data - Item 10 Population Trends of Indicator Species , Nez Perce National Forest, 2003).

To avoid attracting nest predators, goshawks tend to remain relatively inconspicuous prior to and during early phases of nesting. As a result, active nest sites are difficult and very costly in time and resources to locate. Locating all alternate nests within a given pair's nesting territory may take five or more years of intensive, focused surveys, because each pair of goshawks typically alternate nest use from year to year to avoid chick predation by fishers, great-horned owls, and other predators. Two to as many as nine alternate nests may be used in each nesting territory by a given goshawk pair (Woodbridge, B. and Detrich, P.J. 1994). Pre-project field surveys of timber stands, watershed conditions, and other resources by several crews of resource specialists during the goshawk nesting & survey season of 2003 have provided goshawk presence information from the American and Crooked Project area (See American/Crooked Project Wildlife Observations Table – in project file). Based on the pattern observed from similar, nearby habitat areas on the Forest (i.e., Cove-Mallard Timber Sales), reports of goshawk sightings and discovery of their nest locations characteristically become more common as more intensive field work is done in an area.

No goshawk nests are known to occur within the analysis area currently, however four goshawk sightings (1 in American drainage; 3 in Crooked River drainage), were recorded during pre-project field surveys by the Forest Wildlife Biologist and others (See American/Crooked Project Wildlife Observations Table – in project file). Prior to these, one sighting in the Red River drainage (east of Crooked River drainage) was reported by Jim White (Idaho Dept. of Fish & Game Biologist). Several planned harvest units (# 39, 47, & 75 in Alternatives B,C,D, & E; and 49 and 141 in Alternatives C & D), occur within 1 mile of at least one of these sightings. Goshawk sightings during June, July or August may indicate possibility of nest presence in the local vicinity. In the event active nests are discovered during project implementation within or immediately adjacent to planned harvest units, project nest site mitigation will protect nest trees and surrounding areas of 10-15 acres in size from harvest.

The Habitat Conservation Assessment (HCA) and Strategy (CS) for the Northern goshawk (Accipiter gentilis) in Idaho (1995, page 3) cites that goshawks tend to use stand clusters greater than 61 ha (150 acres), dramatically higher than clusters less than 20 ha (50 acres) in size. Given

goshawk's preference for largest patch and stand clusters as nest habitat, all existing old growth stands as well as replacement old growth stands in most immediate adjacency to, or those forming connections with existing old growth were selected for designated protection from harvest in the project area.

Regional differences exist over best management measures for goshawk habitats in various Forest Service regions, and are driven by responsible opposing viewpoints. Habitat management direction for the goshawk as such, has become region-specific in the western U.S. The USFS Southwest Region (R3) adopted goshawk nest site guidelines, which manage 2428 ha (6000 acre) areas around each nest site. These guidelines are designed to maintain goshawk populations in warmer, dryer, less dense forests of the southwestern U.S., where subtle changes in forest structure can dramatically influence prey densities and hunting capability. In southwestern forests, dominant portions of the entire landscapes (including goshawk foraging habitats), have sometimes been blanketed with partial harvesting, impacting habitat quality by leaving proportionately low amounts of residual basal area of living trees (Crocker-Bedford, D.C., 1990). In dryer, less productive habitats, limited residual canopy cover over the majority of habitat area can quickly become limiting for goshawks for multiple reasons. Subsequent young tree and understory shrub regrowth in such circumstances can impact prey productivity and impede goshawk hunting effectiveness. Open canopies also encourage competing hawks and other predators. Highly productive riparian areas are considerably less common in the southwest than in the Northern Rockies, thus are proportionately more valued for goshawks in southwestern forest landscapes of Region 3. West-side forests of USFS Region 1 have proportionately more moist, productive riparian zones.

Some of the most intensively researched goshawk habitat work has been done in the dryer southwestern U.S. Much of the data suggests that extensive harvesting and canopy density reduction in the home range beyond the nest stand can negatively change nesting and hunting habitat structure resulting in reduced hunting effectiveness of goshawks, altered prey availability, and increased competition or predation by other raptors which result in nest losses and local declines in goshawk populations. Currently, no guidelines for goshawk nest and habitat protection similar to those for the southwestern USFS Region 3 have been adopted within USFS Region 1, or the American-Crooked project. The Nez Perce Forest is highly dissected, being considerably more abundant in rich, prey-productive riparian zones, and likewise has inherent canopy densities considerably higher than the dryer forests of the southwest. In addition, ESA protections of all fish-bearing riparian zones (ie., PACFISH) further provide numerous indirect acres of goshawk foraging habitat protection in the American and Crooked River project area.

The major differences in forest types, habitat productivities, availability of productive riparian zones, goshawk prey sizes and prey species abundance between the contrasting precipitation and climate of the two regions alone, suggest that cross-region application of the "Management Recommendations for the Northern Goshawk in the Southwestern United States" (MRNG) guidelines cannot be justified for use in the American and Crooked River Project. This becomes particularly important given the extent of the current mountain pine beetle infestation and quickly diminishing live canopy cover in the American-Crooked analysis area. Since most lodgepole pines over 6 inches in diameter are now dead or are predicted to be dead or near death within very few years thus removing most live canopy across thousands of acres in the analysis area, harvesting some lodgepole pine stands will likely cause little measurable harm to goshawk foraging habitats around any nests, and may potentially help reduce fuel levels in local areas which may help reduce eventual fire intensities that can threaten important old growth stands.

A scientific committee review of key literature related to goshawk habitat management in the southwest (Reynolds, R.T., Boyce, D.A., Graham, R.T. and Reiser, H., 2001) also concluded that goshawk home ranges should contain a balance of forest age classes or vegetation structural

stages so that goshawk and prey habitats were always available within a home range. Forest Plan standards for retention and protection of existing and replacement old growth will be met under all alternatives, thus the most critical goshawk habitats will be maintained to help ensure long term viability of local populations.

Timber harvesting at or very near goshawk nest sites can directly disturb or displace birds, potentially impacting nest success and future nesting. Reynolds (1983) recommended protection of nest sites from harvest through retention of an 8 ha (20 acre) uncut habitat around 2 active and 2 replacement nest sites per goshawk pair. All existing old growth and numerous acres of strategically selected replacement stands have been protected in the American and Crooked River Project to ensure that Forest Plan standards are met or exceeded. Most trees harvested would be dead or dying lodgepole pine in intermediate size classes. Some larger trees (various species), in mixed conifer stands outside of designated old growth are planned for harvest in all action alternatives, but these would leave and perpetuate key fire-related, goshawk-preferred nest species (larch, Douglas fir), which would remain intact and may contribute as potential future nest trees.

All action alternatives of the American-Crooked Salvage project implement general conservation strategies from the goshawk Habitat Conservation Assessment and Conservation Strategy for Idaho. Protection of nest sites and surrounding forest vegetative conditions is done principally through nest site mitigation. All action alternatives will provide protection for a 10-15 acre, no-harvest buffer around each active nest discovered (see wildlife mitigations section) . No additional mitigations are deemed necessary to maintain goshawk population viability in the project area because suitable habitat is 205 percent and 179 percent of historical amounts in American and Crooked drainages respectively (USDA, Nez Perce National Forest; South Fork Clearwater River Landscape Assessment 1998 – Wildlife Technical Report, Northern Goshawk, Table #3).

ENVIRONMENTAL EFFECTS

Harvest sites have been designed to avoid the broader, old-growth rich areas best suited for goshawk nesting within the analysis area in all action alternatives. If an active nest is encountered unexpectedly during harvest, a 10-15 acre no-harvest buffer will be placed around it to protect the active nest and surrounding habitat. Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact goshawks or their habitats to a significant degree regardless of alternative. Roadside salvage of dead/dying trees along haul routes is predicted to have no impacts on goshawk nest habitats in any alternative since goshawks generally avoid high disturbance sites and typically require live tree canopies for nesting. Since canopy densities of the majority of lodgepole pine-dominated stands in the analysis area are either dead or dying due to natural mortality from mountain pine beetles, the analysis criteria for goshawks and their habitat for this project is relative amount and intensity of harvest impact on old growth stands or mature, predominantly mixed conifer stands. Harvest units in all action alternatives have an estimated content of mixed conifer species averaging approximately 30-35 percent. Alternatives with highest harvest acreages would yield the highest relative impacts.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

No direct effects to old growth stands, replacement old growth stands or any mixed conifer stands will occur, thus existing old growth habitat patch sizes and connectivity will be maintained. As a result of indirect effects from continued fuel buildups, lethal, stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (Refer to fire effects analysis for additional details).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The no action alternative would not further contribute to harvest-related fragmentation and/or losses of existing or replacement old-growth habitat stands. As a result of widespread, cumulative fuels buildup, lethal, stand-replacing fires will become more prevalent with attendant risks to old growth habitats (refer to fire effects analysis for additional details). Due to a measure of uncertainty in estimating intensity future fire risks to limited habitat conditions considered important for goshawk nesting, the sensitive species determination for goshawk would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would harvest 2,550 acres, directly impacting patches of mature mixed conifer habitats, but would produce no direct effects to existing old growth stands, patch sizes. Old growth habitat connectivity would remain consistent within historical patterns by retention of riparian corridors and replacement old growth. Important replacement old growth stands would also be protected from harvest. Relatively moderate levels of harvest of mixed conifers will be harvested. As a result of indirect effects from continued fuel buildups over much of the analysis area, lethal, stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (refer to fire effects analysis for additional details).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would contribute modestly to harvest-related fragmentation, adding to cumulative landscape fragmentation, increased openings, and human disturbance risks from previous harvests, roading, fire exclusion and other human activities. As a result of widespread, cumulative fuels buildup in surrounding landscapes, lethal, stand-replacing fires would become more prevalent with attendant risks to late seral and old growth habitats (refer to fire effects analysis for additional details).

The sensitive species determination for goshawk would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would harvest 2,773 acres, directly impacting some patches of mature mixed conifer habitats, but would produce no direct effects to any existing old growth stands. Old growth habitat connectivity would remain consistent within historical patterns by retention of riparian corridors and replacement old growth. Important replacement old growth stands would be protected from harvest. Relatively moderate levels of mixed conifer harvest of will occur. As a result of indirect effects from widespread, cumulative fuel buildups over much of the analysis area, lethal, stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (refer to fire effects analysis for additional details).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C cumulative effects would be slightly greater than, but similar to those of Alternative B.

The sensitive species determination for goshawk would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D would harvest the greatest acreage (3,402 acres). It would directly impact some patches of mature mixed conifer habitats, but would produce no direct effects to any existing old growth stands. Important replacement old growth stands would be protected from harvest. Old growth habitat connectivity would remain consistent within historical patterns by retention of riparian corridors and replacement old growth. The highest levels of mixed conifer harvest of will occur. As a result of indirect effects from widespread, cumulative fuel buildups over much of the analysis area, lethal, stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (refer to fire effects analysis for additional details).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D would contribute the most to harvest-related fragmentation, adding to cumulative landscape fragmentation, increased openings, and human disturbance risks from previous harvests, roading, fire exclusion and other human activities. As a result of widespread, cumulative fuels buildup, lethal, stand-replacing fires would become more prevalent with attendant risks to late seral and old growth habitats (refer to fire effects analysis for additional details).

The sensitive species determination for goshawk would be “may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species”.

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E would harvest the least of any action alternative (2,082 acres) . Direct and indirect impacts would be less than but similar to those of Alternative B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E cumulative effects would be less than but similar to those of Alternative B.

The sensitive species determination for goshawk would be “may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species”.

WOLVERINE

EXISTING CONDITION

The wolverine is an uncommon, wide-ranging carnivore that typically occurs at low densities across its range. Home ranges average approximately 100,000 acres. Within the western U.S., they occur principally in remote, high-elevation mountain basins and cirques, particularly during the breeding season (Rowland, M.M, teal. 2003). The Conservation Strategy for Wolverine (Gulo gulo) in Idaho (Copeland and Hudak, 1995), defined wolverine habitat as areas associated with a component of seclusion or separation from human influence. Wolverines are relatively intolerant of human disturbance requiring large tracts of remote mountainous habitat (Hornocker & Hash 1981). Habitat of this nature is most easily defined by existing tracts of set-aside or defined refugia such as RARE II land or designated wilderness.

Wolverine have been confirmed to occur on the Forest. Most observations have been within or adjacent to designated wilderness areas in relatively remote, isolated landscapes. The edge of the Gospel-Hump Wilderness is only a few miles southwest of the project area. Central-Idaho

wolverines are known to commonly cross distances of 20 km, negotiating road systems and active timber sales, to reach insular subalpine habitats (Copeland, J. and Hudak, H. 1995).

In Idaho, female wolverines use high-elevation cirque basins for natal sites, while making daily forays into lower montane habitats to forage (Idaho Dept. of Fish & Game, et. al. 1995). The high elevation Gospel-Hump Wilderness is less than five miles southwest of the edge of the Crooked River drainage. Absence of high elevation cirque basins and boulder talus within the project area, as well as extensive previous development, roading, harvest, and other human activities conducted in the project area make it unsuitable as breeding or denning habitat, however wolverine may occasionally traverse through the analysis area in search of food. Wolverines are opportunistic scavengers and ungulate carrion is considered an important food source. Activities that decrease ungulate populations may negatively affect wolverines (Copeland, J. and Hudak, H. 1995).

Incidental trapping mortality is a potentially important factor in managing wolverine populations. Wolverine trapping is not allowed in Idaho, but animals are occasionally caught by accident by coyote and bobcat trappers. Within the analysis area, trapping pressure and risks to wolverine are relatively low due to low trapper interest (SFLA, Wildlife Technical Report – Wolverine, 1998).

The analysis area within the Crooked and American River drainages is well developed, substantially roaded and contains significant amounts of ongoing vehicular and human disturbances. Neither American River nor Crooked River ERUs hold areas of low human disturbance and neither are considered quality habitat, however each may contribute foraging areas and overall habitat potentially capable of supporting wolverines (SFLA – Wildlife Technical Report for Wolverine, 1998).

ENVIRONMENTAL EFFECTS

The analysis area lacks seclusion from human influence, and the character of extensive roadless habitat security preferred for natal denning. No high elevation cirque basins occur in the analysis criteria either. Noxious weed effects can indirectly impact overall elk habitat quality, which may indirectly affect long term availability of carrion for wolverines where weeds may dominate native vegetation, but these are not considered major impacts. Watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact wolverine or their habitat to a significant degree regardless of alternative. Road decommissioning will help reduce human-wolverine conflict potentials.

Sites planned for harvests are well outside wilderness or RARE II areas considered suitable as wolverine habitats. While wolverines may occasionally traverse through or across the American/Crooked River analysis area, which is between three major, high elevation wilderness areas (Gospel-Hump, Selway-Bitterroot, Frank Church River of No Return), it is unlikely that wolverines would find the analysis area habitats attractive except perhaps as a travel corridor. Harvest, roading, watershed restoration actions and other similar project activities in all action alternatives would hold the potential to disturb or displace wolverine that may be traveling through the project area, but given the wide-ranging nature of the animal and lack of seclusion from human intrusion in the project area, this is unlikely.

Productivity of habitats and related ungulate carrion availability are important aspects of wolverine habitat management. For these reasons, the analysis criteria for wolverine will be impacts related to ungulate (elk) summer habitat effectiveness

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

The no action alternative would have no meaningful direct effects on current elk habitat effectiveness. Although the longer term indirect effects of allowing unabated fuel buildups in the analysis area could eventually result in a more extensive imbalance of cover and forage for elk due to eventual large-scale wildfires, the net impacts to wolverine, given their extremely large home ranges, would likely be relatively insignificant or nil.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Given all past development actions that have previously impacted overall wolverine foraging habitats including roading, logging, recreation activities, fire exclusion and others, and considering the very large size of wolverine home ranges, Alternative A would have no measurable cumulative effects.

The sensitive species determination for wolverine would be "no impact".

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would directly result in slightly improved habitat effectiveness for elk over Alternative A . Indirect effects would be relatively similar to Alternative A. Refer to the discussion on elk

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would be relatively similar to Alternative A. Refer to the discussion on elk.

The sensitive species determination for wolverine would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would provide improved wolverine habitat, due to slightly improved elk habitat effectiveness over Alternatives A & B. Refer to discussion on elk.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C would add additional impacts to the developed nature of the area, but overall effects relative to elk habitats would be improved over Alternative B. The sensitive species determination for wolverine would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D would harvest the highest acreage while curtailing motorized access similar to Alternative C. Overall, it would produce direct and indirect effects similar to Alternative C

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Effects would be similar to Alternative C. The sensitive species determination for wolverine would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E would directly harvest the lowest acreages, however it would reduce motorized access through road decommissionings at the highest level of any alternative. Elk habitat effectiveness would be the highest of all alternatives in both the American and Crooked River drainage portions of the project. Indirect effects would be similar to and in between Alternatives A and B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E would yield cumulative effects similar to Alternative B.

The sensitive species determination for wolverine would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

HARLEQUIN DUCK

EXISTING CONDITION

Harlequin ducks are sea ducks that migrate inland to reproduce. Breeding habitat includes low gradient, second order or larger streams. They rely on river and stream habitats with relatively high water quality, which sustains the aquatic invertebrates they feed upon. The South Fork of the Clearwater River is considered the southwestern limit of harlequin duck distribution in Idaho (Cassirer, E.F., 1989). No suitable nesting habitat was observed within the South Fork Clearwater River drainage during focused surveys, which included both the American and Crooked River drainages (Cassirer, E.F., 1989).

The main American River and Crooked River are the only potential sites that Harlequins might use incidentally for resting or feeding habitats. Evidence for the use of the South Fork Clearwater River drainage during spring migration is scant. A review of local sightings data found only one known (May, 1988) observation of a female on Crooked River (Cassirer, E.F., 1989, page 9). Sediment levels, past dredge mining, and moderate to high human and vehicular traffic levels along roads immediately adjacent to these main streams have virtually eliminated local nesting suitability. For these reasons, the habitats along these small rivers is no longer considered suitable as nesting habitat for this duck, but they may be used occasionally for resting or feeding.

ENVIRONMENTAL EFFECTS

The analysis criteria for Harlequin duck is protection and maintenance of riparian zones and downstream water quality. Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to have serious impacts on Harlequin ducks or their habitats to a significant degree or for extended periods regardless of alternative.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

The no action alternative would have no direct or indirect effects on the Harlequin duck or its habitat. No predicted direct or indirect impairments to downstream habitats or water quality would result.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

No cumulative effects would be generated from this alternative

The sensitive species determination for Alternative A for Harlequin duck would be "no impact".

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B modifies no riparian habitat conservation areas directly, thus no direct impacts to Harlequin ducks or their breeding sites are predicted. It treats 2,550 upland acres, which may cause minor potential indirect impacts on downstream resting/feeding riparian conditions from changes due to silt and water quality impacts.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would have limited, indirect cumulative effects on downstream riparian resting/feeding habitats in addition to those produced from past harvest, roading, mining, public access, fire exclusion and other habitat impacts. The sensitive species determination for Harlequin duck would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C modifies no riparian habitat conservation areas directly, thus no direct impacts to Harlequin ducks or their breeding sites are predicted. It treats 2,773 upland acres, which may cause minor potential indirect impacts on downstream resting/feeding riparian conditions from changes due to silt and water quality impacts.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C would have limited, indirect cumulative effects on downstream riparian resting/feeding habitats in addition to those produced from past harvest, roading, mining, public access, fire exclusion and other habitat impacts. The sensitive species determination for Harlequin duck would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D modifies no riparian habitat conservation areas directly, thus no direct impacts to Harlequin ducks or their breeding sites are predicted. It treats the most acres (3,402 upland acres), which may cause minor potential indirect impacts on downstream resting/feeding riparian conditions from changes due to silt and water quality impacts.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D modifies no riparian habitat conservation areas directly, thus no direct impacts to Harlequin ducks or their breeding sites are predicted. It treats the most acres, which may cause minor potential indirect impacts on downstream resting/feeding riparian conditions from changes due to silt and water quality impacts.

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E modifies no riparian habitat conservation areas directly, thus no direct impacts to Harlequin ducks or their breeding sites are predicted. It treats the least acres of any action alternative (2,082 upland acres), which may cause minor potential indirect impacts on downstream resting/feeding riparian conditions from changes due to silt and water quality impacts.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E would have the least limited, indirect cumulative effects on downstream riparian resting/feeding habitats of any action alternative. Impacts would be in addition to those produced from past harvest, roading, mining, public access, fire exclusion and other habitat impacts. Cumulative impacts of this alternative would be lowest of any action alternative. The sensitive species determination for Harlequin duck would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

FISHER

EXISTING CONDITION

Fishers are wide-ranging forest predators that prefer late seral habitats. In the Northern Rockies, fishers prefer late-seral, mesic (moist) forests (Idaho Dept. of Fish & Game, et. al. 1995, p. 9). Fishers are known to occur within the South Fork Clearwater River Subbasin. A more complete discussion of fisher ecology and habitat needs is referenced within the South Fork Clearwater River Landscape Assessment, 1998, p. 104 and in the SFLA- Wildlife Technical Report for Fisher, 1998.

Current distribution of fishers in North America is substantially fragmented compared to their historical (pre-European) distribution. Across the species' range, fisher populations declined in the early twentieth century, probably due to a combination of over trapping, predator poisoning, and habitat loss from settlement, logging and forest fires (Idaho Dept. of Fish & Game, et. al. 1995). Fishers and their habitat use were studied by Jeff Jones in the adjacent Newsome drainage and surrounding areas near Elk City during the late 1980's (Jones, J.L. 1991). Jones concluded that over-trapping and habitat loss due to extensive fires in 1910 and 1934 were most likely responsible for the historical decline of fishers in Idaho.

No fisher trapping is currently allowed in Idaho, but animals are occasionally caught incidental to marten, coyote, and bobcat trapping. Trapping pressure within the project area and South Fork Clearwater River Subbasin is currently limited due TO LOW TRAPPER INTEREST (SFLA, WILDLIFE Technical Report - Fisher; See also NPNF 15th Annual Monitoring & Evaluation Report -2002 Fisher/pine marten monitoring data - Item 10 Population Trends of Indicator Species , Nez Perce National Forest, 2003).

Habitat in the American River drainage is substantially less impacted and fragmented by past timber harvest and roading than habitats in the Crooked river drainage. The vegetative conditions in the American River drainage are somewhat similar to those of Crooked River, but habitat conditions and relative amounts and larger blocks of old growth and late seral habitats preferred by fishers are considerably more prevalent in American River. Currently, 51 percent of the American River drainage supports late seral habitat (SFLA, page 141).

Both drainages are roaded and have been impacted by previous harvesting and roading activities.

Overall however, fisher habitat has increased over historical conditions by approximately 188 percent.

Suitable fisher habitat in American River drainage is currently 233 percent of historic amounts. It is 227 percent of historic amounts within the Crooked River drainage (SFLA, Wildlife Technical Report - Fisher). For both drainages, conserving the integrity of late seral habitats near the upper end of their historic range of variability would benefit fishers (SFLA, pages 140-141; 148).

The vegetative conditions in the lower portion of the Crooked River drainage have gentle to moderate slopes subject to infrequent stand replacing and mixed fires. Lodgepole pine and Western larch were once more dominant than ponderosa pine. Previous extensive harvest entries have been relatively dispersed, and more frequent than historical fire disturbance (SFLA, Chapter 4, p. 148). From a larger landscape perspective, conserving late seral habitat would benefit fisher habitats. Currently, 47 percent of the Crooked drainage supports suitable amounts of late seral habitat (SFLA, page 148).

Due to its relatively high elevation, the adjacent Gospel-Hump Wilderness is unlikely to be a good candidate as a fisher core area (Idaho State Conservation Effort 1995, p.49; IN: South Fork Clearwater River Landscape Assessment, p. 104 and in the SFLA- Wildlife Technical Report - Fisher). The RARE II roadless areas in the South Fork Subbasin (West Meadow Creek, Lick Point, Upper American River, Pilot Knob, and Dixie Summit) also likely have limited potential as fisher core areas due to acreage or elevation constraints (South Fork Clearwater River Landscape Assessment, p. 104 and in the SFLA- Wildlife Technical Report (Fisher).

Fishers are believed to use selected suitable habitat portions of both drainages, though actual sightings or track records are scant. Based on populations monitoring results, incidental sightings, ICDC database records and consideration of this data within the context of locally monitored downtrends in the two of the most commonly recognized threats to fisher and marten populations in the western U.S. (trapping pressure and clearcutting of late successional timber), local trends in fisher populations remain stable (NPNF 15th Annual Monitoring & Evaluation Report Draft -2002 Fisher/pine marten monitoring data - Item 10 Population Trends of Indicator Species , Nez Perce National Forest, 2003).

ENVIRONMENTAL EFFECTS

The Habitat Conservation Assessment for Fisher in Idaho suggests that although fisher trapping seasons are closed in Idaho, incidental trapping mortality may limit populations in the state (Idaho Dept. of Fish & Game, et. al. 1995, p. 6). Because old growth timber is considered important to fishers, none of the alternatives will harvest in existing old growth timber. Likewise, protection of RHCAs (riparian habitat conservation areas) and selected replacement old growth stands have been incorporated into the project design along with retention of key replacement old growth stands to help maintain patch sizes and connectivity. A fundamental aim of the project is removal of fuel-loading from dead and dying lodgepole pine. Considering that most of the lodgepole pine of 6 inch or greater diameter in the analysis area will no longer contribute to forest canopy cover irrespective of alternative harvest plans, effects of each alternative on fishers and their habitats should also factor in the reduced risks (if any), for subsequent habitat losses due to future fire impacts.

Noxious weeds, watershed restoration actions, and post-harvest slash treatments using prescribed fire are not expected to impact fishers or their habitats to a significant degree regardless of alternative. Road decommissioning levels would be expected to help reduce motorized access on existing roads, contributing to reductions in fisher mortality risks from trapping. Based on best available information, the analysis criteria for fisher will be the extent to which each alternative 1) conserves or protects the integrity of late seral habitats, and 2) the degree to which each alternative provides security by limiting mortality risks of incidental trapping, because densities of accessible roads and trails help facilitate human access.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

The no action alternative would have no immediate, direct negative or positive impacts on the fisher or its habitat. As local stands mature and decline with their attendant fuel-buildups, lethal, stand-replacing fire risks would become more prevalent. Such risks would increase the chances of late seral habitat losses to wildfires (Refer to fire effects section for details). No direct or indirect changes in access would occur, so security would not improve.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Risks of fire-spread losses in old growth or other late seral stands would become cumulative to past and present effects of fire exclusion in the analysis area, and whether these effects would extend outside the analysis area is relatively uncertain. The no action alternative would have no certain cumulative effects on the fisher or its habitat other than fire and security risks which would eventually become additive to the past effects of roading, logging, incidental trapping risks, fire exclusion and other human disturbances of normal ecosystem processes and forest pattern.

Principally due to cumulative risks for future habitat losses to fire and access effects, the sensitive species determination for fisher would be “may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species”.

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would not harvest in any existing old growth timber. Moderate harvest levels would have limited direct impacts on fisher habitats due to increased overall habitat fragmentation. Treated stands would provide moderate levels of on-site fuel reduction. As local stands mature and decline with their attendant fuel-buildups, lethal, stand-replacing fire risks would become more prevalent with attendant risks to untreated late seral habitats (Refer to fire effects section for details).

Alternative B would slightly improve security, particularly in the American River drainage where most of the large blocks of prime old growth habitat remain, however security levels in the Crooked River portion of the analysis area would remain at comparatively low levels similar to Alternative A.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would add moderately to forest fragmentation levels in the analysis area, which would be cumulative to past, present, and other foreseeable harvest activities in these drainages. It would reduce fuels at relatively moderate levels, potentially contributing to loss risks of old growth and late seral habitats. The alternative would also moderately reduce potential levels of human access, thereby helping to reduce mortality risks from trapping.

The sensitive species determination for fisher would be “may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species”.

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would not harvest in any existing old growth timber. Moderate harvest levels would have limited, direct impacts on fisher habitats due to increased overall habitat fragmentation. Treated stands would provide moderate levels of on-site fuel reduction. As local stands mature and decline with their attendant fuel-buildups, lethal, stand-replacing fire risks would become

prevalent with attendant risks to untreated late seral habitats (Refer to fire effects section for details). Security levels would be slightly higher, but overall very similar to Alternative B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C would add moderately to forest fragmentation levels in the analysis area, which would be cumulative to past, present, and other foreseeable harvest activities in these drainages. It would reduce fuels at relatively moderate levels, potentially contributing to loss risks of old growth and late seral habitats. The alternative would also moderately reduce potential levels of human access at levels similar to but slightly higher than Alternative B particularly in the American River drainage, thereby helping to reduce mortality risks from trapping.

The sensitive species determination for fisher would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D would not harvest in any existing old growth timber. It would have the highest direct impacts on fisher habitats due to increased overall habitat fragmentation. Treated stands would provide the highest levels of on-site fuel reduction. As local stands mature and decline with their attendant fuel-buildups, lethal, stand-replacing fire risks would become prevalent with attendant risks to untreated late seral habitats (Refer to fire effects section for details).

Alternative D would improve security at levels similar to Alternative C.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D would add the highest to forest fragmentation levels in the analysis area, which would be cumulative to past, present, and other foreseeable harvest activities in these drainages. It would reduce fuels at relatively high levels, potentially contributing to proportionate loss risks of old growth and late seral habitats. Alternative D would also moderately reduce potential levels of human access at levels similar to Alternative C.

The sensitive species determination for fisher would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E would not harvest in any existing old growth timber. Relatively low harvest levels would have limited, direct impacts on fisher habitats due to smaller increases in overall habitat fragmentation. Treated stands would provide minimal levels of on-site fuel reduction. As local stands mature and decline with their attendant fuel-buildups, lethal, stand-replacing fire risks would become prevalent with attendant risks to untreated late seral habitats (Refer to fire effects section for details).

Alternative E would improve security the highest of all alternatives.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E would add the least to forest fragmentation levels of all action alternatives. It would reduce fuel levels the lowest of all action alternatives with proportionate reduction in risk reductions for old growth losses to future wildfires. It would contribute the most toward reducing mortality risks from cumulative access and human intrusion into habitats traveled by fishers.

The sensitive species determination for fisher would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

BLACK-BACKED WOODPECKER

EXISTING CONDITION

Black-backed woodpeckers inhabit boreal forests throughout North America, including Idaho. Suitable habitats may be found in lodgepole pine, ponderosa pine, Douglas-fir, and mixed conifer forests, especially those experiencing insect infestations, but optimal habitat is provided by recent (<5 year old) burned-over forest. A more thorough discussion is referenced in the South Fork Clearwater River Landscape Assessment 1998 – Wildlife Technical Report, Black-backed woodpecker. Black-backed woodpeckers evolved with and have become dependent on natural landscape disturbances, particularly fire. They are also relatively nomadic, displaying "irruptive dispersal" in response to habitat changes, and will move to large areas where fire-killed dead and/or dying trees are infected with bark and wood-boring beetles. In 2003, a 13,000 acre wildfire killed timber in the adjacent Meadow Creek watershed, and black-backed woodpeckers are likely in the area. Such sites provide the specialized habitat conditions required for nesting and feeding by this bird.

Within the South Fork Clearwater River Subbasin as a whole, suitable habitat for black-backed woodpeckers has likely declined more for this bird than for any other wildlife species. In the American River drainage, black-backed woodpecker habitat is only 88 percent of historic levels. Crooked River ERU is considered especially important to black-backed woodpeckers (South Fork Clearwater River Landscape Assessment 1998 – Wildlife Technical Report, Black-backed woodpecker). Black-backed woodpecker habitat is currently 141 percent of historic in the Crooked River ERU (South Fork Clearwater River Landscape Assessment 1998 – Wildlife Technical Report, Black-backed woodpecker). A more detailed account is referenced in the South Fork Clearwater River Landscape Assessment (p. 101 & 106).

For improving habitat conditions for black-backed woodpeckers, the SFLA (p.140 & 148) recommends lethal severity fires in lodgepole pine cover types in both American and Crooked River drainages to create high snag density and snag retention for at least 5 years after the fire. The management theme for wildlife (SFLA, page 140; 148), identifies treatment objectives for black-backed woodpecker within the American and Crooked River drainages to "produce post-fire early seral habitat" by applying lethal severity prescribed burns in lodgepole pine as well as partial harvest of mid or late seral forest followed by burning. Based on the extent and progression of the current mountain pine beetle epidemic in both American and Crooked River drainages, lethal severity fires are a high probability outcome throughout much of the analysis area in years ahead. The SFLA Wildlife Technical Report – Black-backed woodpecker section suggests that, "When pre-burn harvest is used, approximately 50 percent of the trees should be retained for burning with preference given to larger size classes".

ENVIRONMENTAL EFFECTS

Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact black-backed woodpeckers or their habitats to a significant degree regardless of alternative. Roadside salvage of individual dead and dying trees within 100 feet of the roads will remove limited additional foraging and nesting habitats at similar levels in all action alternatives and will constitute habitat losses. The net effects of haul route road-side salvage on black-backed woodpeckers would be potentially significant along haul routes, but overall relatively minor within the context of each alternative and landscape acres under beetle attack. Based on available information, the analysis criteria for black-backed woodpecker will be

the relative amounts of lodgepole pine retained after harvest that will likely remain in place or available to subsequently burn and become highly suitable for use. The average percentage of lodgepole pine within harvest units in all action alternatives ranges from approximately 65-70 percent, so alternatives with highest harvest acreages would yield the highest relative impacts.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

The no action alternative would have no direct effect on black-backed woodpecker or its habitat. This alternative would indirectly leave stands unharvested which would maintain all predominantly lodgepole pine stands in preparation for future wildfire impacts, which would eventually become beneficial to black-backed woodpeckers as foraging and nesting habitats.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The no action alternative would in effect, have positive cumulative effects on black-backed woodpecker habitat availability. Absence of fuel reduction and principally lodgepole pine harvest, would add cumulatively to overall risks of eventual fire spread, but potential maximization retention of habitat creation for black-backed woodpeckers would result in both drainages.

The sensitive species determination for black-backed woodpecker would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species". Ultimately, this alternative would serve the local habitat needs of black-backed woodpeckers best and the impacts would be positive.

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would harvest 2,550 acres of timber, predominantly occupied by lodgepole pine in stands that could serve as future foraging and nesting sites. The relative amounts of dead and dying lodgepole pine in stands that will remain unharvested in both the American and Crooked River watersheds dwarfs the harvested acres many fold.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would result in habitat losses which add moderately to cumulative losses of existing and potential future black-backed woodpecker habitat related to previous harvests, roading, and post-disturbance salvage harvests as well as reasonably foreseeable harvests on nearby BLM lands in the analysis area. While Alternative B results in loss of existing and future foraging and nesting habitat opportunities, the loss would be relatively insignificant and inconsequential in both drainages, but particularly in the Crooked River drainage. Since current habitat is only 88 percent of historic in American River drainage, relative habitat value lost in American to harvest would be slightly greater.

The sensitive species determination for black-backed woodpecker would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would harvest 2,773 acres of timber and the effects would be similar to those of Alternative B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C would harvest 2,773 acres resulting in habitat losses which add moderately to cumulative losses of potential future black-backed woodpecker habitat related to previous harvests, as well as reasonably foreseeable harvests on nearby BLM lands in the analysis area.

The sensitive species determination for black-backed woodpecker would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D would harvest 3,402 acres, yielding the greatest loss impacts on black-backed woodpecker habitat of any alternative. While Alternative D results in greatest loss of future foraging and nesting habitat opportunities, the loss would still be relatively insignificant and inconsequential in both drainages, similar to other alternatives.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D would result in highest habitat losses which would be additive to cumulative losses of potential future black-backed woodpecker habitat resulting from previous harvests, roading, and post-disturbance salvage harvests as well as reasonably foreseeable harvests on nearby BLM lands in the analysis area. The relative acres proposed for mechanical salvage harvest are only a very small portion of the total acres that are dead and dying. These acres are likely to burn by wildfires and become high quality habitat in the future, therefore the relative amount of anticipated black-backed woodpecker habitat predicted to be lost to harvest is insignificant within the analysis area and relatively inconsequential.

The sensitive species determination for black-backed woodpecker would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E would harvest the least acres of timber (2,082 acres), which would serve as future foraging and nesting sites. Direct and indirect effects would be less than Alternative B. The relative amounts of dead and dying lodgepole pine in stands that will remain unharvested in both the American and Crooked River watersheds dwarfs the harvested acres many fold, and thus would be inconsequential.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E would harvest 2,082 acres resulting in the least habitat losses of any action alternative. This alternative would add the least of all action alternatives to cumulative losses of potential future black-backed woodpecker habitat related to previous harvests, roading, and post-disturbance salvage harvests in the analysis area, as well as reasonably foreseeable harvests on nearby BLM lands in the analysis area.

The sensitive species determination for black-backed woodpecker would be "may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species".

TOWNSEND'S BIG-EARED BAT

EXISTING CONDITION

Townsend's big-eared bats are considered true cave species although they may occasionally roost in lava tubes, mines, buildings, and other human-made structures. Known or potential cave and roost habitats for this bat in Idaho are believed to be restricted to the lower, warmer elevations along the Salmon River (Idaho Dept. of Fish & Game, et al. 1995. Townsend's Big-Eared Bat Habitat Conservation Assessment (HCA) and Conservation Strategy (CS) Draft).

ENVIRONMENTAL EFFECTS – ALL ALTERNATIVES

Townsend's big-eared bats are not known to occupy any portions of the higher elevation habitats within either the American or Crooked River drainages. For this reason, there are expected to be "no impacts" on the Townsend's big-eared bat or its habitat under any alternative. As a result, it will not be analyzed or discussed further in this document.

COEUR D'ALENE SALAMANDER

EXISTING CONDITION

The southernmost edge of the range of the Coeur d' Alene salamander extends only to the Selway drainage (Idaho Dept. of Fish & Game, et al. 1994. Coeur d' Alene Salamander Habitat Conservation Assessment (HCA) and Conservation Strategy (CS) Draft). The Selway drainage is north, well outside the analysis area boundaries. Neither the American nor the Crooked River drainages have any record of Coeur d' Alene salamander presence or suitable habitat.

ENVIRONMENTAL EFFECTS – ALL ALTERNATIVES

Due to both habitat and species absence rationale listed above, no impacts are anticipated from any alternatives on the Coeur d' Alene salamander or its habitat. For this reason, they will not be analyzed or discussed further in this document.

3.11.3. INDICATOR 3 – OTHER MANAGEMENT INDICATOR SPECIES

ELK

EXISTING CONDITION

Historically, elk were likely somewhat widespread but sparsely populated in most areas but fairly common in the South Fork Clearwater River Subbasin's coniferous forests. Early in the twentieth century, when large wildfires created extensive forage areas and other effects of settlement manifested themselves, the stage was set for elk population increases. In recent decades, elk populations have stabilized and begun to decline because of forest successional advancement on winter ranges and greater hunting mortality (SFLA, Wildlife Technical Report 1998). Due to recent declines in elk herd numbers and productivity data for elk hunt units of the Clearwater subbasin, regional sportsmen's organizations and the Idaho Dept. of Fish & Game have voiced a desire to increase Forest vegetative treatment activities and other disturbances that will help restore elk forage and improve overall elk habitat productivity locally.

Elk habitat is categorized into summer and winter range. At the larger scale, winter range is considered a major habitat limiting factor for elk populations in the South Fork Clearwater River Subbasin. Winter range is essentially absent in project portions of the American River drainage and only a very limited amount of winter range (along lower Crooked River), exists in the Crooked

River drainage. Harvest and fuel reduction treatments of the American and Crooked River Project are planned to occur outside winter ranges, at elevations considered elk summer range.

The criteria for elk in the American and Crooked River Project will be relative adherence to Forest Plan summer elk habitat management objectives. Summer ranges are managed according to Forest Plan elk summer habitat objectives of 25, 50, 75 or 100 percent, and areas are subdivided into analysis units for assessment purposes. The affected elk analysis units, their current habitat conditions and Forest Plan objective percentages within American and Crooked River include: Marten Meadows 84/75; American River 72/50; Queen Creek 77/50; Relief Creek 60/50; Kirks Fork 83/75; and Deadwood 52/50. Since these units were originally analyzed in the early 1990's, some domestic livestock use in some units has diminished. In addition, more than a decade of tree growth in more recent harvest unit plantations has moved many units into "hiding cover" condition, which has helped improve overall habitat conditions for elk.

ENVIRONMENTAL EFFECTS

Direct disturbances from harvest actions, roading, watershed restoration actions and other similar activities will temporarily disturb or displace elk in all action alternatives, but these impacts would be limited in duration and elk can avoid such disturbances by using ridges and visual barriers. Noxious weeds that could pioneer burned sites would negatively impact elk foraging areas by displacing desirable plants, but this would not be expected to be sufficiently extensive or widespread enough to be of major significance under any action alternative.

Noxious weeds can reduce available forage for elk and degrade long term habitat quality where infestations become severe, but road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to negatively impact elk or their habitats to a significant degree regardless of alternative.

The Guidelines for Evaluating and Managing Summer Elk Habitat in Northern Idaho (Nez Perce Forest Plan Appendix B, 1987), is used to analyze units for potential elk use. In evaluating potential elk use, this habitat suitability index model factors in several variables affecting elk use including open roads, livestock densities and other factors including cover, forage, and security areas. Summary results of Elk Analysis Units (EAU) are listed below.

During field reviews and harvest site inventories for the American/Crooked Salvage Project, a limited number of unauthorized and undocumented ATV trail segments created by unknown ATV users were discovered. No formal inventory of the numbers and extent of unauthorized ATV trails in the analysis area currently exists and thus is uncertain. Those discovered during field inventories were not considered extensive enough to result in significant changes to overall elk habitat effectiveness. Analyses included data from both inventoried roads and trails. Unauthorized trail segments were not incorporated into the roads/trails analysis portion of the elk modeling results listed because they are not mapped and designated and were deemed insignificant.

Table 3.101 Percent Elk Habitat Effectiveness by EAU and Alternative (Note: Higher percentage equates to better habitat)

Elk Analysis Unit and Number	Forest Plan Objective (%)	A	B	C	D	E
Marten Meadows – 58121	75	84	85	87	87	92
American River – 58122	50	72	71	71	72	80
Queen Cr. – 58131	50	77	77	80	80	80
Kirk's Fork – 58161	75	83	88	88	88	89
Deadwood – 38201	50	52	52	52	51	55
Relief Cr. – 38211	50	60	59	59	58	63

Motorized travel prevention effectiveness of each road decommissioning action may vary slightly. Effectiveness of motorized travel restrictions on decommissioned roads will relate to the site-by-site conditions after decommissioning relying specifically on road prism recontouring in combination with slash and/or existing vegetative barriers and camouflage or concealment of roadway entrances.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

Elk summer habitat effectiveness throughout the analysis area would remain in concert with Forest Plan objectives in all EAUs. Indirectly, this alternative would fully meet or exceed Forest Plan summer elk objectives in the short term, but as deadfall from fuel buildups continued, the attractiveness of much of the area to elk would likely decline due to perceived travel impairments and predator escape difficulties. This alternative would have the greatest fuel buildup and consequently the post-fire conditions and risks in unharvested sites may precipitate greater pioneering by noxious weeds.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The no action alternative would add cumulatively to fuel loading effects caused by past fire exclusion and the current mountain pine beetle epidemic but overall net effects on elk or their habitat would be relatively minor. Allowing continued fuel buildups in the analysis area would have little effect initially, but eventual negative impact on elk habitat conditions (jack-strawed stands, movement barriers) would be cumulative to previous roading, public vehicular travel in the area, harvest activities, and other human-induced disturbances and activities on elk habitat security. Other recent and foreseeable harvests on nearby private and BLM lands would also help create additional forage resources for elk but would not likely change overall elk habitat effectiveness measurably.

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would slightly improve habitat conditions in the American River portion of the drainage due mostly to modest reductions in open road access, but conditions in the Crooked River portion of the area would remain the same or decline slightly due principally to road access and changes in cover. Moderate levels of harvest followed predominantly with prescription fire to remove logging slash would help stimulate regrowth of nutritious forage plants important to elk nutrition.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would add cumulatively to fuel loading effects caused by past fire exclusion and the current mountain pine beetle epidemic but overall net effects on elk or their habitat would be relatively minor. Modest reductions in fuel buildups in the analysis area would have little effect initially, but eventual negative impact on elk habitat conditions (jack-strawed stands, movement barriers) would be cumulative to previous roading, public vehicular travel in the area, harvest activities, and other human-induced disturbances and activities on elk habitat security. Other recent and foreseeable harvests on nearby private and BLM lands would also help create additional forage resources for elk but would also add to security weaknesses and cover losses. Overall cumulative effects would be similar to Alternative A.

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would improve habitat conditions more than Alternative B, particularly in the American River portion of the drainage, but conditions in the Crooked River portion of the area would remain essentially the same or decline slightly due principally to road access and changes in cover. Moderate levels of harvest followed predominantly with prescription fire to remove logging slash would help stimulate regrowth of nutritious forage plants important to elk nutrition.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C would add cumulatively to fuel loading effects caused by past fire exclusion and the current mountain pine beetle epidemic but overall net effects on elk or their habitat would be relatively minor. Modest reductions in fuel buildups in the analysis area would have little effect initially, but eventual negative impact on elk habitat conditions (jack-strawed stands, movement barriers) would be cumulative to previous roading, public vehicular travel in the area, harvest activities, and other human-induced disturbances and activities on elk habitat security. Other recent and foreseeable harvests on nearby private and BLM lands would also help create additional forage resources for elk but would also add to security weaknesses and cover losses. Overall cumulative effects would be slightly improved, but similar to Alternative B.

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D effects would overall be similar to Alternative C because of similar post-project access restrictions on motorized use of roads. With respect to creation of foraging areas, this alternative harvests and treats the most acres with post-logging prescription fire which would generate the greatest forage.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D would have cumulative effects similar to Alternative C though treatment acreage would be slightly higher.

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E would improve summer habitat effectiveness the most of all alternatives, even though harvest acreages and forage generation are lowest of all action alternatives. This is principally due to reductions in motorized access levels on roadways resulting from road decommissioning. Improvements in overall habitat effectiveness would be realized in both the American and Crooked River portions of the project area in this alternative.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E would have similar overall cumulative effects to those of Alternative B, although improvement in habitat effectiveness is highest of all alternatives.

SHIRA'S MOOSE

EXISTING CONDITION

Shira's moose are widely distributed throughout Idaho, and are relatively common in the South Fork Clearwater Subbasin including the Nez Perce National Forest. Moose populations have greatly expanded across Idaho since the 1960's, and most populations are currently stable or

increasing (South Fork Clearwater River Landscape Assessment Wildlife Technical Report - Shira's moose, 1998).

The recognized critical habitat for moose of the South Fork Subbasin is mature and old growth grand fir and subalpine fir stands that exhibit an understory of Pacific yew. This winter moose habitat (Forest Plan Management Area 21), is important to moose for both cover and forage during the winter season.). Moose habitat in Crooked River and American ERUs is now 325 percent and 306 percent of historic levels in Crooked and American River ERUs respectively (South Fork Clearwater River Landscape Assessment Wildlife Technical Report - Shira's moose, 1998). American River ERU contains disproportionately more high quality moose winter habitat (approximately 21,391 acres) compared to the 6,455 acres of this habitat in Crooked River ERU (South Fork Clearwater River Landscape Assessment Wildlife Technical Report - Shira's moose, 1998).

Maintaining high quality moose habitat in quantities that are well beyond the historic levels would make little sense, especially for a species which is increasing and is a relative habitat generalist (South Fork Clearwater River Landscape Assessment Wildlife Technical Report - Shira's moose, 1998). In addition, attempting to maintain such conditions would likely be unsustainable over the longer term, given increasing fuel loadings and the known fire disturbance patterns in the analysis area. Fire hazard will increase as more stands in the area transition from low or moderate hazard to high. Neither American nor Crooked River drainages are viewed as high priority areas to manage for moose conservation. Nevertheless, the Nez Perce Forest Plan limits timber harvests in MA21 to a maximum of 5 percent per decade based on a 210 year rotation (Nez Perce Forest Plan, page III-59).

ENVIRONMENTAL EFFECTS

Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact moose or their habitats to any significant degree regardless of alternative.

Most MA21 habitat in the American River drainage occurs several miles west of all planned harvest units. No MA21 habitat in the American River drainage is planned for harvest by any alternative. MA21 habitats in the Crooked River drainage occur mostly in the northwest quadrant and away from most harvest units, however 32 acres of MA21 in the Crooked drainage will be affected by harvest activity in all action alternatives. Based on this information, the analysis criteria for moose will be acres of MA 21 harvested.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

The no action alternative would not harvest in MA21 and would have no direct impact on important moose winter habitats. The no action alternative would have uncertain indirect effects of encouraging continued fuel loading throughout the areas, which may indirectly increase future fire-loss risks of some stands of moose winter habitat. Considering current moose habitat prevalence and moose populations in the analysis area, this would not likely be considered a major negative impact.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The no action alternative would have no major cumulative effects on moose or their important winter habitats. This action, in concert with past and present fire exclusion, along with other habitat intrusions such as roading, harvesting, public recreation activities and other impacts on the

land would further modify habitat outside its historic norm, but would not be likely to affect moose significantly.

ALTERNATIVE B

DIRECT AND INDIRECT

Direct effects would include harvest of approximately 32 acres of MA21 in the Crooked River drainage. None would be harvested within the American River drainage. Loss or modification of such small amounts of moose habitat would be insignificant. Indirect effect on future fire hazard reduction would also be negligible.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Planned harvest (32 acres in the Crooked River drainage), fuel treatments, and other related activities in addition to past, present and reasonably foreseeable future activities including additional harvests on BLM lands and the proposed Tract 39 exchange (35 acres in American River drainage), would amount cumulatively to less than 1/4 of 1 percent of the MA21, well below maximum Forest Plan 5 percent standards. This amount of impact would not sufficiently break up or reduce fuels to any extent likely to have measurable effects on moose or protection of MA21 habitats from wildfire risks.

ALTERNATIVE C

DIRECT AND INDIRECT

Effects would be essentially the same as those for Alternative B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Effects would be essentially the same as those for Alternative B.

ALTERNATIVE D

DIRECT AND INDIRECT

Effects would be essentially the same as those for Alternative B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Effects would be essentially the same as those for Alternative B.

ALTERNATIVE E

DIRECT AND INDIRECT

Effects would be essentially the same as those for Alternative B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Cumulative: Effects would be essentially the same as those for Alternative B.

PILEATED WOODPECKER

EXISTING CONDITION

The pileated woodpecker is widely distributed in western North America, and is a fairly common resident of northern Idaho's coniferous forests. Pileateds are most commonly found in mature to overmature forests that have numerous, large dead or dying trees. It is considered an old-growth indicator species, and nests in large diameter snags. Preferred foraging habitat is characterized by dense canopies, with high snag and log densities. Grand fir forests with at least 2 canopy layers

and >75 percent canopy closure are preferred for nesting (Bull et al. 1986 p. 5). Forests above 5000 feet are generally avoided. Lodgepole pine and spruce-fir forests in particular receive little use, most likely due to the paucity of large diameter trees (South Fork Clearwater River Landscape Assessment Wildlife Technical Report - Pileated woodpecker, 1998).

Based on a landscape-scale assessment, pileated woodpecker habitat is now more abundant than historically. Comparison of the extent of current (1997), versus historic pileated woodpecker habitat acres in the American and Crooked River ERUs revealed that such habitat is 275 percent and 289 percent of historic in these respective drainages (SFLA, Wildlife Technical Report-Pileated woodpecker, Table #4, 1998).

American River ERU contains approximately 18964 acres and Crooked River ERU contains about 12997 acres of high quality habitat for pileated woodpeckers (SFLA – Wildlife Technical Report – Pileated woodpecker, 1998).

Based on populations monitoring across the Nez Perce National Forest, pileated woodpecker populations remain healthy and stable (NPNF 15th Annual Monitoring & Evaluation Report Draft - 2002 Pileated woodpecker monitoring data - Item 10 Population Trends of Indicator Species , Nez Perce National Forest, 2003).

ENVIRONMENTAL EFFECTS

No existing old growth stands will be harvested under any alternative. An abundance of dead and dying lodgepole pine is present throughout the analysis area as foraging habitat and this will not change substantially, regardless of any action alternative. Therefore, the analysis criteria for pileated woodpecker is the degree to which each alternative maintains and protects mature mixed conifer stands preferred for future nesting habitat. Roadside salvage of individual dead and dying trees within 100 feet of the individual haul roads will remove limited additional foraging and nesting habitats at similar levels in all action alternatives. The net effects of haul route road-side salvage on pileated woodpeckers would be significant along haul routes but overall relatively minor within the context of each alternative because of the limited areas treated, limited numbers of dead/dying trees taken and diameter limits of 20 inches. Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact pileated woodpeckers or their habitats to a significant degree regardless of alternative. An estimated 30-35 percent of total harvest acres is expected to be in mixed conifer stands in all alternatives.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

The no action alternative would have no direct impacts to pileated woodpeckers, old growth, or any of their habitats. Important replacement old growth stands would also be protected from harvest. Indirect effects of the no action alternative may slightly increase future risks of eventual fire damage or destruction to some individual old growth or mature mixed conifer stands (refer to fire effects section for more details).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The no action alternative would allow more stands to transition to higher fire hazard conditions which would be cumulative to effects from past fire exclusion, roading effects, loss of large diameter trees and other human-caused impacts on habitat quality. Harvests planned for nearby BLM lands would add cumulatively to habitat losses and prior impacts. This alternative would indirectly result in slightly greater cumulative risks of fire damage or losses to some individual stands of existing old growth and/or mature mixed conifer stands.

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would harvest 2,550 acres, directly impacting patches of mature mixed conifer habitats, but would produce no direct effects to existing old growth stands. Important replacement old growth stands would also be protected from harvest. Low levels of mixed conifer harvest (<2 percent of high quality pileated woodpecker habitat) would result in only minor negative impacts, given the relative abundance of current high quality habitat in both drainages compared to historical norms. As a result of indirect effects from continued fuel buildups over much of the analysis area despite some fuel reduction, lethal, stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (refer to fire effects analysis for additional details).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would add low levels of habitat loss and disturbance to impacts from past and reasonably foreseeable future actions.

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would harvest 2,773 acres, producing very similar but only slightly greater direct and indirect effects as those of Alternative B.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C would add moderate levels of habitat loss to impacts from past and reasonably foreseeable future actions.

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D would harvest the most (3,402 acres), directly impacting patches of mature mixed conifer habitats, but would produce no direct effects to existing old growth stands. Important replacement old growth stands would also be protected from harvest. Moderately low levels of mixed conifer harvest (<8 percent of high quality pileated woodpecker habitat), would result in only minor negative impacts, given the relative abundance of current high quality habitat in both drainages compared to historical norms. As a result of indirect effects from continued fuel buildups over much of the analysis area despite some fuel reduction, lethal, stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (refer to fire effects analysis for additional details).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D would add the highest levels of habitat loss to impacts from past and reasonably foreseeable future actions. This alternative would yield highest levels of habitat loss to impacts from past and reasonably foreseeable future actions.

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E would harvest the least (2,082 acres), directly impacting patches of mature mixed conifer habitats, but would produce no direct effects to existing old growth stands. Important replacement old growth stands would also be protected from harvest. Lowest levels of mixed conifer harvest (about 4.0 percent of high quality pileated woodpecker habitat) would result in

very minor negative impacts, given the relative abundance of current high quality habitat in both drainages compared to historical norms. As a result of indirect effects from continued fuel buildups over much of the analysis area despite some fuel reduction, lethal, stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (refer to fire effects analysis for additional details).

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E would add lowest levels of habitat loss and disturbance to impacts from past and reasonably foreseeable future actions.

FISHER - SEE DISCUSSION FOR FISHER AS A SENSITIVE SPECIES.

PINE MARTEN

EXISTING CONDITION

Pine marten (American marten) are widely distributed in the western United States inhabiting montane coniferous forests. In various sites in the northern Rocky Mountains, marten's preferences for major vegetation types include mesic subalpine fir, Douglas fir, and lodgepole pine, but xeric subalpine fir and lodgepole associations are also used. They are generally considered a high elevation old growth associated species with somewhat overlapping habitat requirements to those of the fisher. They prefer high elevation, mature or older mesic forests and consistently prefer sites with complex physical structure near the ground (Ruggiero, L.F., teal. 1994, page 22). Complex physical structure near the ground provides important protection from predators as well as important protective thermal microenvironments used during the winter. Like fishers, pine marten are known to prefer riparian and streamside timber stands for resting and foraging (Ruggiero, L.F., teal. 1994, page 22). In some locations in the northern Rocky mountains, martens have preferred stands characterized by xeric subalpine fir and lodgepole pine.

Logging is commonly regarded as the primary cause of observed pine marten distributional losses in historic times in the western United States. Martens generally avoid habitats that lack overhead cover such as clearcuts, herbaceous parklands, and meadows. In some portions of its range such as the Pacific Northwest, clearcutting of old growth and overmature stands and habitat fragmentation have seriously affected distribution of marten. In the Rocky Mountains and Sierra Nevadas, the marten generally has a geographic range similar to that of presettlement times, though population levels are not known reliably enough to compare current levels with those at any earlier time (Ruggiero, L.F., teal. 1994, page 29). Clearcutting of mature and overmature timber is generally considered deleterious to marten populations. In areas where clearcutting is extreme, the habitat quality for martens decreases, resulting in increased home range sizes. A recent study from southwest Montana (Coffin, K. et al. 2002, page 31), concluded that marten densities tended to be higher in study sites with less disturbance from logging and fire, but marten were nevertheless able to occupy heavily logged and roaded areas. While fire, insects, and disease also cause tree death in the western U.S., the effects of these disturbances on marten have been poorly studied (Ruggiero, L.F., teal. 1994, page 13).

Pine marten are known to occur within the American and Crooked River drainages. Both sightings and tracks have been recorded. One pine marten was observed during daylight hours while conducting harvest-associated resource surveys along Road 1810 in the American River drainage (See project file).

Currently, the extent of available habitat for pine marten within American and Crooked drainages respectively is 223 percent and 284 percent of historic (SFLA Wildlife Technical Report,-American Marten, Table #4, 1998). A view of the larger landscape indicates that current habitat arrangement

(in the SFCR drainage), allows easy connectivity for marten movement within the habitat. The only barrier to marten travel within the South Fork Clearwater landscape is the Camas Prairie at one end, which does not fragment intra-subbasin marten populations (SFLA Wildlife Technical Report – American Marten, 1998). While habitat quantity has increased, habitat quality has likely declined due to loss of larger snags and habitat heterogeneity from fuelwooding, fire suppression, and loss of large diameter trees due to past timber harvest. A more thorough discussion of marten habitat needs, old growth habitats, and current habitat conditions is referenced in the SFLA, pages 104, 106, 107 and within the SFLA Wildlife Technical Report,-American Marten (1998).

Martens breed from late June to early August, with most mating occurring in July. Births occur in March and April. Young martens emerge from the dens at about 50 days of age, but may be moved among dens by the mother earlier. A variety of structures are used for dens, with trees, logs, and rocks accounting for 70 percent of reported den structures. In virtually all studied cases involving standing trees, logs, and snags, dens were found in large structures that are characteristic of late-successional forests (Ruggiero, L.F., teal. 1994, page 15) . Late-successional and old growth stands are therefore considered the primary den site habitats. The most common means by which humans directly affect marten populations is through trapping, although highway accidents also cause some direct mortalities.

Since Forest Plan inception, pine marten population monitoring track counts and incidental sightings indicate that marten population trends across the Nez Perce Forest remain stable (NPNF 15th Annual Monitoring & Evaluation Report Draft -2002 Pine marten/fisher monitoring data - Item 10 Population Trends of Indicator Species , Nez Perce National Forest, 2003).

ENVIRONMENTAL EFFECTS

Based on available information, the analysis criteria for pine marten is the extent to which each alternative promotes and/or conserves late seral habitats and maintains or reduces densities of roads and the associated potential for mortality due to trapping. In all alternatives, all existing old growth is protected and together with strategically selected replacement old growth stands and protection of riparian zones, old growth patch size and connectivity are maintained. Roadside salvage of individual dead and dying trees along haul routes will have very limited negative effects on pine marten because of their preference for live trees and more dense canopies. Noxious weeds, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact pine marten or their habitats to a significant degree regardless of alternative. Road decommissioning would help reduce facilitation of trapper access within the analysis area.

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

The no action alternative would have no direct negative impact on marten or their late seral habitats. Existing road access levels that facilitate potential trapping would remain unchanged.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

, continuity and loading which in combination with effects of past harvest, roading, fire exclusion actions, and other human-caused impacts would add modestly to overall future habitat risks of habitat fragmentation by wildfire. If wildfires occur, larger, post-fire openings due to fuel continuity would increase habitat fragmentation in places, indirectly discouraging pine marten immigration and recolonization of the area, and would modestly increase marten home range sizes until regrowth of suitable habitats were reestablished. Refer to the fire effects discussion for additional details. No measurable cumulative positive or negative effects on facilitation of trapper access would occur.

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would harvest the next to lowest acreage (2,550 acres), resulting in moderate levels of direct and indirect fragmentation of marten habitats. Alternative B, as all other alternatives, would produce no direct effects to existing old growth stands however. As a result of indirect effects from continued fuel buildups over much of the analysis area and despite some fuel reduction, lethal, stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (refer to fire effects analysis for additional details).

Alternative B would slightly improve security, particularly in the American River drainage where most of the large blocks of prime old growth habitat remain, however security levels in the Crooked River portion of the analysis area would remain at comparatively low levels similar to Alternative A.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B would partially discourage continued fuel continuity and loading which in combination with effects of past harvest, roading, fire exclusion actions, and other human-caused impacts would add modestly to overall future habitat risks of habitat fragmentation by wildfire. Larger, post-fire openings would cumulatively increase habitat fragmentation in places, indirectly discouraging immigration and recolonization of the area, and would modestly increase marten home range sizes until regrowth of suitable habitats were reestablished. Refer to the fire effects discussion for additional details**.** Combined harvest impacts and impending fire risks to their habitats from current and fuel loadings on the uncharacteristically abundant levels of habitat would be substantial regardless of alternatives.

Alternative B would not contribute to long term cumulative reductions in habitat security**,** because motorized access would be reduced slightly in the American River drainage.

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would directly harvest slightly more marten habitat than Alternative C with similar levels of direct and indirect habitat fragmentation. No direct effects to existing old growth stands would occur. As a result of indirect effects from continued fuel buildups over much of the analysis area and despite some fuel reduction, lethal, stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (refer to fire effects analysis for additional details). Alternative C would improve security through roads decommissioning in the American River drainage, but would only match security of Alternative B within the Crooked River portion of the analysis area.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C cumulative effects would be slightly greater than, but similar to those of Alternative B. Combined harvest impacts and impending fire risks to their habitats from current and fuel loadings on the uncharacteristically abundant levels of habitat would be substantial regardless of alternatives. Alternative C would not contribute to long term cumulative reductions in habitat security**,** because motorized access would be reduced slightly in the American River drainage.

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D would directly harvest the greatest amounts of marten habitat with similar levels of direct and indirect habitat fragmentation. No direct effects to existing old growth stands would

occur. As a result of indirect effects from continued fuel buildups over much of the analysis area and despite highest levels of fuel reduction, lethal, some individual stands may benefit from minor fire risk reductions, but overall stand-replacing fires are predicted to become more prevalent with associated risks of related habitat losses (refer to fire effects analysis for additional details). Alternative D would improve security in both drainages at the same level as Alternative C.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D cumulative effects would be the highest of all alternatives. Combined harvest impacts and impending fire risks to their habitats from current and fuel loadings on the uncharacteristically abundant levels of habitat would be substantial regardless of alternatives. Alternative D would not contribute to long term cumulative reductions in habitat security**,** because motorized access would be reduced slightly.

ALTERNATIVE E

DIRECT AND INDIRECT

Alternative E would harvest the least (2,082 acres), and would have direct/indirect effects similar to, but slightly less than Alternative B. Alternative E would improve road-related security the highest of all alternatives.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative E cumulative effects would be similar to those of Alternative B. Combined harvest impacts and impending fire risks to late seral habitats from current and future fuel loadings on the uncharacteristically abundant levels of habitat would remain substantial. Alternative E would not contribute to long term cumulative reductions in habitat security**,** because motorized access would be reduced to the highest levels of all alternatives.

COMMON TO ALL ALTERNATIVES

3.11.4. INDICATOR 4 – OTHER SPECIES

NEOTROPICAL MIGRANT BIRDS

Neotropical migrant songbirds utilize coniferous forest habitats of the U.S. during the summer breeding season but migrate to southern latitudes to spend winters as far south as Mexico and South America. Tropical deforestation and other environmental effects related to wintering grounds are thought largely responsible for declines in some Neotropical migrant species that summer in forests of the Eastern U.S.

Fragmentation of nesting habitats is also theorized to increase rates of migrant bird nest predation and brood parasitism by other species. Small, isolated forest patches, particularly in forests of the Eastern U.S. are considered at greatest risk. In contrast, natural fire regimes and topographic diversity in the West, combined in the past to produce a temporally dynamic, naturally fragmented landscape compared with the previously extensive and relatively homogenous eastern deciduous forests. Timber harvest and fire suppression activity have nevertheless altered the natural landscape of western forests (Dobkin 1994, p.5).

Despite these changes, Neotropical migrant bird populations in the western U.S. are recognized as faring better than eastern North American populations. A comprehensive review of Breeding Bird Survey data from 1966-85 found that Western Neotropical migrants as a group were not declining overall. However, the review found evidence of significant widespread declines among 19 songbird species of native grassland and shrub steppe habitats (Dobkin 1994, P.4-5). None of these habitats are represented within the American and Crooked River Project analysis area.

Of the harvest treatments in the American-Crooked River Project, more than half will be considered relatively intense regeneration harvests. The remaining harvests will be variations of partial-cut or thinning aimed at removing lodgepole and other components but favoring retention and perpetuation of fire-adapted ponderosa pine and larch elements. Each harvest type will change habitat resulting in habitat reductions or habitat enhancements, depending on the bird species considered. Some Neotropical migrants will be harmed to some measure, while others will benefit. Harvested units that remove virtually all canopy and tree boles typically leave no residual nesting habitat for most species, but often create openings and herbaceous ground cover used by aerial insect foraging species. Impacts of partial cut harvesting on Neotropical migratory birds in conifer forests of the Northern Rockies in one study (Young & Hutto, 2002), found that five bird species (brown creeper, winter wren, golden-crowned kinglet, varied thrush, and Townsend's warbler), were significantly more abundant in uncut forest stands in at least one year, and 15 species were more abundant in partially cut stands. Many of the bird species that were more abundant in the partial-cut stands, such as the hairy woodpecker, mountain chickadee, yellow-rumped warbler, and western tanager, are open-forest species that might be expected to be more common in thinned conifer forests than anywhere else. In the body of the referenced study, concern was expressed that brown-headed cowbirds are much more likely to occur in partially cut than in uncut forests and the presence of this nest parasite may create unsuitable environments for other nesting birds.

Few studies have examined habitat and landscape factors affecting the distribution of Brown-headed cowbirds, a nest-parasitic native bird. Using data from a region-wide monitoring program conducted across USFS Region 1 (including the Nez Perce National Forest), Young and Hutto (1999) concluded that the presence of clearcuts does not draw cowbirds into forested regions. The density of potential host species (cattle or other livestock) was one of the most important local-scale correlates of cowbird presence. In this study, cowbirds were so strongly associated with proximity of agricultural areas they concluded that many areas of the forested mountains are probably still safe from parasitism pressure.

A 3-year study by the USDA Forest Service Northern Region Landbird Monitoring Program (Hutto and Young 1999, p. 69), concluded that some landbird species are relatively restricted in their habitat distribution to only one or two naturally occurring cover types that are themselves restricted in spatial content, or at least less extensive than they were historically. Of the potential cover types in the American and Crooked Project area, providing adequate amounts of: 1) post-fire standing dead forests, 2) relatively uncut older forests, and 3) riparian environments were considered important to maintaining songbird populations diversity and viability in the long term. Within the American and Crooked River Project area, riparian areas (RHCAs) would receive protection from harvest through the application of PACFISH standards designed for fish habitat protection. An abundance of uncut standing forest acreage will be retained after the project (regardless of alternative), as potential future post-fire standing dead forest. This "cover type" is expected to be abundant across the landscape regardless of alternative. For this reason, analysis criteria for Neotropical migrant songbirds will be protection of old growth timber stands from both harvest as well as from future wildfire risks.

ENVIRONMENTAL EFFECTS

ALTERNATIVE A – NO ACTION ALTERNATIVE

DIRECT AND INDIRECT

This alternative will have no direct impacts from harvest on any existing old growth timber. It would neither provide any indirect fuel reductions effects.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

The no action alternative in combination with all past, present and reasonably foreseeable future actions including harvests on adjacent BLM lands and fire exclusion in the overall landscape would cumulatively impact old growth to uncertain levels principally due to future fire risks. As a result of continued fuels buildup, lethal, stand-replacing fires would become more prevalent with attendant risks to old growth habitats (refer to fire effects analysis for additional details).

ALTERNATIVE B

DIRECT AND INDIRECT

Alternative B would have no direct impacts from harvest on any existing old growth or species that nest in old growth. Indirect reductions in fuels and intermediate aged stands at a moderate levels (2,550 acres) would occur. Harvest activities that might occur during spring nesting season would result in potential losses of nests and/or young of some birds. This would occur on a relatively limited portion of the analysis area however. These effects would not be of sufficient magnitude to risk loss of any individual bird species in the local landscape because harvested acres would be only a very small percentage of the forested area within the analysis area. Unharvested stands with lodgepole pine in the process of dying would be relatively poor nesting habitat for some Neotropical migrant birds, because of declining live canopy cover. Roadside salvage of dead and dying trees along haul routes will result in removal of limited amounts of potential nesting and foraging habitats for some Neotropical migrants, but the extent of the impacts will be limited in context of each alternative due to limited areas involved.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative B in combination with past, present and reasonably foreseeable future actions including fire exclusion in the overall landscape will cumulatively add some fragmentation effects to the forested landscape but the net impacts to bird species would be relatively minor, given historical impacts of fire regimes, overall insect-driven disturbance, and tree death throughout the analysis area. As a result of continued fuels buildup and despite limited fuel removal where harvests take place, lethal, stand-replacing fires would become more prevalent with attendant risks to old growth habitats (refer to fire effects analysis for additional details).

ALTERNATIVE C

DIRECT AND INDIRECT

Alternative C would have no direct impacts from harvest on any existing old growth. Other effects would be similar to but slightly greater than those of Alternative B. Roadside salvage of dead and dying trees along haul routes will result in removal of limited amounts of potential nesting and foraging habitats for some Neotropical migrants, but the extent of the impacts will be limited in context of each alternative due to limited areas involved.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative C would have similar but slightly greater cumulative effects as Alternative B.

ALTERNATIVE D

DIRECT AND INDIRECT

Alternative D would have no direct impacts from harvest on any existing old growth. Indirect effects would be similar to those of Alternative C but greater than any other alternative. Roadside salvage of dead and dying trees along haul routes will result in removal of limited amounts of

potential nesting and foraging habitats for some Neotropical migrants, but the extent of the impacts will be limited in context of each alternative due to limited areas involved.

CUMULATIVE EFFECTS (INCLUDES FORESEEABLE FUTURE ACTIONS)

Alternative D would have similar cumulative impacts but to higher levels than Alternatives B or C.

ALTERNATIVE E

Alternative E would have no direct impacts from harvest on any existing old growth. Indirect effects would be similar to those of Alternative B but to a lesser extent. Roadside salvage of dead and dying trees along haul routes will result in removal of limited amounts of potential nesting and foraging habitats for some Neotropical migrants, but the extent of the impacts will be limited in context of each alternative due to limited areas involved.

DIRECT AND INDIRECT

Alternative E would have similar but lesser cumulative impacts than Alternatives B.

IRREVERSIBLE, IRRETRIEVABLE EFFECTS

None of the alternatives described and analyzed would implement actions or activities that would result in an irreversible or irretrievable commitment of resources harmful to populations of any resident or migratory wildlife species. In addition, no alternative would result in irreversible or irretrievable commitment of species or habitat resources that foreclose the formulation or implementation of reasonable and prudent alternatives that would violate Endangered Species Act Section 7 (a) (2) leading to jeopardy. None of the alternatives would threaten species subpopulation viability at the local level. For a more thorough habitat-based discussion, refer to the document titled: "Habitat-based Terrestrial Vertebrate Populations Viability related to the American/Crooked River Salvage Project", in the project files, for further information.

Cumulative effects analyses for wildlife species and habitats are summarized within six generalized species habitat guilds based on predominant habitat associations or dependency relationships, (i.e. fire/early seral dependent, late seral/old-growth associated, aquatic dependent, security dependent, ponderosa pine dependent, and cave-dependent). Some species may align with more than one guild. Cumulative effects take into account the American & Crooked River Project as well as past, present, and potentially foreseeable future actions (see complete listing referenced in Chapter 3, Introduction section).

- Fire/Early Seral Dependent (wolf, lynx, bald eagle, black-backed woodpecker, elk)
- Late Seral/Old-Growth Associated (goshawk, marten, fisher, pileated woodpecker, Shira's moose, Neotropical migrant birds)
- Aquatic Dependent (boreal toad, Harlequin duck, Northern leopard frog, Coeur d' Alene salamander)
- Security Dependent (wolverine, elk)
- Ponderosa pine Dependent (flammulated owl, white-headed woodpecker)
- Cave-dependent (Townsend's big-eared bat) : None of the alternatives produced cumulative effects on this species or its habitats, because they occur at much lower elevations outside the analysis area.

ALTERNATIVE A – NO ACTION ALTERNATIVE

Collectively, all additive impacts would be scattered across the entire 39,000 acre analysis area within a much larger landscape. Within this larger perspective, the cumulative effects would not be expected to yield adverse effects on any species or habitats, which would threaten the population viability of any species discussed in the wildlife section.

Fire/Early Seral Dependent - This alternative would allow cumulative fuel-loading to occur unabated. Cumulative effects would initially be harmful to some species because fire would be discouraged initially, but eventually the accumulations and continuity of fuels may encourage larger acreages to burn and regenerate which would result in outcomes beneficial for most fire/early seral species to mixed degrees. Some of these species also require interspersions of live cover with early seral habitat, so benefits to some species would be limited. Due to the magnitude and landscape acreages affected by the mountain pine beetle infestations, past and future harvests in the analysis area and on BLM and private lands in the area would likely have limited influence to overall effects to most of these species.

Late Seral/Old-Growth Associated - This alternative would initially add no direct impacts on late seral or old growth habitats initially protecting habitat integrity, but would allow highest levels of cumulative fuel-loading to occur. Cumulative effects would include uncertain future risks for fire losses of late seral and old growth habitats in patterns and patch sizes at scales that may be outside historical norms. The effects may potentially be negative for some species in some places.

Aquatic Dependent - This alternative would likely have no measurable cumulative impacts on habitats or species.

Security Dependent - This alternative would have no measurable cumulative impacts on critical habitats for species requiring remote, undeveloped areas, but would allow moderately high open road densities, access, and human intrusion effects in some portions of the analysis area. Current risk levels of wildlife disturbance, displacement and potential mortality would remain unchanged in developed areas.

Ponderosa pine Dependent - This alternative would have no measurable impacts on habitats or species of this guild.

Cave-dependent – This alternative would have no measurable impacts on habitats or species of this guild.

ALTERNATIVE B

Collectively, all additive impacts would be scattered across the entire 39,000 acre analysis area within a much larger landscape. Within this larger perspective, the cumulative effects would not be expected to yield adverse effects on any species or habitats, which would threaten the population viability of any species discussed in the wildlife section.

Fire/Early Seral Dependent - This alternative along with past, and planned future harvests would remove relatively moderate acreage amounts of habitat components (standing dead trees), deemed important to feeding and nesting for at least one species. For black-backed woodpecker, the overall effects would be minimal given the overall acreage now dead or dying. Alternative B would have the initial effect of potentially reducing local fire intensity risks where fuels are removed resulting in uncertain levels of both positive and negative effects to various species of this guild.

Late Seral/Old-Growth Associated - This alternative would protect all existing old growth and adequate replacement old growth from direct harvest, thus direct impacts for most species would be avoided. Moderate levels of partial harvest treatments in mid-seral stands would help favor future development of habitat elements (large, fire-adapted tree species important to cavity-nesting

species) important as nest/feed trees to several species, but moderate additional fragmentation of mid-seral forest landscapes would occur with uncertain negative impacts. Direct losses of some nests and potential nest trees outside of old growth would occur. Future risks of late seral and old growth habitat losses to fire would remain except possibly within or near harvested sites.

Aquatic Dependent - This alternative would protect moist riparian zone habitats used for feeding, resting, and/or reproduction, but watershed restoration actions would initially add modest levels of sediment to stream conditions impacted by cumulative past activities in the drainages elevating impacts related to sediment and water quality. The overall cumulative effects of these would be relatively minimal in terms of impacts to aquatic wildlife species and their habitats.

Security Dependent – This alternative would modestly improve habitat security compared to Alternative A by reducing motorized access particularly in the American River portion of the analysis area, but the Crooked River portion would remain the same as Alternative A. Although temporary road construction would occur to access some harvest units, they would be decommissioned, and would not contribute to long term motorized access and security reduction.

Ponderosa pine Dependent - This alternative would have no measurable impacts on habitats or species of this guild.

Cave-dependent – This alternative would have no measurable impacts on habitats or species of this guild.

ALTERNATIVE C

Collectively, all additive impacts would be scattered across the entire 39,000 acre analysis area within a much larger landscape. Within this larger perspective, the cumulative effects would not be expected to yield adverse effects on any species or habitats, which would threaten the population viability of any species discussed in the wildlife section.

Fire/Early Seral Dependent - This alternative along with past, and planned future harvests would remove relatively moderate acreage amounts of habitat components (standing dead trees), deemed important to feeding and nesting for at least one species. For black-backed woodpecker, the overall effects would be minimal given the overall acreage now dead or dying. Alternative C would have the initial effect of potentially reducing local fire intensity risks where fuels are removed resulting in uncertain levels of both positive and negative effects to various species of this guild. Overall effects would be similar to Alternative B.

Late Seral/Old-Growth Associated - This alternative would protect all existing old growth and adequate replacement old growth from direct harvest, thus direct impacts for most species would be avoided. Moderate levels of partial harvest treatments in mid-seral stands would help favor future development of habitat elements (large, fire-adapted tree species important to cavity-nesting species) important as nest/feed trees to several species, but moderate additional fragmentation of mid-seral forest landscapes would occur with uncertain negative impacts. Direct losses of some nests and potential nest trees outside of old growth would occur. Future risks of late seral and old growth habitat losses to fire would remain except possibly within or near harvested sites.

Aquatic Dependent - This alternative would protect moist riparian zone habitats used for feeding, resting, and/or reproduction, but watershed restoration actions would initially add modest levels of activity-related sediment to stream conditions impacted by cumulative past activities in the drainages elevating impacts related to sediment and water quality. The overall cumulative effects of these would be relatively minimal in terms of impacts to aquatic wildlife species and their habitats.

Security Dependent - This alternative would substantially improve habitat security compared to Alternative A & B by reducing motorized access to a greater level particularly in the American River

portion of the analysis area, but the Crooked River portion would remain the same as Alternative A. Although temporary road construction would occur to access some harvest units, they would be decommissioned, and would not contribute to long term motorized access and security reduction.

Ponderosa pine Dependent - This alternative would have no measurable impacts on habitats or species of this guild.

Cave-dependent – This alternative would have no measurable impacts on habitats or species of this guild.

ALTERNATIVE D

Collectively, all additive impacts would be scattered across the entire 39,000 acre analysis area within a much larger landscape. Within this larger perspective, the cumulative effects would not be expected to yield adverse effects on any species or habitats, which would threaten the population viability of any species discussed in the wildlife section.

Fire/Early Seral Dependent - This alternative would remove the highest acreage amounts of habitat components (standing dead trees), deemed important to feeding and nesting for at least one species (black-backed woodpecker). For black-backed woodpecker, the overall effects would be minimal given the overall acreages of potential habitat now dead or dying. Alternative D would have the initial effect of potentially reducing local fire intensity risks over the highest number of acres where fuels are removed resulting in uncertain levels of both positive and negative effects to various species of this guild. Overall effects would be similar to Alternative C but to a greater degree and the potentials to limit future fire intensities and extent would be greatest.

Late Seral/Old-Growth Associated - This alternative would protect all existing old growth and adequate replacement old growth from direct harvest, thus most direct impacts for most species would be avoided. Highest levels of partial harvest treatments in mid-seral stands would help favor the most future development of habitat elements (large, fire-adapted tree species important to cavity-nesting species) important as nest/feed trees to several species, but highest levels of additional fragmentation of mid-seral forest landscapes would be added Direct losses of some nests and potential nest trees outside of old growth would occur. Future risks of late seral and old growth habitat losses may be reduced in more places, but likely would remain except possibly within or near harvested sites.

Aquatic Dependent - This alternative would protect moist riparian zone habitats used for feeding, resting, and/or reproduction, but would add highest levels of activity-related sediment to conditions impacted by cumulative past activities in the drainages related to sediment and water quality. The effects of these would be relatively minimal to moderate in terms of overall impacts to aquatic wildlife species and their habitats.

Security Dependent - Alternative D would essentially yield the same cumulative effects as Alternative C.

Ponderosa pine Dependent - This alternative would have no measurable impacts on habitats or species of this guild.

Cave-dependent – This alternative would have no measurable impacts on habitats or species of this guild.

ALTERNATIVE E

Collectively, all additive impacts would be scattered across the entire 39,000 acre analysis area within a much larger landscape. Within this larger perspective, the cumulative effects would not be expected to yield adverse effects on any species or habitats, which would threaten the population viability of any species discussed in the wildlife section.

Fire/Early Seral Dependent - This alternative along with past, and planned future harvests would remove the lowest acreage amounts of habitat components (standing dead trees), deemed important to feeding and nesting for at least one species. For black-backed woodpecker, the overall effects would be minimal given the overall acreage now dead or dying. Local fire intensity risk reduction levels would be less than Alternative B with similar but lower level effects.

Late Seral/Old-Growth Associated - This alternative would protect all existing old growth and adequate replacement old growth from direct harvest, thus direct impacts for most species would be avoided. Moderate levels of partial harvest treatments in mid-seral stands would help favor future development of habitat elements (large, fire-adapted tree species important to cavity-nesting species) important as nest/feed trees to several species, and the lowest additional fragmentation of mid-seral forest landscapes would occur with more limited but uncertain negative impacts. Lowest losses of some nests and potential nest trees outside of old growth would occur relative to other action alternatives. Future risks of late seral and old growth habitat losses to fire would likely remain higher (compared to Alternatives B,C & D), except possibly within or near harvested sites.

Aquatic Dependent - This alternative would protect moist riparian zone habitats used for feeding, resting, and/or reproduction, and would add the lowest levels of activity-related sediment to conditions impacted by cumulative past activities in the drainages related to sediment and water quality. The overall cumulative effects of these would be relatively minimal in terms of overall impacts to aquatic wildlife species and their habitats.

Security Dependent - This alternative would improve habitat security to the highest level and positive effects would accrue to both the American and Crooked River portions of the analysis area. Although temporary road construction would occur to access some harvest units, they would be decommissioned, and would not contribute to long term motorized access and security reduction.

Ponderosa pine Dependent - This alternative would have no measurable impacts on habitats or species of this guild.

Cave-dependent – This alternative would have no measurable impacts on habitats or species of this guild.

OLD GROWTH HABITAT ANALYSIS

EXISTING CONDITION

An extensive overview of old growth forest conditions across the landscape within the South Fork Clearwater River Subbasin is referenced on pages 85-86 in the South Fork Clearwater River Landscape Assessment Volume I (1998) and Map #44 of the SFLA Volume II.

The American and Crooked River Project was designed to avoid all direct harvest impacts on old growth and replacement stands that contribute toward largest consolidated blocks. Old-growth is described simply as blocks of forests having old trees and related structural attributes, like snags and down wood. Old-growth characteristics vary by region, forest type, and local conditions.

Habitat in the American River drainage is somewhat less impacted and fragmented by past timber harvest than the Crooked river drainage. Current existing old growth and designated replacement percentages of forested acres within each old growth analysis area (OGAA) within the overall project area are displayed **(in bold type**) below. Analysis of adjacent proximity OGAAs immediately outside the analysis area are also displayed in regular type face as necessary for assessment of cumulative effects of the project:

Table 3.102 – Habitat in the American River Drainage

Drainage	OGAA #	Forested acres	% existing old growth	% replacement old growth
American River	**3050509**	**11864**	**22**	**6**
	3050510	**4495**	**43**	**12**
	3050516	**2433**	**9**	**9**
	3050511	**5874**	**0.8**	**10**
	3050506	7577	3.6	2
	3050504	3704	32	21
	3050505	3452	23	15
Crooked River	**3050301**	**8664**	**11**	**8**
	3050303	**7215**	**1.5**	**14**
	3050304	**13762**	**15**	**11**

OLD GROWTH & REPLACEMENT OLD GROWTH IN THE PROJECT AREA:

Old growth analysis unit numbers (**in bold**) are within the immediate project planning area. Those in regular type face are listed here to illustrate and address cumulative effects of related actions, and to show excess amounts of old growth in adjacent OGAAs necessary to compensate for acreage-short units to ensure Forest Plan standards compliance.

Table 3.103: Data displayed are common to all alternatives

Drainage	OGAA#	Forested Acres [1]	10%[2]	Existing OG acres[3]	% OG Present[4]	+/- Acres[5]	% OG Acres Confirmed[6]	Adjacent OGAA#[7]
American	**3050509**	**11864**	**1186**	**2583**	**22%**	**+1397**	**772 = 6%**	
American	**3050510**	**4495**	**449**	**1952**	**43%**	**+1503**	**524 = 12%**	
American	**3050516**	**2433**	**243**	**229**	**9.4%**	**-14**	**220 = 9%**	**3050510**
American	**3050511**	**5874**	**587**	**46**	**0.8%**	**-541**	**593 = 10%**	**3050510**
American	**3050506**	**7577**	**758**	**271**	**3.6%**	**-487**	**137 = 2%**	**3050505/ 3050504**
American	3050505	3452	345	799	23%	+454	527 = 15%	
American	3050504	3704	370	1176	32%	+806	776 = 21%	
Crooked	**3050301**	**8664**	**866**	**955**	**11%**	**+89**	**697 = 8%**	
Crooked	**3050303**	**7215**	**721**	**114**	**1.5%**	**-607**	**1011 = 14%**	**3050509**
Crooked	**3050304**	**13762**	**1376**	**2132**	**15%**	**+756**	**1577 = 11%**	
Project Net Existing Old-growth Balance = +3356, Replacement = + 4213								

[1] Forested Acres in OGAA

[2] 10% of OGAA acres

[3] Existing OG acres in OGAA

[4] What percent existing old growth remains present?

[5] Excess acres (+) of existing old growth or deficit acres (-) of old growth relative to FP std.

[6] **What acreage and percent replacement old growth acres are confirmed in the OGAA?**

[7] **For OGAAs below Forest Plan standards, excess old growth or replacement old growth to compensate is allocated from adjacent OGAA #**

Within the entire South Fork Clearwater River (SFCR) landscape, stands with large trees historically tended to be concentrated at the north and west ends of the SFCR subbasin, in areas maintained by frequent low severity fire (Vegetative Response Units -VRUs 3&4), or on moist sites where fire was infrequent (VRUs 7&10). In other parts of the subbasin (including Crooked River and to some extent, the American River drainages), stands with large trees tended to be more fragmented from one another, often associated with north slopes and draws where fire might have bypassed them (USDA, Nez Perce National Forest, SFLA, page 86, 1998). As stated in the SFLA (Chapter 2, page 7), "The significance of wildfire in presettlement times can scarcely be overestimated as a key shaping element of the landscape". This is evident in the display of presettlement fire regimes for both American and Crooked River areas on Map #8 (SFLA, 1998). Both watersheds have been influenced and fragmented in part, by infrequent, lethal fires. Local old growth associated species have nevertheless maintained their presence and contribution to populations viability locally despite the historical fragmentation effects of previous fires.

Past clearcut harvest patterns in the American and Crooked river project area have impacted some old growth complexes by further fragmenting and changing overall distribution patterns of old age timber stands. While present old growth stands in the American River portion of the analysis area remain relatively abundant, the distribution and connectivity is not uniform, being concentrated principally in the northern half of the drainage along the eastern and western sides. The old growth in the Crooked River drainage has been impacted by previous fire impacts, harvesting and roading, in addition to fire exclusion. Many stands consequently are now slightly smaller, more widely spaced and moderately fragmented. Aggregations (blocks) of old growth in the Crooked River portion of the analysis area tend to be concentrated mostly in the western portions of the area. While the historic patterns and amounts of old growth have been impacted by previous management in some areas, overall distribution and patch aggregations with large tree components important to old growth species still remain relatively consistent in landscape proximity with historical location patterns similar to 1930 (See SFCLA 1998; Map #44 – South Fork Clearwater Subbasin Large Trees in 1930 and Possible Current Old Growth).

Despite the accepted importance of connectedness and corridors in maintaining old growth and populations viability of its dependent species, new and somewhat contradictory information suggests that the importance of connectedness should be balanced with risks of natural disturbance events. New theories and biodiversity studies are beginning to build a case for the value of heterogeneity or dissimilarity in forest stands (Dodge, S.R. (ed.). 2003). Reduced connectedness and enhanced permeability may increase resistance to agents of catastrophe and enhance resilience after catastrophes. The current mountain pine beetle infestation within analysis area drainages directly threatens lodgepole pine components and entire stands throughout the area, which indirectly raises risk uncertainty of future fire-induced old growth losses. The relative level of this loss risk remains uncertain due to the uncertainty of future fire intensities, weather conditions, and suppression effectiveness during these events. Patches of old growth that have become more fragmented and surrounded by areas density-rich with dying lodgepole pine may be at greater fire-loss risk in the future. With respect to maintenance of species populations that require old growth structure as part of their key habitat needs, work by Fahrig (1997), suggests that the effects of habitat loss far outweigh the effects of habitat fragmentation. Fahrig further contends that details of how habitats are arranged cannot usually mitigate the risks of habitat loss and for this reason, conservation efforts should be aimed primarily at stopping habitat loss and at habitat restoration. Absence of any harvesting within or around the perimeters or habitat connections of existing old growth patches protects patch habitat integrity in the short-term, but may increase loss risks for some patches to wildfires in the longer term, especially given continued fire exclusion.

Intermediate-aged stands in the analysis area are relatively abundant and widespread. While some isolated intermediate-aged stands that could eventually become old growth have lodgepole pine or mixed conifer species components and are planned for some measure of harvest, the American and Crooked Salvage project old growth planning verification process selected and identified future replacement old growth stands that were in closest proximity to or within existing old growth patches. This selective design for long term old growth helps maintain the most logical proximity and long term continuity of old growth complexes with time. In this way, the project planning and design provides protection of future old growth stands. Ensuring protection from harvest and protecting future old growth geographically aggregated is done with the intent that animal movement and genetic exchange will be maintained commensurate with historic landscape patterns in the area. In addition, riparian habitat corridors are protected between these units to further maintain connectivity probability. These moist habitats are particularly important to several old growth management indicator species (fisher, pine marten, goshawk).

ENVIRONMENTAL EFFECTS

No alternatives fragment old growth with harvest or roadways within any existing old growth or dedicated replacement patches, thus short term habitat integrity is protected in all alternatives. Nesting and denning habitat components provided by old growth will remain protected from harvest related activities in all alternatives. Some clusters of planned project harvest units, in conjunction with the interruption of fuels created by previous harvest units (such as the area 5 miles due north of Elk City), may impart some measure of fire risk reduction to large old growth patches. Such risk reduction could potentially allow fire fighters greater opportunity in the future to suppress fires before they destroy significant patches of valuable old growth habitats. However, over most of the project analysis area, due to the accumulations of fuels from past fire exclusion actions and prevalence of lodgepole pine fuels in the surrounding landscape as well as the unpredictability of weather conditions when fires occur, the actual level of risk reduction attributable to planned harvests remains uncertain. Given past fire patterns under natural fire conditions, post-fire retention of largest old growth patches was good, however conditions now reflect decades of fire exclusion impacts, which complicates future predictions.

Planned harvests may contribute to slightly reduced future fire loss risks of nearby old growth in some situations, but a measure of uncertainty exists (refer to fire effects analysis section of this document). In the American and Crooked Salvage Project area, all alternatives harvest no existing old growth. Abundant replacement old growth stands are identified and protected from harvest and roading. All action alternatives are expected to have no direct measurable negative effect on local habitat relative to viability of species associated with old growth, but indirect effects and risks of fire loss remain to some degree uncertain.

WEEDS AND NON-NATIVE VEGETATION

INTRODUCTION

Invasive plants have been identified as a significant threat to western ecosystems. As invasive plants invade and establish, native species richness and frequency may be reduced (Forcella and Harvey, 1983) erosion rates may increase (Lacey et. al., 1989), ecological processes may be altered (Whisenant, 1990) and rare plants could be threatened (Rosentreter, 1994). Bedunnah (1992) noted that exotic plants have the potential to alter ecological equilibrium to a point where the change is permanent. Invasive plants can clearly alter ecosystem structure and function (Vitousek,1986).

Significantly higher rates of sedimentation from runoff in knapweed dominated sites has been documented in Montana (Lacey et. al., 1989). Cheatgrass and medusahead have altered fire

frequencies in many areas of the Great Basin and intermountain region (Whisenant, 1990; Young 1992). Purple loosestrife has significantly changed wetland vegetation structure in eastern North America, and is currently expanding into the Pacific Northwest. Plant community structure along many canyon slopes in the Snake and Salmon River basins and lower Clearwater River basin has shifted from a fibrous rooted bunchgrass community to one dominated by tap-rooted weedy forbs, affecting habitat for chukar (Pauley 1993) and other grassland birds.

Invasive plants can also have an economic impact. In North Dakota, it was estimated that leafy spurge had a direct economic impact of over $25 million, with a total direct and indirect impact of $87.3 million (Wallace et. al. 1993). It has been estimated that if spotted knapweed continues to spread, the potential annual loss to Montana's rangelands could reach $155 million (Lacey et. al. 1995). A recent economic impact analysis of the effects of Tamarix in the western United States estimated a 55 year total value lost from 7.3 to 16 billion dollars from the invasive riparian tree (Zavaleta 2000).

Invasive plants can expand following man caused or natural disturbances, and invade degraded as well as intact habitats (Tausch et. al., 1994; Parker 2001; Willard et. al. 1988). Forcella and Harvey (1983) documented Eurasian weeds dominating relatively undisturbed grasslands in Montana. Tyser and Key (1988) reported that spotted knapweed invaded and reproduced in rough fescue communities in Glacier National Park. Sulfur cinquefoil has been found as a co-dominate in an otherwise good condition bunchgrass community.

SCOPE OF THE ANALYSIS

This section addresses the presence of invasive plants relative to expansion risk zones, susceptible habitats and spread pathways. The direct and indirect effects are considered within the Crooked Creek and American River watersheds. Cumulative effects are considered within the South Fork Clearwater River sub-basin.

REGULATORY FRAMEWORK

Analysis and evaluation of Invasive plant in this EIS is based on direction contained in The Federal Noxious Weed law (1974) as amended in 1975, Executive Order 13112 for Invasive Species, Forest Service policy (2080), Northern Region Supplement (R1 2000-2001-1**)** Implementation of Integrated Weed Management on National Forest System lands in Region 1, and the Nez Perce National Forest Plan (II-7, II-20, II-26, III-6) provide direction in the management of noxious weeds.

In general, the Forest is directed to implement an effective weed management program with the objectives of preventing the introduction and establishment of noxious weeds; containing and suppressing existing weed infestations; and cooperating with local, state, and other federal agencies in the management of noxious weeds.

Section 2 (a) (3) of Executive Order 13112 for Invasive Species directs federal agency to “not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determinations that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm would be taken in conjunction with the actions”.

ANALYSIS METHODS

Weed expansion in the project area is greatly influenced by habitat susceptibility, seed availability, seed or propagule dispersal, and habitat disturbance. The probability that weeds will expand in the

analysis area depends on the interaction of these four factors. Weed expansion begins with the dispersal of seed from existing weed infestations adjacent to uninfested areas.

Land use practices and resource conditions may be important factors that encourage the initial invasion of exotic plants (Hobbs 2000). In mountainous habitat roads and trails are the primary means by which people and their equipment interact with the environment and therefore may be an important spread pathway. These linear corridors act as dispersal conduits for exotic plants (Gelbard and Belnap 2003, Marcus et al. 1998). In addition, road and trail management creates sustained levels of soil disturbance that promotes establishment of exotic plants there by increasing seed or propagules for ongoing dispersal. From these small isolated infestations along roads and trails, invasive plants may colonize adjacent native habitats or may respond to periodic disturbance by spreading into previously uninfested areas.

Disturbance creates spatial and temporal openings where sites become suitable for plant establishment, where usable light, space, water and nutrients are available to meet the specific growing requirements of the plant. Disturbance may increase the susceptibility of an otherwise intact plant community to weed invasion by increasing the availability of a limited resource (Hobbs 1989). Natural or human caused fires along with timber harvest and grazing are board scale disturbances that influence the amount of available habitat for weed establishment and may promote invasion of exotic plants (D'Antonio, 2000; Belsky and Gelbard 2000; Pauchard et al. 2003).

SUSCEPTIBLE HABITATS

Susceptibility refers to the vulnerability of plant communities to colonization and establishment of invasive plants. Exotic plants can be expected to colonize those sites or habitats that provide the necessary requirements to complete their life cycle. Those habitats that lack the necessary resources for specific weeds are not considered susceptible to colonization. In these conditions a site or habitat may be considered as having low susceptibility or may even be closed.

For this analysis, habitats were rated as having low, moderate or high susceptibility based on habitat type group (HTG) characteristics and known ability of a group of weeds to colonize in these habitat types. Highly susceptible habitats have site characteristics and plant community structure such that invasive plants can colonize and dominate the herbaceous layer even in the absence of intense and frequent disturbance. HTGs with a low rating have plant community structure and or site characteristics that limit weeds from exhibiting invasive behavior. Species may colonize highly disturbed sites and waste places but act as ephemeral species in the plant community. Closed Habitat Type Groups have characteristic such as high elevation, extreme climates, substrate or existing plant community structure where the habitat is effectively closed to weed colonization.

The habitat susceptibility analysis for this project used weed guilds rather than individual species. Weed guilds can be considered as groups of exotic or invasive plants that share common growing requirements and generally colonize and affect similar habitats. Many weeds are capable of growing across a greater range of environmental conditions. However, weeds have been placed in the guild for which they have the greatest potential to impact the existing plant community. The Montane Weeds group was used for susceptibility analysis. This guild of exotic plants is capable of colonizing and becoming a member of a Dry and warm forest communities. Weed species include leafy spurge, sulfur cinquefoil, spotted knapweed, orange hawkweed, yellow toadflax and Canada thistle. Warm Dry Douglas-Fir (HTG2) and Warm/Dry Grand Fir(HTG 3), and drier portions of meadows (HTG 60) are often susceptible to these species.

As summarized in Table 3.97, approximately 53 percent of the analysis area can be characterized as low susceptibility or not susceptible to invasive plants. These areas fall into moist grand-fir to subalpine fir habitats. Forcella and Harvey (1983) found weeds in high-montane forest habitats

restricted to roadsides even with adjacent native habitat disturbance. Highly susceptible habitat makes up approximately 3 percent of the analysis area and is restricted to scattered stands and south slopes characterized by relatively open dry Douglas-fir. The most common Habitat Type Group, Dry Grand-fir, rated as moderately susceptible to invasive plants and accounted for approximately 43 percent of the analysis area.

In general the analysis area can be characterized as low to moderately susceptible to invasive plants. The moderate and high susceptibility zones were used in the following section to assess the risk of spread by invasive plants.

Table 3.104: Weed Susceptibility Rating

	Weed Susceptibility Rating				
Watersheds	High	Moderate	Low	Closed	Totals
American River	99	5923	8036	1533	15,591
Crooked River	1150	10942	4636	6562	23,290
Totals	1249	16865	12672	8095	38,882

EXOTIC PLANT INVENTORY DATA

Our knowledge of existing exotic vegetation populations is limited in the analysis area. Although spot surveys have been conducted for several years they have been of limited scope. Approximately 30 acres of spotted knapweed and 127 acres Canada thistle have been documented within or adjacent to the proposed activity areas. Most of the infestations are small and scattered. The majority of documented infestations within the analysis area have been found along or associated with the transportation network.

WEED EXPANSION RISK

The risk of weed expansion in the analysis area was determined by assessing the following factors; susceptibility of Habitat Type Groups (HTGs 2 & 3), the presence of weed infestations within and adjacent to the analysis area (seed source), timber harvest over the past 20 years (site disturbance), and the presence and location of existing roads (spread pathway). Geographic Information System (GIS) was used to display and calculate acres of at risk areas. Table 3.107 at the end of this section summarizes the rating matrix that was used to determine the probability of expansion for invasive plants.

When all four factors (susceptible habitat, seed source, disturbance, spread pathway) are in proximity to one another the risk of invasive plant expansion is considered high. An example of this condition would be dry ponderosa habitat that has recently been disturbed, adjacent to a road with an existing infestation of rush skeletonweed. There would be a high probability that rush skeletonweed would spread. If one or more factors are missing the likelihood of weed spread would decline.

In the analysis area, the grand-fir habitat is low to moderately susceptible to weed invasion with relatively few, small weed infestations associated with the transportation network. However, human activity levels as characterized by past timber harvest and existing roads, is relatively high in portions of the watersheds. As a result the overall risk of weed spread in the analysis area can be characterized as having low to moderate probability of substantial weed spread. The identified risk zones within the analysis area are generated from the interaction of moderately susceptible habitats, recent disturbance and existing roads. The tables below displays acres that are rated as having a moderate risk of weed expansion.

Table 3.105: Acres of Expansion Risk

Acres of Expansion Risk		
Watershed	**Moderate Risk**	**Percent of area**
Crooked River	8796 ac	37%
American River	3581 ac	22%

This effects analysis focuses primarily on activities occurring within areas of moderate risk to weed expansion. The type and amount of ground disturbing and/or habitat altering activity for each alternative was assessed and compared to weed expansion risk zones. Acres of activity adjacent to or occurring in moderate weed expansion risk zones were calculated for each alternative. To simplify, only activities associated with Alternative D that occur within or adjacent to weed expansion zones are displayed on maps 16a and 16b. All other alternatives propose less activity.

Table 3.106: Disturbance by Alternative

Alternative							
B		**C**		**D**		**E**	
Harvest Unit	New Roads	Harvest Units	New Roads	Harvest Units	New Roads	Harvest Units	New Roads
2083 ac.	**7 miles**	**2297 ac**	**13 miles**	**2936 ac**	**13 miles**	**1606 ac**	**5 miles**

All action alternatives have the potential to spread weeds to some degree because of site altering or ground disturbing activities within moderately susceptible habitats. Of the action alternatives, Alternative D would result in the most disturbed acres and greatest potential for weed expansion. Alternative E would have the least potential to spread weeds. This is a relative ranking of alternatives based on total acres of disturbance. It is recognized that the actual amount of ground disturbing activity would likely be less than the gross acres displayed.

The ground based logging system would disturb the soil surface more so than the proposed cable system. Alternative D would have the most acres of ground based system in moderately susceptible habitats within HTG 3 and HTG 2. Alternative E would have the least acres disturbed by ground operations. Alternative C and B fall between the two other alternatives.

Scattered patches of invasive plants are found along the edges and within habitats that are not inherently susceptible to weed invasion. These plants may not represent a risk to the existing plant community or pose a threat to ecosystem process and function, but can act as a seed/propagule reservoir for future dispersal into more suitable sites. Most weeds do not spread across a landscape by a single advancing front. Rather, weeds establish from many small disjunct patches from independent populations (Moody and Mack 1988). In many cases, these outlying small patches become the founding population for further dispersal. Small infestations that do not pose a current threat to the existing plant community may still contribute to the spread of the species by acting as a founder population for new disjunct patches.

SUMMARY

Large infestations of invasive plants are found adjacent to the National Forest and along the South Fork of the Clearwater River . However, the analysis areas contain relatively small infestations of invasive exotic plants such as spotted knapweed and Canada thistle.

There are zones in both Crooked River and American River portions that have a moderate risk of weed expansion due to a combination of susceptible habitats, frequent disturbances, high road densities and scattered seed sources.

Based on the location of existing infestations the transportation corridors are the primary spread pathway for weed expansion within the analysis area.

Close integration of future disturbance activities will be necessary in moderate risk zones. If the seed sources, or pathways can be efficiently managed, then the risk of expansion could be minimized through prevention actions integrated into management strategies and projects, and direct control of existing infestations.

Due to the large and growing infestations adjacent to the National Forest, exotic plant management within the analysis area must be integrated into the broader weed strategies cooperatively developed across the Clearwater River Basin.

CUMULATIVE EFFECTS

Invasive plant dispersal and colonization are on-going processes. Interagency surveys conducted over the past few years have revealed 15 noxious weeds or exotic species of concern occupying over 30,000 acres within the South Fork of Clearwater River subbasin. Individual infestations range in size from a few square feet to hundreds of acres. Even though large block have not been surveyed, sufficient suitable locations including travel corridors, burned areas, past timber treatments, trails, and private lands have been surveyed to indicate an undesirable condition in the South Fork Clearwater River drainage.

With increased disturbance within and outside of the analysis area, opportunities for the spread of new invaders will increase. As vehicles, equipment and humans move through the landscape, each has the potential to carry weed seed to new and currently uninfested areas. This spread really has no limit other than the susceptibility of the receiving habitats and the presence of a seed source. Given the inherent susceptibility of habitats within the South Fork Clearwater River subbasin, the number of infestations in the lower subbasin and the human activity level, spread is likely to continue.

Past and present disturbances associated with vegetation treatments added to reasonably foreseeable actions would create a cumulative effect on weed expansion by the combination of distribution of weed seed, ground disturbance and creation of spread pathways. The degree of the cumulative effect would vary depending upon the number of entrances over time, distribution of disturbance across the analysis area and acres disturbed. The impacts of cumulative effects incurred by action alternatives to risk of weed expansion would be eased with the implementation of preventive and weed management actions.

Table 3.107: Probability of Weed Spread, Rating Matrix

Habitat Suscept.	Spread Components			Expansion Probability
	Seed Source	Site Disturbance	Spread Vector	
Rating	Weeds Present or Adjacent	Timber Harvest	Existing Roads	Rating
High	Yes	Yes	High	Extreme
			Moderate	
			Low	High
		No	High	
			Moderate	
			Low	
	No	Yes	High	
			Moderate	Moderate
			Low	
		No	High	
			Moderate	
			Low	Low
Moderate	Yes	Yes	High	High
			Moderate	Moderate
			Low	
		No	High	
			Moderate	
			Low	
	No	Yes	High	High
			Moderate	Moderate
			Low	
		No	High	
			Moderate	Low
			Low	