Situation Summary and Management Strategy
For
Mountain Caribou
And
Winter Recreation
On the
Idaho Panhandle National Forests

March 12, 2004

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Executive Summary

The following caribou winter recreation summary was compiled in part to describe the known resource overlap between caribou habitat, use and winter recreational activities within the Selkirk Mountains in the Idaho Panhandle National Forests. The impetus for this summary and proposed strategy elements is in response to actions and task outlined within the Caribou Recovery Plan (USDI, 1993), Idaho Panhandle National Forest Plan (USDA, 1987), the Emergency Recovery Plan for Selkirk Caribou (USDI, 1998) and the requirement of the amended Biological Opinion for the IPNF forest Plan (USDI, 2001). This caribou winter recreation strategy was not prepared to meet the intent of the National Environmental Policy Act (NEPA) because it does not result in management decisions that change the current condition or policies. The analysis that may result in access changes will be incorporated into the Forest Plan revision.

Introduction

Prior to 1900, woodland caribou were distributed throughout much of Canada, and the northeastern, north central, and northwestern conterminous United States (figure 1). Caribou are occasionally sighted in Montana and Minnesota (Mech 1982), but they have disappeared from Maine, Vermont, New Hampshire, Michigan and Wisconsin (Fahingbauser 1965, McCollough 1990). There was an unsuccessful attempt to reintroduce caribou into Maine in the 1980's (McCullough 1992).

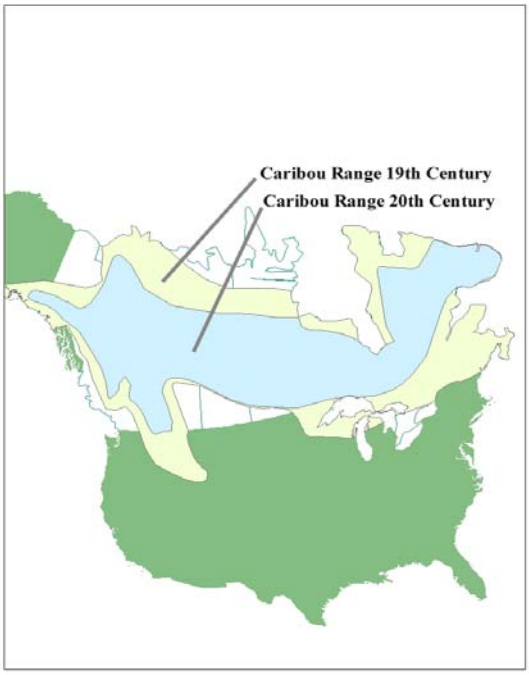

Figure 1 Map showing current and historical distribution of caribou in North America.

The last confirmed report of caribou in Montana occurred in 2002 (Kinley per comm.)
Caribou in Idaho historically occurred as far south as the Salmon River (Evans 1960). Since the 1960's the last remaining woodland caribou population in the United States has been restricted to the southern Selkirk Mountain of northeastern Washington, northern Idaho and southeastern British Columbia. As recently as the 1950's, the Selkirk local population consisted of approximately 100 animals (Flinn 1956, Evans 1960). It is estimated that the Selkirk population may have numbered between 200 to 400 animals prior to European settlement of the region. By the early 1980's the southern Selkirk population had been reduced to approximately 25 animals, which centered their

distribution around Stagleap Provincial Park in British Columbia (Scott and Servheen 1985).

Status

In 1980, the United States Fish and Wildlife Service received a petition from a private citizen and another from the Idaho Department of Fish and Game requesting the listing of the Selkirk caribou under the Endangered Species Act. On January 14, 1983, the Secretary of the Interior listed the Selkirk Woodland caribou population as endangered under an emergency rule. The rule expired on September 12, 1983. A second rule was published October 25, 1983 and the final rule published February 29, 1984.

In 1993, mountain caribou an ecotype of the woodland caribou were featured on the British Columbia provincial blue List of 'species at risk' by the Conservation Data Center because of past declines in distribution and abundance. The British Columbia Conservation Data Center placed the mountain caribou on the provincial Red list in 2000. The Conservation Data Center Red List includes species that are candidates for legal status as provincially threatened or endangered. The Committee On the Status of Endangered Wildlife in Canada designated caribou in the Southern Mountains National Ecological Area including all mountain caribou as a threatened species in May 2000 and reaffirmed this designation in May 2002.

Population Estimates

The Selkirk Caribou population was estimated to be approximately 25 animals in 1983 when listed as an endangered species. An augmentation plan was completed by the International Mountain Caribou Technical Committee (IMCTC) in 1986, which outlined steps, methodology and location in which caribou would be augmented into the established recovery area. Twenty-four animals were augmented into the recovery area in 1987 and 1988 each and twelve in 1990. The release area for all three years was the Ball Creek drainage in Idaho. The goals for this augmentation effort were to increase the populations' numbers and also to increase distribution of caribou within the ecosystem.

In 1996, a second augmentation plan was completed by Washington Department of Fish and Wildlife and the U.S. Fish and Wildlife Service, which outlined steps and a strategy to place caribou within the Washington portion of the recovery area. As a result of this plan, 19 animals were augmented in 1996, 13 in 1997 and 11 in 1998. The release sites in 1996 and 1997 were located on the Colville National Forest. In 1998 the release of 11 animals occurred within Stagleap Park, British Columbia. Although the initial goal of establishing new herd groups and increasing the local population within the southern Selkirk's was not entirely successful, the program has been successful in maintaining a core populations of caribou within the ecosystem (USGAO, 1999). Currently the Southern Selkirk caribou is considered as stable in the short-term. With the British Columbia Recovery Plan (BCMLAE, 2002), the south Selkirk population is considered as stable in the long-term.

Figure 2. Map showing the past and current distribution of mountain caribou within British Columbia and the United States. Map courtesy of Ministry of Sustainable Resource Management and Ministry of Water, Land and Air Protection, Victoria

Caribou census efforts were initiated in 1991 under the lead of Idaho Department of Fish and Game. The results are displayed in Table 1. The winter census effort is conducted during the late winter period, usually between the months of February and April. A fixed wing aircraft is used initially to locate areas where caribou occur. If necessary a helicopter is then used to provide a more accurate means of counting total numbers of animals within each group(s).

Between 1967 and 1999 a total of 80 caribou mortalities have been documented (Appendix E). The tracking of radio collared animals provided information on 51 of the caribou deaths, whereas historical records and accounts provided information on 29 of the caribou deaths. Of the total 80 caribou mortalities documented, 11 have been determined to be caused by predation, 25 by poaching, 8 by natural causes including falls, 4 from vehicle collisions and 29 were from unknown causes.

Table 1 Caribou census information since 1991

Year	Area	# Adults	# Calves	% Calves	Area Total	Grand Total
1991	U.S.	23	3	12	26	47
	B.C.	17	4	19	21	
1992	U.S.	23	1	4	24	47
	B.C.	21	2	9	23	
1993	U.S.	20	3	13	23	51
	B.C.	24	4	14	28	
1994	U.S.	12	1	8	13	45
	B.C.	28	4	13	32	
1995	U.S.	10	3	23	13[a]	52
	B.C.	34	5	13	39	
1996	U.S.	10	2	17	12	39
	B.C.	23	4	15	27	
1997[b]	U.S.	7	2	22	9	39
	B.C.	25	5	17	30	
1998[c]	U.S.	n/a	n/a	n/a	31	45
	B.C.	n/a	n/a	n/a	14	
1999[d]	U.S.	n/a	n/a	n/a	6	48
	B.C.	n/a	n/a	n/a	42	
2000	U.S.	2	1	33	3	34
	B.C.	26	5	16	31	
2001	No census conducted due to winter conditions – low snowpack					
2002	U.S.	2	0	0	2	34
	B.C.	23	9	28	32	
2003	U.S.	1	0	0	1	41
	B.C.	27[e]	3[e]	10	40	

[a] Known incomplete count (tracks of a small group [2-4] detected but animals not observed during helicopter flight).
[b] Includes 19 animals released in 1996.
[c] Includes 13 animals released in 1997.
[d] Includes 11 animals released in 1998.
[e] Classification flight did not include a total count. 41 animals were counted but only 30 were classified.

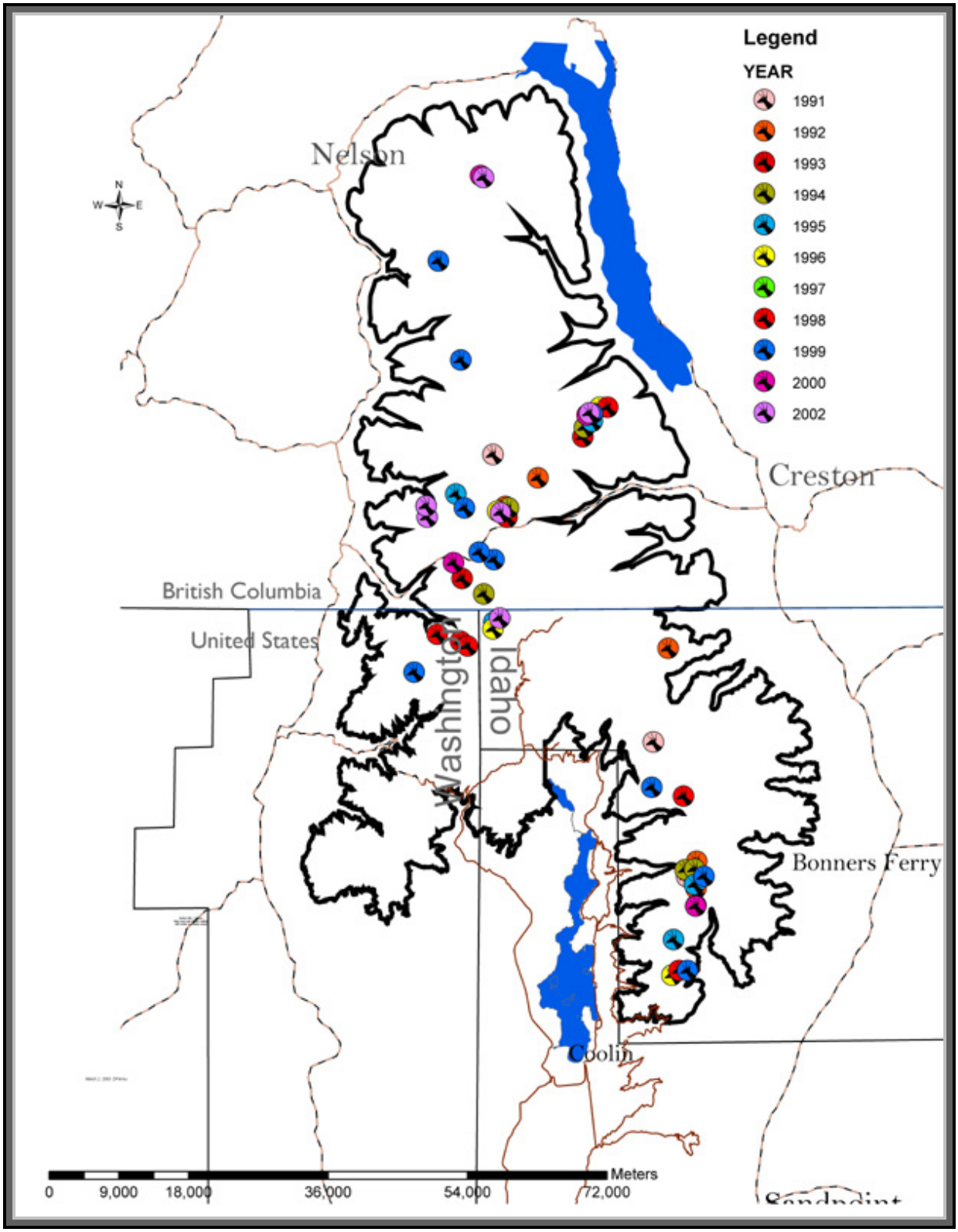

Figure 3 Map showing caribou locations as determined during census efforts since 1991.

Recovery Area

The recovery area was first delineated in 1986 as part of the initial caribou caribou recovery plan and further identified in 1994 as part of the recovery plan revision. The recovery area is where management activities are designed to facilitate the recovery of the species, which has objective of increasing population numbers, distribution of the species and the proportion of supporting habitats. Associated management activities within these areas are designed to achieve these goals. Provisions of the endangered species act only pertain to the United States portion of the recovery area. Management of the British Columbia portion of the recovery in conducted under jurisdiction of the Ministry of Water, Land and Air.

The recovery area for woodland caribou within the Selkirk Ecosystem is comprised of approximately 945, 264 acres in northern Idaho, northeastern Washington and southern British Columbia. About 47 percent of recovery area lies within the United States and 53 percent within British Columbia. The United States portion includes portions of the Idaho Panhandle and Colville National Forests, Idaho Department of Lands and other scattered private parcels. The British Columbia portion includes portions of the Kootenay Lakes and Arrow Lake districts, Darkwoods Forest LTD, the Salmo Arm Wilderness and Stagleap Provincial Park.

Table 2 Table showing the various land management jurisdictions included within the caribou recovery area.

	Acres	Percent
Idaho Panhandle National Forests	**289,018**	**31**
Colville National Forest	**105,104**	**11**
Idaho Department of Lands	**50,541**	**5**
Kootnay Lake District	**260,677**	**28**
Arrow Lake District	**95,154**	**10**
Darkwoods Forest	**144,770**	**15**
Total	**945,264**	

The recovery area as it is currently delineated, is identified as lands above 4000 feet in elevation within British Columbia, land above 4000 feet on the Colville National forest and generally land above 4500 feet within the Idaho Panhandle National Forests and the Idaho Department of Lands. Some lands below 4500 feet in elevation on the Idaho Panhandle National Forests are included within the recovery area, based on caribou utilization, target stand condition and habitat connectivity.

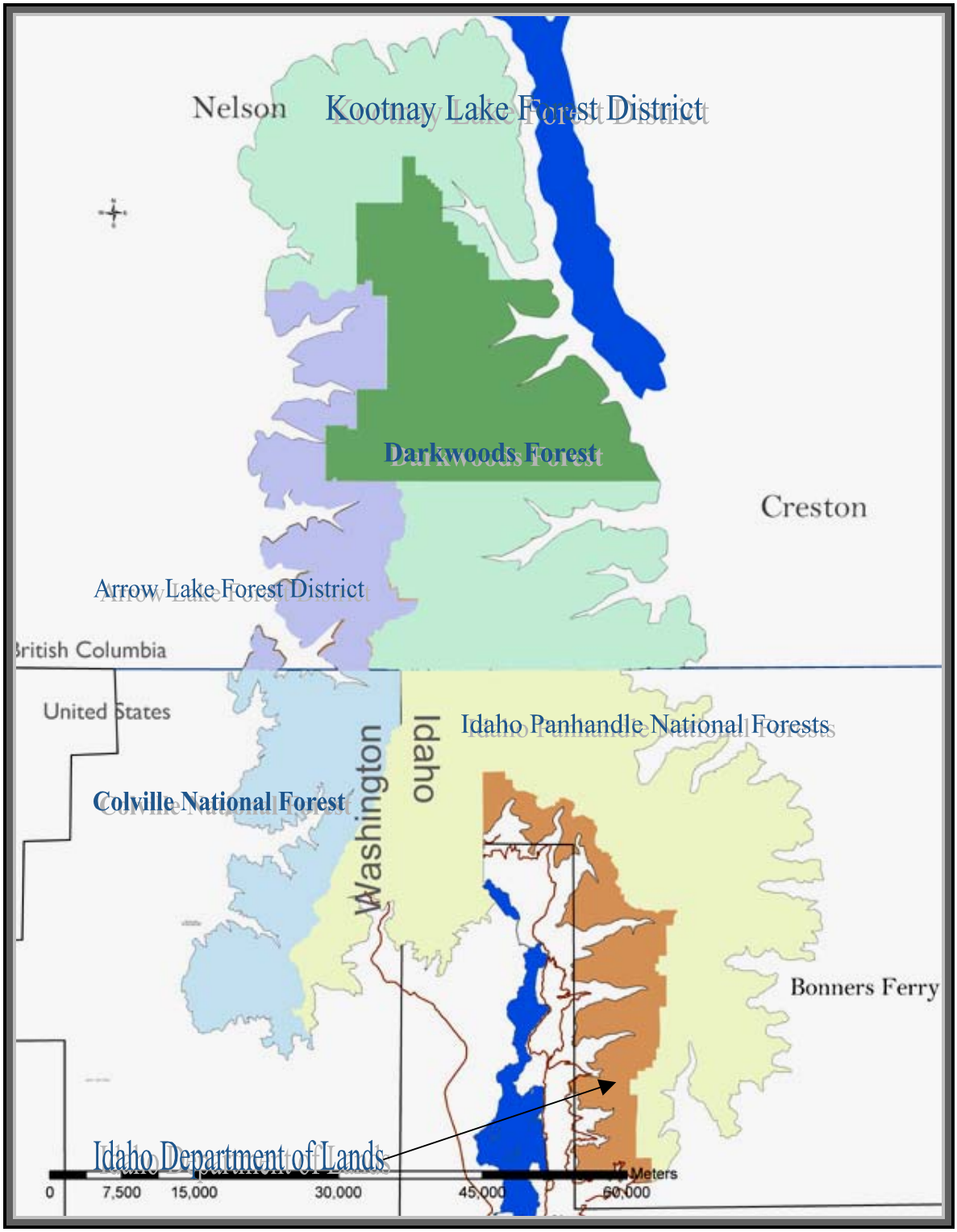

Figure 4 Map of the South Selkirk Caribou Recovery Area showing various land managers.

Management Direction

Management direction regarding caribou habitat is found within various documents, which include the Idaho Panhandle National Forests Management Plan (USDA Forest Service 1987), the revised Caribou Recovery Plan (USFWS 1994), the Amended Biological Opinion for the Forest Plan (USFWS 2001) and Emergency Action Plan, Selkirk Mountains Woodland Caribou Recovery (USDI, 2002)

The management plan for the Idaho Panhandle National Forests was completed in 1987 and was developed in response to direction of the National Forest Management Act (1976). As part of the management direction regarding wildlife species, the forest plan identified the forest wide direction of managing habitat of animals and plant species which were listed under the Endangered Species Act to provide for recovery as outlined within individual species recovery or management plans. The Forest Plan further identified management areas such as caribou managements areas, designated wilderness, proposed wilderness and semi-primitive recreation areas where the management for caribou recovery would be emphasized. Management focused on providing a seasonal mixed of suitable habitats in conjunction with reducing or eliminating conflicts between human uses and the needs of caribou.

A recovery plan was first developed for the Selkirk caribou in 1987 (USDI, !987) and later revised in 1994 (USDI, 1994). The recovery plan was developed by the recovery team under the direction of the U.S. Fish and Wildlife Service. The recovery plan identified tasks which would be required for recovery. Prioritized tasks for implementation and identified the appropriate lead agency for each task. Beginning in 1998, the recovery team developed an emergency action plan under direction of an interagency caribou steering committee. The emergency action plan was developed to further identify any additional tasks and prioritize existing tasks to prevent the short-term *extirpation* of caribou within the Selkirk recovery area.

In 2001 the U.S. Fish and Wildlife Service issued an Amended Biological Opinion for the existing Idaho Panhandle National Forests Management Plan in response to litigation from outside groups. This Biological Opinion identified tasks, which would be required to implement to meet the requirements of the Endangered Species Act (1973).

Existing Winter Recreation

Winter recreation use on the Idaho Panhandle National Forests was mapped in part using both local and agency knowledge. Of the various winter recreational activities, such as snowmobiling, backcountry skiing, snowshoeing and dog sledding, snowmobiling is by far the greatest winter recreational use within the recovery area. Snowmobile use was categorized into two primary groups: linear routes which occurs on groomed and ungroomed routes and dispersed use areas commonly referred to as play areas The Schweitzer Ski area occurs on the forest, but is outside of the caribou recovery area.

A total of 1,042 miles of snowmobile routes are located within the North Zone of the Idaho Panhandle National Forests, of which 522 miles are located on National Forest lands. Linear routes are distributed within the three northern drainages and are described within table 3. An estimated 24 percent of the linear routes are located within the area delineated for caribou recovery. Of the total 563 miles of linear routes which are currently groomed for use, 77 miles, or 14 percent, are located on National Forest lands within the caribou recovery area (Figure 8).

Table 3 Distribution of linear snowmobile within each of the three sub-basins, the three ranger districts of the North Zone of the Idaho Panhandle National Forests and within the caribou recovery area.

Basin	**Miles of linear routes within Basin**		**Miles of linear routes on National Forest Lands**		**Miles of linear routes on National Forest Lands within Caribou Recovery Area**	
	Total	**Groomed**	**Total**	**Groomed**	**Total**	**Groomed**
Priest	473	347	326	216	110	61
Kootenai	360	60	165	42	137	12
Pend Oreille	209	156	31	31	4	4
Total	1042	563	522	289	251	77

In addition to linear routes, snowmobile play areas are also delineated within the existing recovery area. Approximately 175,200 acres of snowplay areas are located on the northern portion of the Idaho Panhandle National Forests (Figure 8). This includes both National Forest System lands and other ownerships. Of this 77,260 acres, or 44 percent, are located within the caribou recovery area. Approximately 50,200 acres are located on National Forest System lands within the recovery area.

Within the Idaho Panhandle National Forests, latest Forest Management Plan (USDA, 1987), approximately 72,452 acres within the caribou recovery area has management direction which currently prohibits motorized use during the winter period (Table 4). Of this, 14,724 acres, referred to as the Selkirk Crest closure was closed administratively to motorized use beginning in the winter period in 1994. The Selkirk closure was delineated and implemented as a result of identified conflicts between snowmobiles and caribou.

In April 1992, monitoring by Idaho Department of Fish and Game indicated that caribou were displaced from the Beehive Lakes area following an instance where snowmobiles were coming in close contact with the band of caribou. In March 1994, two instances were reported by Idaho Department of Fish and Game where caribou were displaced from the Two Mouth Lakes Area following use of that area by snowmobiles. Again in March 1997, after the closure was implemented, caribou were observed having been displaced from the Harrison Lakes area to the north following use of that area by snowmobiles. These instances of caribou displacement have been documented both by the Idaho Panhandle National Forests and the U.S. Fish and Wildlife Service.

Table 4. Table of existing winter recreation motorized use restrictions within the Selkirk Caribou Recovery Area.

Name	Area [acres]	Portion of Recovery Area	U.S. Portion of Recovery Area	IPNF Portion of Recovery Area
…….Idaho Panhandle National Forests				
Existing Wilderness	9,874	1 %	2 %	3 %
Proposed Wilderness	12,840	1 %	3 %	4 %
Upper Priest Scenic Area	2,840	0	1 %	1 %
Long Canyon	25,872	3 %	6 %	9 %
Wild and Scenic river	6,302	1 %	1 %	2 %
Selkirk Closure	14,724	2 %	3 %	5 %
Subtotal	72,452	8 %	16%	24 %
…….Colville National Forest				
Existing wilderness	29,681	3 %	6 %	
…….British Columbia				
BC Parks and wilderness	57,309	6 %		
Darkwods Forest	147,743	15 %		
Subtotal	205,052	21 %		

Other Winter Recreational Uses

Several cross-country ski trail systems are located in the Priest Lake area but none are located within the caribou recovery area. Most of these trail systems are located on the west and south sides of the lake and south of the recovery area. Several of these areas are commonly used but the overall trail system is limited.

The nearest downhill ski area is Schweitzer Ski Area southeast of the lake, overlooking Sandpoint. This area is south of the recovery area.

Dogsledding is an incidental use in the area. Undoubtedly, there are some dog-sled users that utilize some of the trail systems but that particular recreational activity is estimated to be very minimal. In past seasons the U.S. Forest Service has issued Recreational Event Special Use permits for dogsled races at the Priest Lake airport, across the highway from the Ranger Station.

Like dogsledding, heliskiing and snow-cat skiing are both uncommon in the area. Currently, there is no Outfitter and Guide permitted for this activity. Sledding is a popular winter activity but not within the caribou recovery area. Snowshoe use are common within the Priest Lake Area but most of this activity does not take place within the caribou recovery area. The majority of these activities occur outside the recovery zone.

Recreation Use - Economic Information and Measures of Use

Tourism on the North Zone of the Idaho Panhandle National Forests grew rapidly in the late 1980s and 1990s. For example, Bonner County tourism employment peaks in the summer, falls to its lowest levels before Thanksgiving, and then hits the winter peak around the first of the year and then falls again to a low level in mid-spring. According to the Bonner County Economic Guide (www.sandpoint.com/economy) tourism employment in Bonner County went from 1,720 in January of 2001 to 1,430 in April, then rose to 1,802 in August, then fell back to 1,430 in November. Overall, there are about 18,000 people working in all sectors of the Bonner County economy. Tourism, both winter and summer, is an important component of this economy.

According to the *Idaho Statewide Comprehensive Outdoor Recreation & Tourism Plan* (SCORTP), 2003, snowmobile users, on the average, spend approximately $3,411 per year on snowmobile activities. Statewide, this totals to $162 million dollars spent per year generating $8.1 million dollars in sales tax revenue. Forty percent of the snowmobile users take 16 or more trips with their sleds per year.

The *1999-2000 Idaho Statewide Motor Vehicle Traveler Study* researched the preferences of Idaho residents and non-residents for ten different recreational activities (Table 5).

Table 5, displays the results for residents and non-residents and the combined results for the snowmobiling activity only. Other recreational activities examined were motorbike riding, 4-wheeler (ATV) riding, 4-WD (Jeeps, etc.) driving, mountain biking, hiking, horseback riding, cross-country skiing, snowshoeing, and running.

Recreation Activity	**Percent that participate in each activity**	**Trail preferences of those who participate**		
		On-Trail	**Off-Trail**	**Both**
Preferences by Idaho Residents				
Snomobiling[1]	29%	28%	9%	63%
Preferences by Non-residents				
Snomobiling	17%	34%	13%	53%
Preferences by all travelers				
Snomobiling	25%	29%	10%	60%

Table 5 McLaughlin, W.J., Sanyal, N., & Spinosa, D.G. (2001) The 1999-2000 Idaho Statewide Motor Vehicle Traveler Study. A cooperative marketing research partnership among the Idaho Travel Council; Idaho Department of Commerce, Division of Tourism; Idaho Travel Regions; The Idaho Transportation Department; Idaho State Patrol; National Institute for Advanced Transportation Technology; University of Idaho and The Department of Resource Recreation and Tourism, College of Natural Resources.

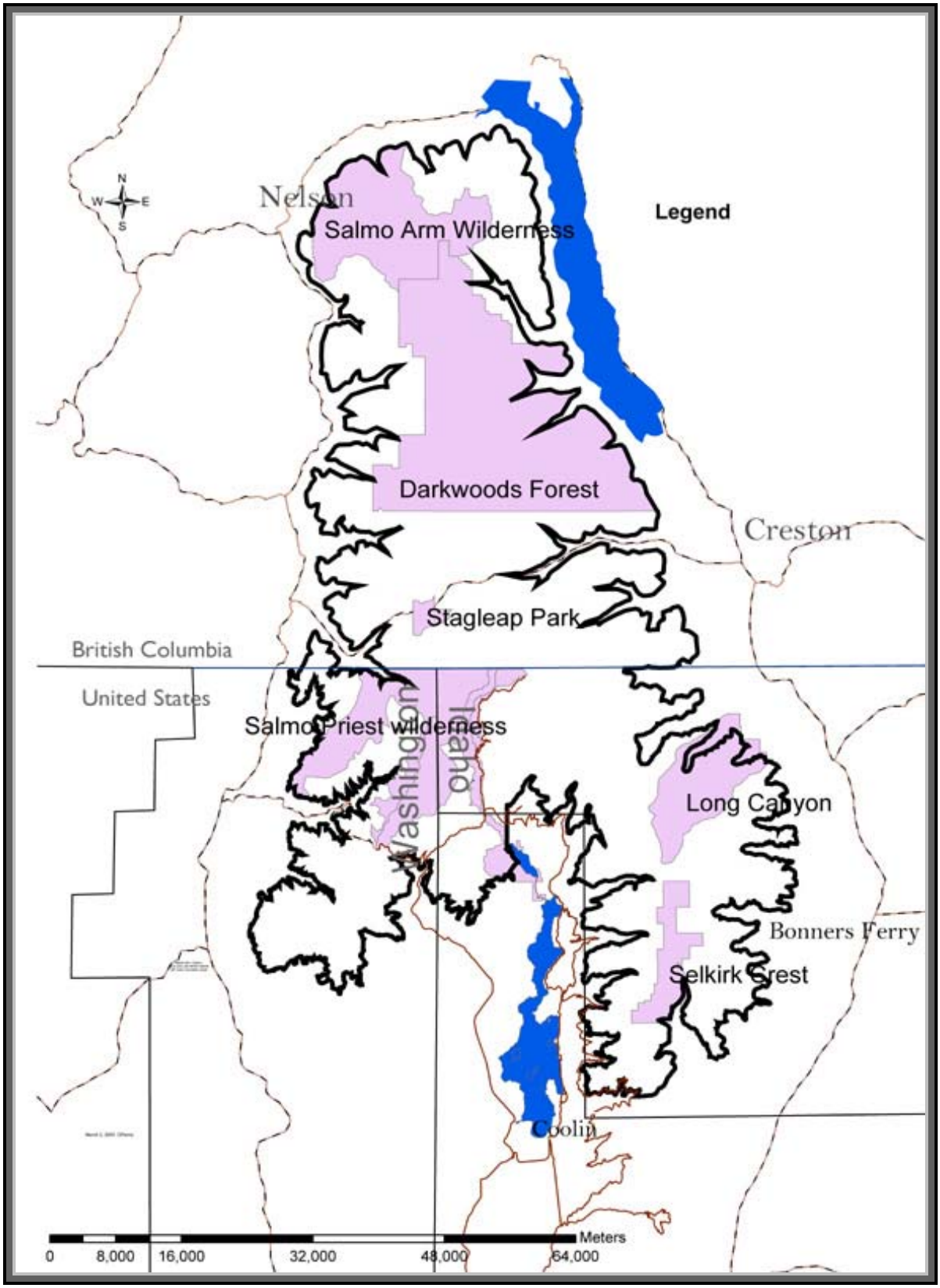

Figure 5 Map of South Selkirk Caribou Recovery Area showing the portions of the recovery area (purple) were current restrictions on motorized winter recreation are in place.

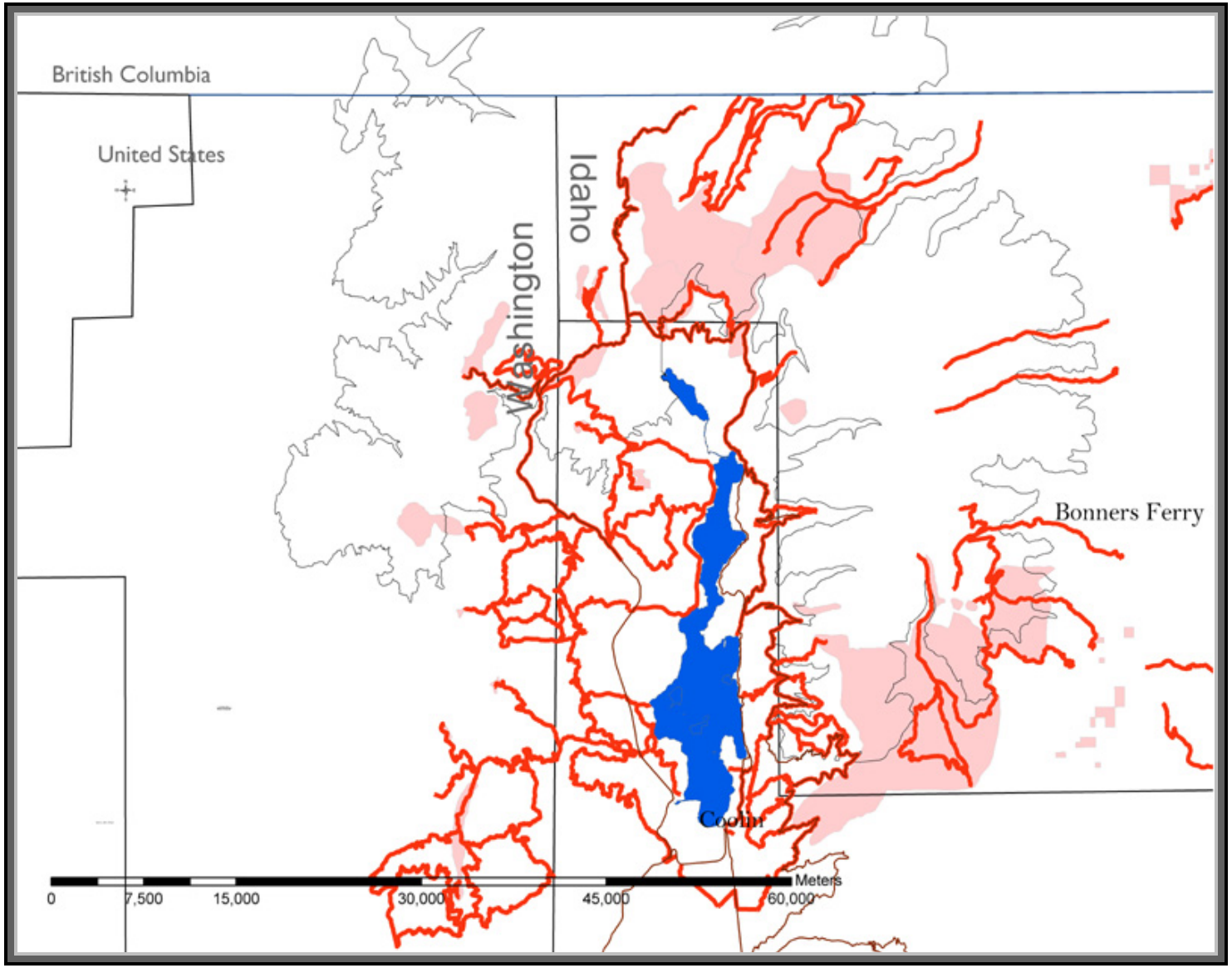

Figure 6 Maps showing current linear snowmobile routes and identified snowmobile play areas (pink) within and adjacent to the caribou recovery area.

The *Idaho Statewide Comprehensive Outdoor Recreation & Tourism Plan* published earlier this year found similar results to the *1999-2000 Idaho Statewide Motor Vehicle Traveler Study* as to the number of individuals taking part in snowmobiling activities. This study is based on 1015 responses from a survey which included 4000 people. The chart below displays those numbers.

Snow Activities	**Internet**		**Mailout**	
	You	**Your Kids**	**You**	**Your Kids**
Snowmobiling	28.6%	13.1%	19.4%	15%

Table 6. Statewide comprehensive Outdoor and tourism Plan, Outdoor data Center, Idaho Department of parks and Recreation.

These studies are both reflective of statewide interest levels in a myriad of recreational activities, one of which is snowmobile use. This particular snowmobiling system is very popular with individuals from Northeast Washington, especially Spokane, the major metropolitan center in the area.

During the 2002/2003 winter season there were 2,297 snowmobile stickers sold for Area 9A which includes the snowmobile trail system that surrounds Priest Lake. In comparison, 920 stickers were sold for Area 9B to the east, which includes the snowmobile system located in both Boundary and Bonner County. This number includes 714 stickers sold for the portion of the snowmobile system located in Bonner County and 206 stickers sold for the part of the trail located in Boundary County. These numbers indicate the popularity of the Priest Lake System (Area 9A). This information was provided by Jeff Cook, Outdoor Recreation Analyst located in Boise with the Idaho Department of Parks and Recreation.

Habitat Conditions

Caribou habitat is typically segregated into two distinct vegetational zones, the cedar/hemlock zone at lower elevations and the subalpine fir/Engelmann spruce zone at higher elevations. Seasonal habitats consist of early winter, late winter, spring, calving, summer, and late summer/rut habitats. Of primary management concern is the early winter and late winter habitats.

The cedar/hemlock forests and the lower limits of the subalpine fir/Engelmann spruce habitats are important to caribou during the early winter period, which generally extends from November through January. During this timeframe caribou may seek out more closed timber stands which contain a high level of internal diversity. Components such as a high degree of overstory canopy cover, the presence of arboreal lichens and an understory shrub component are very important. The early winter period is generally identified as a period of rapid snow accumulation. Caribou seek out these stands during this timeframe before the snow pack consolidates and they are able to move more freely atop the snow pack.

Early winter habitat consist of mature to old growth habitats with a dominant overstory of western red cedar/ western hemlock and subalpine fir/Engelmann spruce cover types. Ideal habitats or suitable habitats are multi-storied and have an overstory canopy cover greater that 70 percent. During this time period caribou will utilize these habitats until the snow pack consolidates; they will feed on a combination of arboreal lichens and shrub component.

The late winter period which immediately follows the early winter extends until approximately late April to May. During this time period caribou utilize subalpine fir and Engelmann spruce habitats which are at the upper portion of the ridge systems. Suitable habitats consists of immature to mature stands of subalpine fir and engleman spruce with are relatively open canopied. An overstory canopy of 10 to 50 percent is considered as optimal. During this timeframe arboreal lichen is extremely important, as the caribou diet is almost entirely lichen at this time.

Arboreal lichens, specifically *Bryoria spp*., comprise a critical winter food source. This species of lichens as with many other species is generally most abundant on trees that are generally more than 100 years old, but factors such as relative humidity, wetting and drying cycles and amount of light are ultimately the controlling factors. Subalpine fir trees and snags tend to support higher densities of these lichens than other tree species. One reason is that most other conifer species in this region tend to lose their branches as they age, providing less substrate for arboreal lichens (Detrick, 1984). Forage during spring and summer consists of succulent forbs and graminoids in subalpine meadows, and huckleberry leaves.

The difference between capable habitat and suitable habitat is an important concept in a discussion of existing conditions for wildlife. The following definitions distinguish between these two terms:

- **Capable habitat** refers to the inherent potential of a site to produce the essential habitat requirements of a species. Vegetation on the site may not be currently

suitable for a given species because of variable stand attributes such as inappropriate serial stage, cover type or stand density. Capable habitat is based on fixed attributes such as slope, elevation and habitat type group. Capable habitat for caribou is utilized for travel between suitable feeding sites, movement within the ecosystem and as lower quality feeding sites.

- **Suitable habitat** currently has both the fixed and variable stand attributes for a given species' habitat requirements. Variable attributes change over time and may include serial stage, cover type and overstory canopy cover.

Habitat conditions within the Selkirk Caribou Recovery Area were mapped as a cooperative project between: British Columbia Ministry of Environment, the Colville National Forest, Washington Department of Fish and Wildlife, Idaho Department of Fish and Game, and the Idaho Panhandle National Forests. The cooperative effort was initiated in 1997 and is ongoing. Resource information was supplied from each cooperating agency, formatted the same and combined in a single dataset.

Capable habitat was determined using parameters such as: elevation, slope, habitat type groups where available, or site potential. The basic premise for capable habitat followed that described by Johnson (1992). Suitable habitat was determined from capable habitat based on additional parameters such as stand development, degree of overstory canopy cover and overall forest type. Only early winter and late winter habitats were mapped based on the consensus that these seasonal habitats were most important and limiting on the landscape to woodland caribou. A map of capable and suitable early and late winter habitat is shown in figure 7. Determination of the acreages of winter habitats for caribou are displayed in table 7.

Habitats are not considered limiting to caribou for the foreseeable future because of he low population numbers of caribou in relation to the distribution and amount of forage and the increasing amount of suitable habitats being created as stands reach maturity. Although large stand replacing wildfires could change the distribution and abundance for available forage in the future.

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Table 7 Table showing capable and suitable habitat values for early and late winter within the recovery area, the United States portion of the recovery and the IPNF only.

Recovery Area Habitat	***Capable Habitat***	**Acres**	***Suitable Habitat***	**Acres**	**Percent Suitable of Capable**
	Early Winter	576,091	Early Winter	127,715	22
	Late Winter	435,478	Late Winter	192,077	44
U.S.Habitat	***Capable Habitat***	**Acres**	***Suitable Habitat***	**Acres**	**Percent Suitable of Capable**
	Early Winter	321,728	Early Winter	64,365	20
	Late Winter	200,652	Late Winter	79,087	39
Idaho Panhandle National Forest Habitat	***Capable Habitat***	**Acres**	***Suitable Habitat***	**Acres**	**Percent Suitable of Capable**
	Early Winter	202,084	Early Winter	47,512	24
	Late Winter	120250	Late Winter	51,797	43

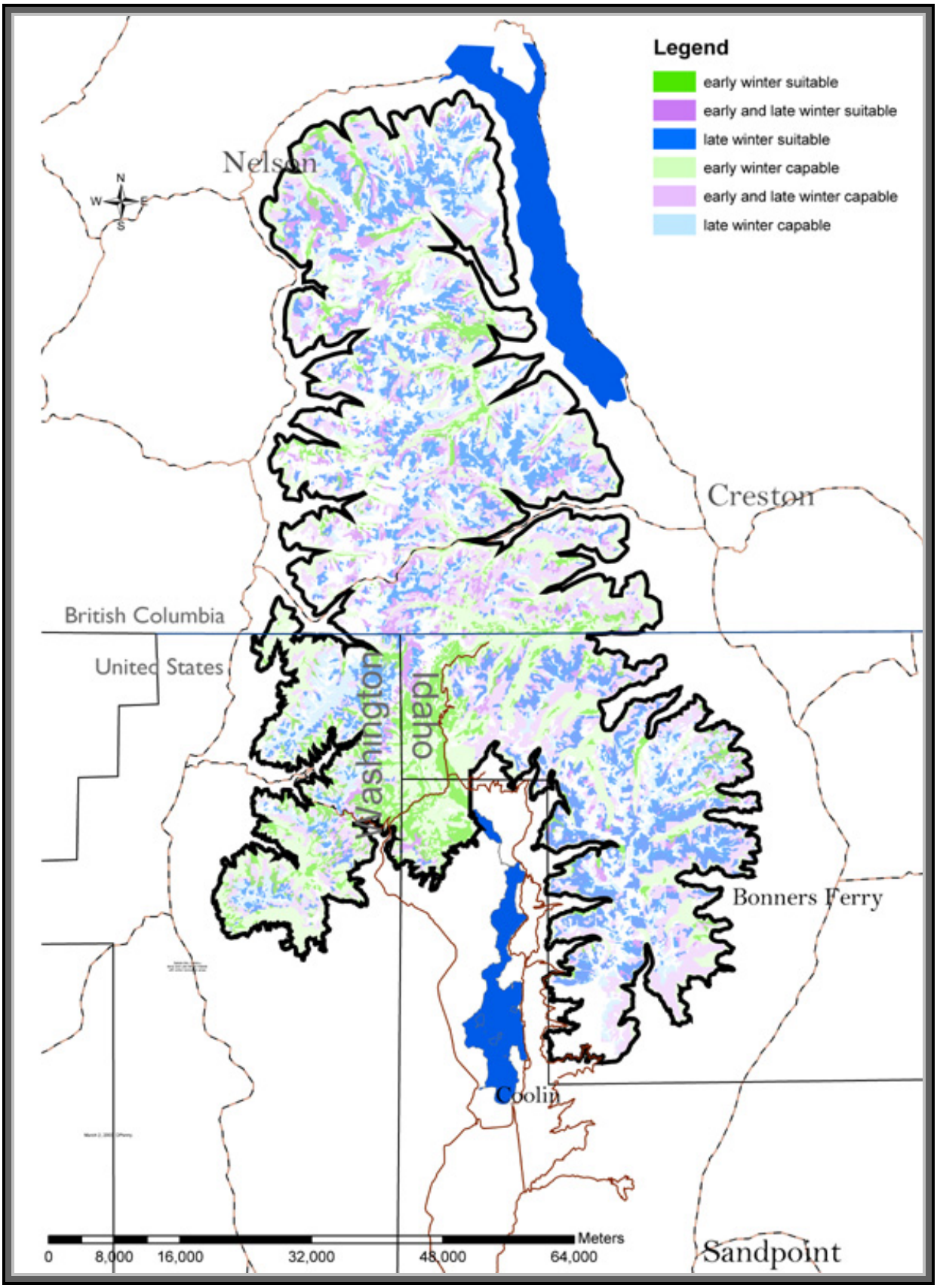

Figure 7 Map showing capable and suitable caribou habitat within the recovery area including the Idaho Panhandle National Forests.

Caribou Movement

Few wildlife populations occur in demographic isolation. Productive populations contribute immigrants to less productive populations thus rescuing them from local extinction or expiration. The degree of isolation influences population persistence. Travel corridors that link populations may minimize local extinctions and genetic isolation of wildlife populations. Many studies, both empirical and computer simulated stress the importance of corridors for wildlife. (Ruggiergo et al. 1994).

For the mountain caribou ecotype, seasonal movements can be complex and normally occur as altitudinal movements between the different seasons. During the late winter period, caribou tend to be found along the upper within the subalpine fir and engleman spruce zone where they feed exclusively on arboreal lichens. Once the snowpack begins to recede, caribou many descend to the lower elevations to take advantage of early spring green-up where they forage on succulent forbs and sedges. The degree of caribou movement to the lower elevations depends on the extent of the winter snowpack. Following the spring season, caribou often return to the higher elevations where they forage on a variety of shrub species in conjunction with the arboreal lichens. During the fall or early winter, caribou may again descend to lower elevations and may seek refuge within mature forests during the early accumulation of the winter snowpack. The extent in which caribou move to lower elevations depends of the nature of the snow accumulation. Once the snowpack has accumulated which is usually around mid January, caribou will ascend to the higher elevation late winter habitat.

Caribou typically make the longest landscape movements during the early winter period (November through January) which may range from several miles in distance to 30 miles in distance. This movement pattern has been observed within the Selkirk ecosystem and also within the adjacent South Purcell Ecosystem (Kinley per comm.). Late winter movements tend not to as far as those observed during late winter, but may approach several miles. Other long distance movements are typical during the spring season as caribou seek out suitable forage areas.

Movement corridors were mapped utilizing historic information where available, topographic maps and caribou habitat maps. Information of historical movement corridors was compiled from Freddy (1974) and Layser (1974). Recent observations and telemetry locations were included. Topographic slope information was developed by dividing slope into three categories, 0 to 40 percent, 40 to 60 percent and greater than 60 percent slope. Corridors were mapped using the most moderate slope possible and avoiding large expanses of steep slope. Large expanses of non-capable habitat were also avoided. A map showing movement corridors is shown in figure 8. This methodology correlated with the location of historical movement corridors known within the Selkirk's and what is known from other caribou ecosystems.

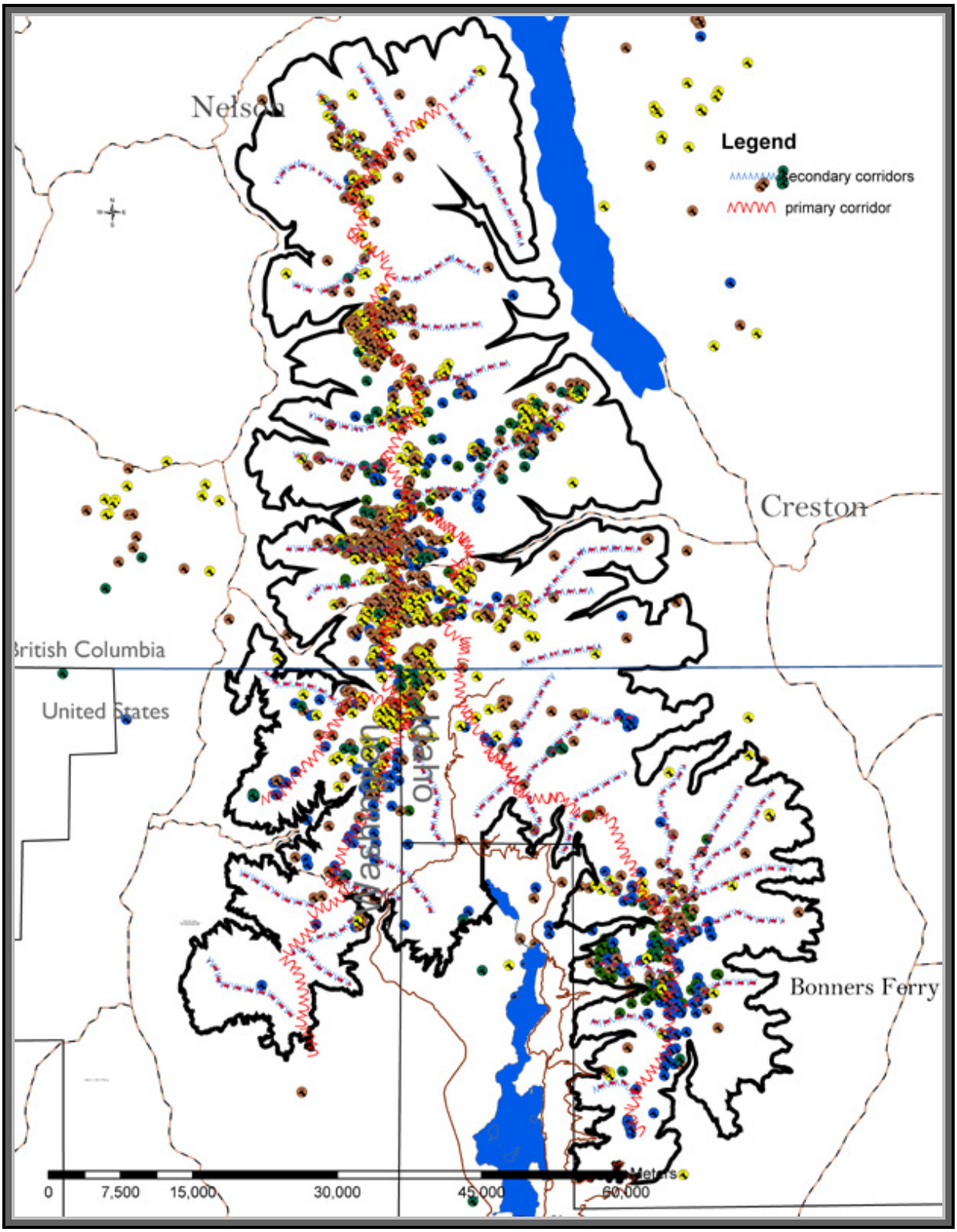

Figure 8 Caribou movement corridors within the Selkirk Caribou Recovery Area. Red line indicate primary corridors connection local herd groups, blue lines indicate secondary or seasonal corridors. Caribou seasonal telemetry locations included.

Effects of Winter Recreation On Ungulates

Backcountry Skiing Effects

As reported in Stimson and Terry (2000), ski touring or backcountry skiing is an activity that typically involves daily excursions or multi-day trips where participants stay in tents, snow-caves or backcountry cabins. Depending on how accessible the backcountry areas are, ski touring typically requires no motorized equipment. Therefore, the non-motorized nature of backcountry skiing as well as the slow pace at which skiers travel suggest this activity likely has relatively low impacts on mountain caribou populations. Although the relative magnitude of impacts from ski touring will vary with the number of skiers and the frequency of use, in general this winter recreation activity poses significantly less threat than motorized activities. Minor reductions in foraging and resting by caribou due to the presence of guided groups of skiers and snowshoers was recorded by Duchesne et al. (2000). Nonetheless, it should be recognized that Caribou could be disturbed by humans on foot due to their keen sense of smell (human scent). Backcountry skiing may also have potentially greater impacts if commercial ski-touring operations (with cabins) access subalpine areas via helicopter.

Vistnes and Nellemann (2001) noted significant avoidance by semi-domesticated reindeer during calving of areas within 4 km of resort areas used for snowmobiling and skiing. Nellemann et al. (2000) reported similar results for wild reindeer in winter near a cross-country skiing resort, despite the lack of forage available in areas to which they were apparently displaced.

Heli-skiing Effects

As reported in Stimson and Terry (2000), there are no scientific reports that have specifically addressed the effects of heli-skiing on caribou, a number of studies have focused on helicopter disturbance of other ungulate species. In general, these studies have shown ungulates response varies according to the level of activity, species, season, quality of cover nearby and the altitude and distance of aircraft from the animal (Foster and Rahs 1983;Bleich et al.1994; Cote 1996;Frid 1996;Webster 1997). There is clearly the potential for helicopters to disturb Caribou, however, the potential for skiers to significantly affect caribou winter habitat use is limited by the steep terrain (20 –45 degrees) generally preferred by heli-skiers and the spatial area used, which is typically limited to narrow runs. Caribou may also habituate to benign helicopter activity. Although this suggests impacts are likely localized, there is potential for greater impacts (depending on the location and frequency of use), as most heli-ski operations require between 700 –3000 km^2 of territory to operate a feasible business (Beardmore and Kaegi 1999). Jet and helicopter overpasses caused startle reactions and running, respectively, among caribou (Harrington and Veitch 1991). Oilfield traffic (Murphy and Curatolo 1987) and noise (Bradshaw et al. 1997, 1998) have been determined to have negative energetic effects on caribou.

Within the Southern Selkirk's, heli-skiing operations do not occur within the United States portion of the designated recovery area, although limited operations do occur within smaller areas within the British Columbia portion of the recovery area.

Effects of Snowmobiling on Caribou

Although the effects of snowmobiling on various North American ungulate species have been reported, overall, the scientific literature available on the impacts of snowmobile activity and human disturbance on caribou is somewhat limited. The published research on caribou has primarily focused on barren ground caribou and reindeer that occupy open artic environments. (Stimpson and Terry 1999).

Today, ungulate populations that have been neither hunted nor harassed (actively or passively) by snow machines at some time are exceptions to the norm. However, ungulates will tend to perceive a snow machine as a threat (or potential predator) if the animals have at some time been actively chased or hunted from them (Simpson 1987, Valkenburg & Davis 1983). Caribou "sensitized" in this fashion will experience increased stress from the use of snow machines on traditional winter ranges. The effects this additional stress has on the animals are difficult to quantify. The literature available on the effects of snowmobile disturbance on caribou and other ungulate species may give managers some idea as to where further study should be directed and what steps should be taken to minimize conflicts in the meantime.

Snowmobile activity in caribou winter range increases the amount of energy expended as the animals react to avoid close contact with machines and riders. The amount of energy expended depends on many factors including the following: the degree of previous harassment; animal activity prior to disturbance; snow depth and compaction; visibility; wind speed and direction; and topographical features (Simpson 1987, Fancy & White 1986, McLaren & Green 1985, Tyler 1991). Tyler (1991) found animals in an un-hunted Svalbard reindeer herd, with no natural predators, during a single response to avoid nearby machines, used a maximum of 4.7% of their daily energy expenditure. This value could increase considerably at times when harsh snow conditions make movement difficult or if the animals were approached repeatedly. Hard running in deep snow for extended periods of time would not only leave caribou in an exhausted state, susceptible to predation, but would also contribute to a loss in body fat crucial for winter survival. The effect of severe harassment involving the active chasing of ungulates has not been investigated in the field, however using a computer simulated model, Hobbs (1989) showed that in times of severe winter conditions, disturbance twice daily (causing 500m flights) almost doubled mortality of unhabituated does. However, in this study deer did not show significant mortality increases during mild winter conditions. For caribou in poor physical condition, or during particularly harsh winters, this increased energy expenditure could seriously threaten winter survival; increasing the chance of death from predation and malnutrition.

Simpson (1987) studied the responses of mountain caribou to snowmobile approach. He found that the caribou allowed closer approach when machines were visually identified as opposed to when the source of sound was not visible. Alternately, catching scent of the operator caused caribou to withdraw more quickly regardless of visual stimuli. From these findings, Simpson concluded that the operator, not the machine, was primarily responsible for high energy responses.

Displacement and avoidance activity of caribou may involve having to run through deep snow, leave optimal cover/forage, or change normal periods of activity; subsequently these activities could reduce caribou winter survival and reproduction. Some suggest ungulate management could be enhanced by use of snowmobiles by improving mobility in poor snow conditions

(Richens & Lavigne 1978, Eckstein et al 1979). Despite this possible benefit, the vast majority of studies involving snowmobiles and ungulates conclude that the machines stress the animals to some degree, and trails and machines are generally avoided (Simpson 1987, Tyler 1991, Dorrance et al 1975, Freddy et al 1986, McLaren & Green 1985). Light snowmobile use may not necessarily cause caribou to abandon the area, especially if riders are careful not to actively harass wildlife encountered

Simpson's (2002) mountain caribou study concluded that large groups of fast moving machines and human scent caused mountain caribou to abandon an area previously used as winter habitat. Areas of high quality winter habitat in the Quesnel Highland, such as the Mica Mountain and Yanks Peak areas receive minimal use by caribou during late winter when heavy use by snowmachines becomes an almost daily occurrence. Where suitable winter range is scarce, disturbance to caribou may shift them into less preferred habitat, increasing the risk of mortality. Short-term reindeer or caribou displacement due to direct snowmobile approaches has been reported by Tyler (1991) and Mahoney et al. (2001). In addition, alpine dwelling caribou displaced to steeper, less preferred habitats may suffer increased mortalities from avalanches.

Snowmobile trails provide hard packed travel corridors for predators to move into the alpine (Bloomfield 1979, Neumann & Merriam 1972). Wolf predation is often responsible for adult mortality and low recruitment in caribou populations within Canada (Bergerud & Ballard 1988, Gasaway et al 1983, Seip 1991, Stevenson & Hatler 1985). Although this has not been documented to be a problem during the late winter season as of yet. Although there is normally minimal overlap between wolf and caribou winter ranges, these trail networks allow easy access to alpine and forested winter range areas, potentially increasing predation rates on caribou and upsetting the delicate predator/prey relationship so critically relevant to conservation strategies for woodland caribou.

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Kinley (2003) noted, that during the period in which snowmobile activity has increased in extent and intensity within the range of the mountain caribou, caribou have clearly abandoned or been extirpated from some areas formerly used, and declined in numbers within some areas that are still occupied. Although there does not appear to be any cases where snowmobiling is the only factor that has changed. Habitat loss, fragmentation, other recreational activities and predation are among the confounding variables. There is some circumstantial evidence that caribou tend to shift their activities to become peripheral to areas with concentrated snowmobile use, either by moving from one mountain to another or by shifting downslope into more heavily timbered areas, possibly sub-optimal habitat.

Kinleys (2003) compared caribou census information along with snowmobile use within 8 populations from 1990 through 2000. His research, shows a relatively strong indication that caribou use of snowmobiling areas declined over time. It is notable that the 2 herds with the greatest proportion of caribou occurring within snowmobile use areas up to 1997 (South Selkirk and Barkerville) showed the greatest absolute declines in caribou activity within snowmobile areas from 1998 onward.

In summary, snowmobile use within caribou winter range increases caribou vigilance and movements, thus potentially resulting in reduced survival. Winter recreation use causes displacement in most cases and potentially avoidance of areas used by snowmobiles. Long term

effects of snowmobile use includes fragmentation and isolation of local heard groups, disruption of winter movement patterns and reduction of amount of area available to caribou.

Effects to Other Ungulates

For many species of northern ungulates, winter range is traditionally considered the limiting factor of the environment. According to Smith and Anderson (1998), winter survival was reported to regulate, in a density dependent fashion, both deer on the Isle of Rhum, Scotland and northern Yellowstone national park elk (Huston 1982, Singer et al, 1997).

Research describing the energetic requirements and metabolic rates of various ungulates during the winter period demonstrates major physiological adaptations to winter stress. McEwan and Whitehead (1970) reported that the caloric intake for caribou was 35 to 45 percent lower in winter than during the summer growth period, and similar reductions have been reported for other members of the deer family. Chappel and Hudson (1978) reported that the voluntary forage intake by bighorn sheep decreased in mid-February to .55 of the intake during mid-October. Moen (1978) reported that metabolism for white-tailed deer was the lowest in winter and the highest in the summer. Moose (Regelin et al. 1985) found that the mean heat production in summer exceeded heat production in winter by a factor of 1.4.

Most ungulates demonstrate behavioral adaptations related to energy conservation. The energy cost of standing is 25 percent greater than the lying posture for elk, moose, pronghorn and roe deer (Canfield et al, 1999).

Specific investigations of winter disturbance have primarily examined, skiers, snowmobilers, and to a lesser extent, helicopters. Bolinger et al. (1972) reported that deer activity increased when snowmobiles were present, but deer were not driven out of their normal home range. Lavigne (1976) reported that snowmobile trails enhanced deer mobility during periods of deep snow in Maine. A follow up report indicated that deer were following snowmobile trails because the snow was firmer. Huff and Savage (1972) reported that the size of home ranges for white-tailed deer was reduced in high use areas, and snowmobile use appeared to force deer into less preferred habitats. It was also reported that animals which were accustomed to humans are less affected by snowmobiles than animals in more remote areas.

In some areas, experimental disturbance by snowmobilers caused ungulates to alter home ranges or habitat use. Deer were displaced from areas immediately surrounding active snowmobile trails and showed an increase in activity during a normally inactive period (Eckstein et al 1979). In Dorrance's (1975) work, deer were not only displaced, but also increased their home range size and expended more energy during periods of snowmobile activity.

Freddy (1986) found that responses by mule deer to persons afoot, when compared to snowmobiles, were longer in duration, more often involved running and involved greater energy costs. As a result of increased recreational pressures in Yellowstone Park, Cassier et al (1992) found that 75 percent of flight behavior by elk occurred within 650 meters of skiers and recommended that restrictions be imposed. Parker et al. (1984) observed that flight distances from early to late winter declines as the animals became habituated to disturbances and as body energy reserves became depleted.

Effect of Winter Recreation on Other Selected Wildlife Species

Grizzly Bear

In general, bears enter dens in the fall and emerge in the spring. This is a means of avoiding food shortages and severe weather conditions (Pelton 1982 p. 508). Most bears enter dormancy, at which time their body temperature drops about 5 degrees C and heart rate declines from normal rates. Bears are not 'true hibernators' that awaken to deal with bodily functions. Bears do not generally feed, urinate or defecate during dormancy. In mild climates or some areas with abundant food year around, bears may not den at all. Craighead and Mitchell (1982 p. 521) state that bears need about two weeks to enter deep "winter sleep" and, unless disturbed, do not normally awaken until spring. Dens may be excavated in soil, in hollow trees, in caves, or occasionally on the ground or in a brush pile. Winter severity and denning opportunities influence the type of den used. Most dens are probably only used for one winter. Female bears give birth to cubs in the den in mid-winter. Cubs are altricial and nurse and grow while in the den until spring. In grizzly and black bears, females with cubs-of-the-year emerge from the den later than other sex and age classes of bears.

Based on 14 years of den data for the Yellowstone area, 90% of grizzly bears denned by the end of November (USDI 2000 BA p. 14). Bears may spend some time in the den vicinity prior to actual denning (Judd et al. 1986). Adult males typically emerge between mid-February and late March; subadults and single females in late March or early April, and females with new cubs emerge last, between early and mid-April (*Ibid.*). Females with young of year may remain near the den for a period of time post-emergence (Craighead and Craighead 1972c; Vroom et al. 1977; Haroldson, pers. comm.); however, other research has not consistently documented this behavior which may be due to the bear monitoring method and frequency (Haroldson, pers. comm.).

Because snow is an excellent sound barrier, disturbance to denning bears from snowmobiles is most likely to occur during shallow snow conditions and when machines are operated close to a den (USDI, 2002). Snow depths are lowest early in the denning season (the end of November), or near the time of den emergence (April). Early season snowmobile travel into potential, high-elevation denning habitat is normally difficult on the ranger district. Access to these areas is off-road, and is dependent on relatively deep snow with a consolidated base.

Direct or indirect impacts from snowmobiles to hibernating bears are not well documented. The USFWS notes that the grizzly bear population in the Greater Yellowstone Ecosystem is growing, with increasing occurrences of bears outside recovery habitat, at the same time that snowmobile use is increasing in the ecosystem (USDI, 2002). They suggest that some bears may habituate to the noise and disturbance of snowmobile use around the den with no observable adverse effects. Other bears most likely have opportunities to find more secluded habitat within their home ranges.

Disturbance from snowmobiles may be most consequential shortly before or after den emergence of a female with cubs. Females with cubs have high energetic needs, and cubs have limited mobility for several weeks after leaving the den" (USDI, 2002). Disturbance at this time may

result in adverse impact to bear by cause disturbance or displacement of females with young. This may result in an increase in energy requirements and increased mortality risk for female and young.

Canada lynx

The impacts of dispersed winter recreation on lynx are as yet, poorly understood. Many carnivore and lynx biologists have suggested that packed trails created by snow groomers, snowmobiles, and cross-country skiers, can provide travel routes into lynx habitat for competitors and predators of lynx, particularly coyotes (Ruediger, et al, 2000). Snow conditions should normally separate habitat use by coyotes and lynx. Coyotes, with their relatively small foot area and large body mass, are restricted to areas with shallower snow depths or to compacted areas that can support their weight. Lynx, with their much larger feet and smaller body mass, can negotiate a wider range of snow conditions. With the increase in snowmobile use and the ability of newer machines to access deep snow areas, packed trails into high elevation lynx range are proliferating in many parts of the country. Coyote tracks have been documented on snowmobile trails in higher elevation areas of the Idaho Panhandle National Forest Coyotes that access these areas may capture hares and grouse along road corridors that could otherwise have been prey for lynx.

Lynx den sites are typically located in mature spruce/fir stands or mixed forests of spruce and birch. Forest structure at these sites seems to be more important than forest cover type. Areas having large woody debris (such as blow down pockets) and ample overhead cover are preferred by lynx for denning. Spring skiing or snowmobile riding occurring in the vicinity of a lynx den site may cause abandonment of the site, possibly affecting kitten survival (Ruggerio, et al, 2000).

Wolverine

Estimated home ranges for adult wolverines in North America are huge; up to 900 square kilometers for males and 100 square kilometers for each of two breeding females in one Montana study (Hornocker and Hash, in Ruggerio, et al, 1994). The maintenance of wolverine populations appears to be closely tied to providing for large, protected areas with limited human activity (Hornocker and Hash, 1981).

Wolverines may give birth from January through April. Ungulate carrion, a rich food resource for a new mother with kits, is usually more plentiful at this time of year. Wolverines construct their dens in various sites including the cavities of hollow trees and logs, under the roots of upturned trees, or among boulders and rock ledges. The proximity of rock features such as talus slopes or boulder fields for use as den or rendezvous sites was important for wolverines in one Idaho study (Copeland, in Ruggerio, et al, 1994).

Winter recreation occurring in high elevation, subalpine forests that contain glacial cirque basins, avalanche chutes, and rock features can disturb wolverines and displace them from these “hotspots” of suitable habitats. Continued disturbance in these areas can render these habitats unavailable to wolverines.

Because trappers use over-the-snow routes to access backcountry areas, these routes may make wolverines more vulnerable to incidental trapping mortality. Competitors of wolverines such as mountain lions, bobcats, and coyotes may be able to extend their ranges into high-elevation wolverine habitats using these compacted trails.

Identification of Caribou Habitat and Winter Recreation Overlap Areas

On the Idaho Panhandle National Forests, overlap areas were identified as areas where caribou habitat, caribou use areas and winter motorized recreation occur in the same place. These were identified by combining maps for: existing snowmobile play areas and linear snowmobile routes, maps of caribou habitat and telemetry and observational information about caribou. Within these areas as places where the components of a strategy may be applied. Areas may be modified as additional information about recreation use or caribou habitat becomes available.

Bunchgrass Meadows. This identified area totals 2,400 acres. Snow play area which is also associated with the Colville National Forest. Use of this area is generally accessed via an existing groomed snowmobile route on the Colville National Forest, although access is also through road 319 on the Priest Lake District. Snowmobile use within Bunchgrass Meadows is generally considered as high use. Winter recreation use overlaps with habitat is limited to capable early winter habitat within the Idaho Panhandle portion of this area. The play area also overlaps with a movement corridor along the Shedroof Divide. No recent caribou use of the area has been documented although occasional use likely has occurred in the last decade. A portion of this area currently has a management designation (Research Natural Area), which prohibits motorized use.

Willow Creek. This identified area totals 1,900 acres. This existing snow play area is associated with the FS roads 1122 and 1124. Use of this area is generally low and somewhat sporadic. Currently winter recreation overlaps include, capable and suitable early winter habitat, capable and suitable late winter habitat and historic and recent caribou use. Also, this snowplay area overlaps with a caribou movement corridor.

Salmo Priest Wilderness. This identified area totals approximately 1,800 acres Because of the congressional Wilderness designation, motorized use within this area is prohibited On the Colville National Forest a snowmobile play was documented within the vicinity of Watch Lake, another snowmobile play area which was reported by members of the community, this area occurs on the Idaho Panhandle National Forests and has not been verified or documented. The reported snowmobile play area overlaps include both capable and suitable early and late winter habitat. The area also has a history of caribou use in conjunction with recent observations and telemetry locations. The area also overlaps with a primary caribou movement corridor along the Shedroof Divide.

Hughes Meadows. This identified area totals approximately 400 acres. **This are is a h**eavily used snow play area associated with open meadow. Winter recreation overlap areas include capable and suitable early winter habitat.

Hughes Ridge This identified area totals approximately 600 acres. This area is a moderately used snowplay area associated with road system and older timber harvest units. Winter recreation overlaps consist of capable and suitable early winter habitat in conjunction with a secondary caribou movement corridor. Area has a historic and recent history of caribou use, although use has not been documented during the winter period.

Boulder Creek This identified area totals approximately **1,600** acres. This area is a moderately used snowplay area associated with FS road systems 401 and 1013 and older timber harvest units. Winter recreation overlaps consist of capable and suitable early winter habitat. Snowplay activity also in located within a secondary movement corridor which may provide connection with the Boulder Mountain portion of the recovery area.

Boulder Meadows This identified area totals approximately 400 acres. This area is a heavily used snowplay area associated with existing road system and older timber harvest units. Area often used for special snowmobile events in the past. Winter recreation overlaps with capable and suitable early winter habitat and capable and suitable late winter habitat.

Trapper Peak – Continental Mountain This identified area totals approximately 38,000 acres Heavily used snowplay area consisting of older timber harvest units, the Trapper Peak burn and existing open slopes. Winter recreation overlap consists of capable and suitable early winter habitat, capable and suitable late winter habitat and has a history of historic and recent caribou use. Area is also located within historic primary movement corridor which connects the British Columbia portion of the ecosystem and the Selkirk Crest.

Gunsight Peak This identified area totals approximately 42,500 acres Heavily used snowplay area consisting of older timber harvest units, portions of the Sundance Burn and existing open slopes Winter recreation overlaps consist with capable early and late winter habitat, primary movement corridor and recent caribou use. Access is from the Pack River area and through IDL lands.

Caribou Ridge This identified area totals approximately 8,500 acres Heavily used snowplay area consisting of older timber harvest units, portions of the Sundance Burn and existing open slopes Winter recreation overlaps consist with capable early and late winter habitat.

Linear Snowmobile Routes: Approximately 251 miles linear snowmobile routes within caribou habitat. Many of these routes impact capable and suitable early and late habitat for caribou. And may provide a source of displacement for caribou.

Strategy Elements

There are four primary elements in the winter recreation management strategy. These four elements are:

1. Information, Education and Coordination.
2. Implementation and enforcement of existing management direction
3. Monitoring of recreation use, habitat impacts and caribou use.
4. Incorporating caribou habitat management into a multi-species analysis in the Forest Plan revision.

Successful implementation of any caribou management recommendations is dependent upon support and cooperation from many sources. The IPNF will need the support and cooperation of recreation partners, Fish and Wildlife Service, Idaho Department of Fish and Game, Washington Department of fish and Wildlife, Idaho Department of Lands Fish and Game, and other interested people or groups in order to supplement the information need and the effectiveness of the strategy and the level of accomplishment. The Idaho Panhandle National Forest can provide staff and funding for implementing a strategy and will look for cooperative partnerships and opportunities to expand activities to manage for recreation and caribou habitat.

ELEMENT #1: Information and Education

Continue to inform / educate the public about wildlife habitat issues. Provide information on effects of winter recreation on caribou and current closure areas:

1a: **Public media announcements and outreach**– *Provide a dialogue on rationale for current snowmobile use restrictions and information on what restrictions are in place.* : *Provide information through contacts at winter recreation shows, sportsman shows and other events.*

1b: **Trailhead signing** - *Provide information on impacts of winter recreation on caribou and other key wildlife species. Also provide maps outlining approved snowmobile route and areas that are closed to winter recreational activities.*

1c: **Snowmobile brochures** – *Develop and provide a brochure which outlines information on caribou, impacts of winter recreation on caribou and the rationale for areas closed to winter recreation*

1d: **Forest web site** - *Provide information on impacts of winter recreation on caribou and other key wildlife species and actions the public can take to avoid impacting caribou*

1e: **Meet with user groups and Non-Governmental Organizations**. - *Provide a dialogue on caribou, the human effects of winter recreation and the rationale for developing a winter recreation strategy. Work with the Idaho and Washington State Snowmobile Associations to improve awareness of winter wildlife concerns and distribute information.*

Rationale for Recommendations
Many members of the public are unaware of the effects that human disturbance can have on wintering wildlife. Raising public awareness of the special needs that wildlife have in the winter is necessary to build support for a winter recreation strategy that addresses those needs. Setting the public up to succeed includes having maps of winter recreation routes and trails readily available, and clearly marking areas where motorized travel is prohibited.

1f: Continue to coordinate with local snowmobile trail groomer committees. ***A representative of the Forest Service would participate as a member of the groomers committee where possible, attend scheduled meeting and help develop yearly grooming plans and update snowmobiling maps. Include on their snowmobile maps information on closed areas and the effects of snowmobiling on caribou and other wildlife.***

Rationale for Recommendation
Cooperators would exchange information regarding activities that would cause designated snowmobile routes to change in any years. The management and maintenance of winter recreation facilities and signs are also topics that cooperating agencies and groups need to discuss and agree upon. The Forest Service would have a representative at scheduled grooming meetings to ensure that all aspects of the grooming program on National Forest Lands meet "Forest Plan and other management direction.

1g: Coordinate with the U.S. Border Patrol on issues regarding access restrictions within areas that are adjacent to U.S.-Canadian border.

Rationale for Recommendation
The border patrol has previously expressed concerns regarding the nature of the porous border along the northern portion of the IPNF, even during the winter season. Concern is primarily for the movement of controlled substances into the U.S. from British Columbia but have also been expressed regarding the movement of other items. Informal discussion with the border patrol indicated winter access restrictions may aid in the task of border security.

1h: Coordinate with adjacent British Columbia, the Colville National Forest and Idaho Department of Lands on the identification of snowmobile/caribou conflicts, implementation of strategies to reduce negative impacts on caribou and the implementation of Information and Education plans within the Southern Selkirk Caribou Recovery Area.

Rationale for Recommendation

Many of the winter recreation user utilize areas, which fall under the jurisdiction of various land management agencies. A coordinated approach to the management of winter recreation which appeared similar would aid in public understanding.

ELEMENT #2: Implementation and enforcement of existing management direction

2a: **Enforcement:** ***Enforcement of existing snowmobile closure areas which includes the Salmo-Priest Wilderness, Proposed Wilderness, Wild and Scenic River, Long Canyon and the Selkirk Crest closure. Enlist the snowmobile riding community to help monitor within closed areas and to help discourage riding within these areas.***

2b. **Engineering:** ***Provide engineering solutions such as effective barrier placements and vegetation plantings to discourage snowmobile use within these areas.***

Rationale for Recommendation
The Forest Service (FS) has the legal authority and responsibility to exclude motorized travel in these areas. These areas are currently closed and this is not a change in management of the areas. Enforcement of these closures will improve aspects of habitat in those areas.

2c: Within 20 feet of open roads in timber harvest units, pre-commercial thinning units, and prescribed burns, continue to limit cross-country snowmobile access by maintaining to the extent possible, all shrubs, seedlings, saplings, and pole-sized trees. As projects are analyzed, consider using this mitigation on restricted (gated) roads.

Rationale for Recommendation
This measure also correlates with the terms and conditions within the biological opinion (USFWS 2001) that requires the USFS to maintain a vegetative screen along all open and restricted roads within the grizzly bear recovery areas to reduce sight distances and thus maintain or reduce grizzly bear mortality. Most of the Idaho Panhandle National Forests is densely forested. The growth of alder and other brush is often vigorous and rapid in the area when the plants have access to sunlight (such as along a roadside). Maintaining the vegetation screen along side of existing and developed road systems within caribou recovery area will discourage use off of snowmobile routes.

2d: Manage over-the-snow routes on lynx primary range, per direction in the Lynx Conservation Assessment and Strategy (Ruediger, et al, 2000). Evaluate "trading" routes or play areas on a case-by-case basis, to improve habitat.

Rationale for Recommendation
This measure is currently in effect as part of Forest Service management direction for lynx. It may be desirable to discontinue use of a certain snowmobile route or play area that is near high quality habitat components for lynx or other wildlife. It may be desirable to decrease the density of over-the-snow routes in a certain Lynx Analysis Unit. Snowmobile riders might wish to have access to a new area, and may be willing to eliminate up an existing route. The possibility of arriving at solutions that better meet the needs of both recreationists and wildlife should thus be maintained and explored. This will be a consideration in the Forest Plan revision as well as a consideration in any proposed actions in caribou habitat in the near future.

ELEMENT #3: Monitoring of recreation use and habitat impacts

3a: Increase effort to monitor effectiveness of existing closures and to validate existing snowmobile use within caribou habitat. This would include increased aerial monitoring of snowmobile use, increased winter survey of caribou use and user counts at major snowmobile trailheads. Keep public informed of monitoring results.

Rationale for Recommendation

Monitoring would determine effectiveness of existing closure areas, document changes in winter recreation use areas or levels of use and aid in early identification of potential conflict areas as winter recreational use changes

ELEMENT #4: Incorporate caribou habitat management into a multi-species analysis for the Forest Plan revision.

4a:During Forest Plan revision, complete environmental analysis that includes management direction for caribou, caribou habitat and current winter recreational activities within identified overlap areas. Management direction for caribou habitat will include a fire risk assessment to protect important caribou habitat and an update of the caribou habitat management guidelines. This analysis will also address grizzly bear, wolverine and possibly lynx and will consider other management activities that may occur in the areas and will establish management direction. Refer to Appendix C. This action is anticipated to be completed by spring 2005.

Rationale for Recommendation

Biological information indicates that the current winter recreational activities may be having an adverse impact on caribou populations and recovery within the Southern Selkirks. Solutions should be explored to reduce the negative impacts while maintaining support of user groups and interested publics. Solutions that reduce or eliminate adverse impacts to caribou and caribou habitat would also likely contribute to reducing the adverse impacts on other species such as grizzly bear, wolverine and possibly lynx.

:

Glossary

ESA – Refers to the Endangered Species Act of 1973**,** (36 U.S.C. 1531-1544) The Endangered Species Act requires that Federal agencies ensure all actions that they "authorize, fund, or carry out" are not likely to jeopardize the continued existence of any threatened or endangered species. Agencies are also required to develop and carry out conservation programs for threatened and endangered species.

Telemetry – Refers to the tracking of wildlife by the use a directional receiver to receive and locate wildlife which have a radio transmitter affixed to a collar on the animal**.**

CDC - Conservation Data Center

COSEWIC - Committee On the Status of Endangered Wildlife in Canada

Capable habitat refers to the inherent potential of a site to produce the essential habitat requirements of a species. Vegetation on the site may not be currently suitable for a given species because of variable stand attributes such as inappropriate serial stage, cover type or stand density. Capable habitat is based on fixed attributes such slope, elevation and habitat type group. Capable habitat for caribou is utilized for travel between suitable feeding sites, movement within the ecosystem and as lower quality feeding sites.

Suitable habitat currently has both the fixed and variable stand attributes for a given species' habitat requirements. Variable attributes change over time and may include serial stage, cover type and overstory canopy cover.

SMNEA - Southern Mountains National Ecological Area

Red List – Species status listed by the CDC in Canada for those species that are candidates for legal status as provincially threatened or endangered.

IMCTC - International Mountain Caribou Technical Committee

USFWS – United States Fish and Wildlife Service. The Federal agency which has regulatory authority for federally listed threatened and endangered species**.**

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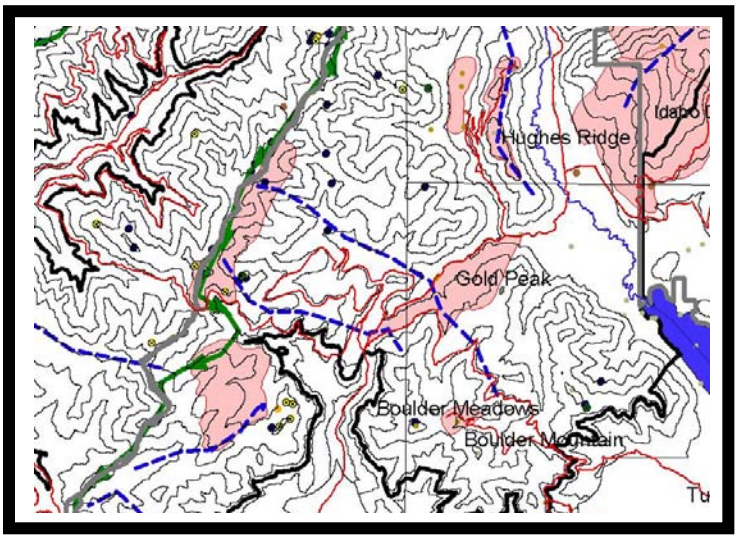
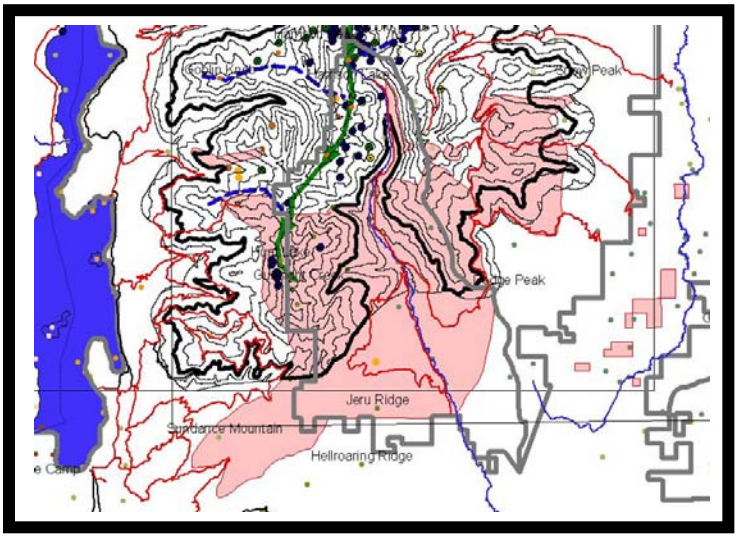
Appendix A. Maps of Snowmobile and Caribou Overlap Areas.

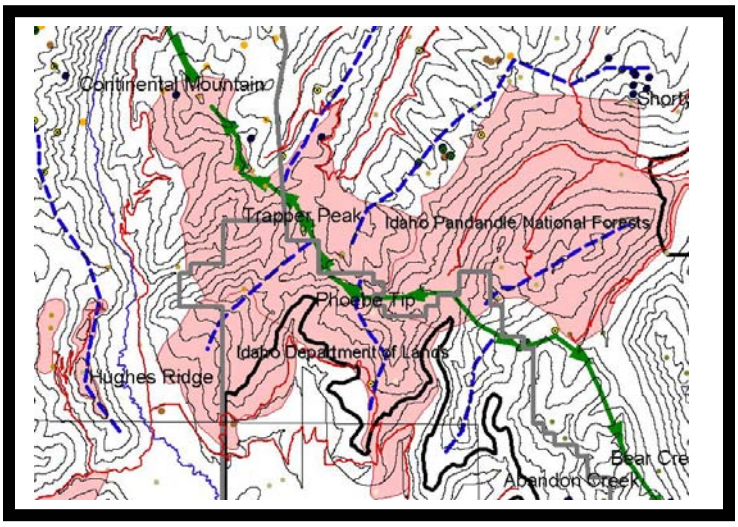
Map showing the Hughes Ridge. Hughes Meadow, Salmo-Priest, Boulder Creek, Boulder Meadows and Willows caribou and snowmobile overlap area. Shaded areas identify snowmobile play areas, Green line and blue dashed lines indicates potential caribou movement corridors. Caribou telemetry points are included.



Map showing the Gunsight Peak and Caribou Peak snowmobile overlap areas. Shaded areas identify snowmobile play areas, Green line and blue dashed lines indicates potential caribou movement corridors. Caribou telemetry points are included.



Map showing the Trapper Peak and Cont. Mtn. snowmobile overlap areas. Shaded areas identify snowmobile play areas, Green line and blue dashed lines indicates potential caribou movement corridors. Caribou telemetry points are included.



Appendix B. Management Direction

1994 Caribou Recovery Plan

216. Reduce or eliminate the impacts of recreational activity on caribou and their habitat.

Uncontrolled or inappropriate recreational activity may have detrimental effects on caribou and their habitat. For instance, snowmobile use in winter habitats or ORV use during snow-free seasons may displace caribou from important habitats. This will become an even more significant problem as recreational use increases and the caribou herds
grow.

2001 U.S. Fish and Wildlife Service Amended Biological Opinion on Forest Plan

Terms and Conditions for Woodland Caribou

By Jan 2004, develop and implement a comprehensive recreation strategy which identifies specific standards and restrictions necessary to protect caribou and their habitat on the IPNF. This strategy should identify key caribou habitat and linkage corridors between these habitats, where high levels of human recreational activities are restricted, as well as areas where such activities are appropriate. The USFWS also encourages the IPNF to coordinate with the Colville National Forest and the British Columbia Ministry of Environment during this process in an effort to develop a comprehensive strategy for the entire ecosystem. Any restricted area/closure area boundaries established as part of this strategy must be coordinated with the USFWS, Forest Service, Idaho Department of Fish and Game, and Washington Department of Fish and Wildlife Law Enforcement personnel to ensure that the boundaries are clearly defined and readily distinguishable to facilitate enforcement efforts.

Additional Conservation Recommendation:

The USFWS recommends that the required recreation strategy for caribou incorporate a multi-species approach, because the Selkirk Ecosystem provides habitat for numerous species that may be sensitive to winter recreation, including wolverine, lynx, mountain goats and big game. For example, the wolverine, which is extremely sensitive to human disturbance, is known to den in the high elevation areas of the Selkirk Ecosystem, which is receiving increasing winter recreation pressures.

2002 Emergency Action Plan, Selkirk Mountains Woodland Caribou Recovery.

This *Emergency Action Plan* outlines those efforts of *immediate need to prevent* the short-term *extirpation* of the remnant population of woodland caribou in the southern

Selkirk Mountains. The emergency Action Plan was developed by the caribou recovery team and approved by the interagency caribou steering committee. The emergency action plan reprioritized existing recovery plan tasks and identified any new tasks prior to the recovery plan being updated or revised.

> Develop an Emergency Snowmobile Strategy by January 1, 2004. This Emergency Strategy will include: (1). Staff recommendations from the cooperating agencies and the Idaho Department of Lands, (2). Identification of areas of existing or anticipated large levels of snowmobile activity within the caribou Recovery Area, (3). Recommendations for reducing or eliminating these snowmobile conflicts, (4). This Strategy will highlight recommendations for implementation in the British Columbia portion of the recovery area. This emphasis is required to counter the absence of snowmobile restrictions in the area occupied by the remnant core population of Selkirk caribou and (5). Strategy development will include appropriate public involvement and notification, as required by agency regulations.

1987 Forest Plan, Idaho Panhandle National Forest (IPNF)

Forest Wide Management Direction

Goals:
Manage the habitat of animal and plant species listed under the Endangered Species Act to provide for recovery as outlined in the species recovery or management plans.

Objectives:
The goal for threatened and endangered species is to contribute to the conservation and recovery of the listed species on the Forest (grizzly bear, woodland caribou, gray wolf, peregrine falcon and bald eagle). …….. Woodland caribou management will emphasize providing adequate seasonal habitat needs and protection from direct mortality. Primary management emphasis will be maintenance of closed canopy old-growth cedar/hemlock on early winter ranges, and providing arboreal lichen production on mid and late winter ranges. ….…

Standards:

1. *Management of habitat and security needs for threatened and endangered species will be given priority in identified habitat. Results of research regarding habitat of threatened and endangered species will be incorporated into management direction as it becomes available.*

2. *Biological evaluation will be done on any project likely to have an adverse effects on identified habitats of threatened and endangered species.*

3. *Current direction for management of threatened and endangered species will be amended or revised to ensure conformance with Species Recovery Plan.*

4. *Actively initiate and participate in an information/education program to promote a better understanding of endangered species conservation and recovery both within and outside the Forest Service.*

5. *Consider cumulative effects when evaluating activities within identified caribou habitat.*

6. *Cooperate in implementation of the Selkirk Mountain Caribou Management Plan/Recovery Plan.*

Specific Management Area Direction, Idaho Panhandle National Forest Management Plan (USFS, 1987)

MA-1 Lands designated for timber production.

- *Provide wildlife habitat*

    1. *Road use will be based on needs identified in project level planning. Utilize road use restriction to enhance wildlife habitat except as needed for timber management activities.*

MA-2 Lands designated for timber production within identified grizzly bear habitat

- *Reduce the potential for human bear conflicts*
- *Provide opportunities for dispersed recreation consistent with grizzly bear habitat requirements.*

    1. *Manage primarily for roaded modified and roaded natural ROS classes. Maintain a diversity of recreation opportunities. Restriction may be necessary to reduce bear/human conflicts.*

    2. *Manage trails to avoid areas of critical grizzly bear habitat. Trail use restriction may be necessary to reduce bear/human conflict.*

MA-3 2 Lands designated for timber production within identified grizzly bear habitat and big game winter range.

- *Reduce the potential for human bear conflicts*
- *Provide opportunities for dispersed recreation consistent with grizzly bear habitat requirements.*

    1. *Manage primarily for roaded modified and roaded natural ROS classes. Maintain a diversity of recreation opportunities. Restriction may be necessary to reduce bear/human conflicts.*

    2. *Manage trails to avoid areas of critical grizzly bear habitat. Trail use restriction may be necessary to reduce bear/human conflict.*

MA-7 Lands designated for caribou management

- *Reduce the potential for caribou and/or grizzly bear conflicts with human activities.*

- *Provide opportunities for dispersed recreation consistent with wildlife habitat needs.*

    1. *Manage for roaded natural and where possible toward semi-primitive motorized and non-motorized recreation. Restrict motorized use when needed to protect caribou.*

    2. *Seasonal closures of some or all uses may be needed to protect caribou or grizzly bears.*
    3. *Provide seasonal habitat requirements in accordance with the Caribou Habitat Management guidelines and approved recovery plans.*

    4. *Retain and manage established caribou travel corridors that occur in mature timber.*

    5. *Manage grizzly bear habitat in accordance with interagency Grizzly Bear guidelines and approved recovery plan.*

    6. *Timber management regimes will be based on site-specific analysis of caribou habitat needs. Cost effectiveness and cost efficiency will be included in the analysis. Both even-aged and uneven-aged regeneration systems will be used dependent upon the site-specific caribou habitat requirements. Existing all-aged old-growth cedar/hemlock stands are to be retained.*

    7. *Silvicultural treatments t achieve desired stand conditions for caribou habitat management are included in the Caribou habitat management guidelines. Harvest scheduling will be used to provide security within grizzly habitat.*

    8. *Precommerical thinning will be used in conjunction with the level of management intensity and caribou habitat.*

    9. *Contain and control fires within the management area to prevent loss of coniferous species in all size classes.*

<u>MA- 10 Semi-primitive recreation</u>

- *Provide for grizzly bear and caribou habitat needs where identified habitat overlaps occur.*

- *Within grizzly bear and caribou habitat, recreational use may be restricted to provide needed wildlife security during periods of use.*

    1. *Within grizzly bear habitat, manage habitat in accordance with the Interagency Grizzly Bear guidelines and approved recovery plans.*

    2. *Implement grizzly bear information/education efforts with permittees, user groups, employees and local communities.*

MA-11. Existing and proposed wilderness areas.

- *Within grizzly bear and caribou habitat, recreation use and access may be restricted to provide needed wildlife security during use periods.*

Table 2. Table showing IPNF Forest Plan management area designations and acreage within each management area.

IPNF Forest Plan Management Area Designation		Acres	Percent of IPNF portion of Recovery Area
Timber Management	MA-1	3.581	1.2%
Grizzly Bear	MA-2	15,162	5.2%
Grizzly/Big Game Winter Range	MA-3	2,783	1.0%
Winter Range	MA-4	88	0%
Caribou Management	MA-7	133,168	46%
Non-Forest	MA-9	37,873	13.1%
Semi-Primitive Recreation	MA-10	30,512	10.6%
Existing and proposed wilderness	MA-11	55,534	19.2
Proposed Wild and Scenic Rivers	MA-12	6,060	2.1%
Scenic Areas	MA-13	2,828	1.0%
Research Natural Areas	MA-14	1,625	.6%

Appendix C Caribou Habitat Management and Forest Plan Revision

One element of the caribou recommendations is to address caribou habitat issues, and potential management changes, in the Forest Plan revision. This proposal will address several concerns:

- **Multiple species:** There are public concerns that the Forest Service does single species management that results in incremental management changes. In other words, we have looked at individual species and involved the public on one species at a time (grizzly bears, caribou, lynx, etc.) instead of looking at all species together. The Forest Plan revision will look at all threatened and endangered species and certain other species of concern together in a comprehensive manner.

- **Multiple activities:** There are concerns that the Forest Service needs to address all activities, not focus on one activity such as winter-motorized recreation. The Forest Plan revision will provide an opportunity to consider all types of recreation, timber management, watershed issues, access, and other activities at one time.

- **Public involvement and opportunities for review and input:** There are concerns that the public be given adequate time to provide input and comments on an overall management approach to the area. The Forest Plan revision, through work groups and other activities, will provide forums for individuals and groups to work through issues, constraints, recreation opportunities and other management concerns.

- **Community and economic effects:** There is a public concern that any changes to snowmobile access will have impacts on local businesses and the economy of the Priest Lake area. The Forest Plan revision will look at economic impacts of tourism and other forest-based industries and potential economic impacts based on any change in forest management. This will be available for public comment.

- **Alternative Development:** The Forest Plan revision will develop alternative management strategies in consultation with the public. This may occur through work groups or it may result from public comments on draft documents, or both. There will be opportunities for presentation and discussion of different management strategies for specific areas during this process.

The Forest Plan revision is currently underway. Work groups are forming and will be discussing issues and concerns over the winter of 2003/2004. The information in this caribou situation report, and the final recommendations, will be incorporated into the Forest Plan revision discussions.

The Forest Plan revision will focus on, and may result in:

- **Need for Change:** The current Forest Plan was completed in 1987. The revision will focus on those areas of the 1987 Forest Plan that need to be changed. Parts of the current Forest Plan will need to be changed because there is new information now available, use of the forest has changed, there are new issues or concerns, and other reasons. The need for change is identified in a Forest Plan revision document called the "Analysis of the Management Situation" currently available on the IPNF website.
- **Caribou Management direction:** Forest Plan management direction that relates to caribou habitat and recreation uses is listed earlier in this report. In addition to recreation

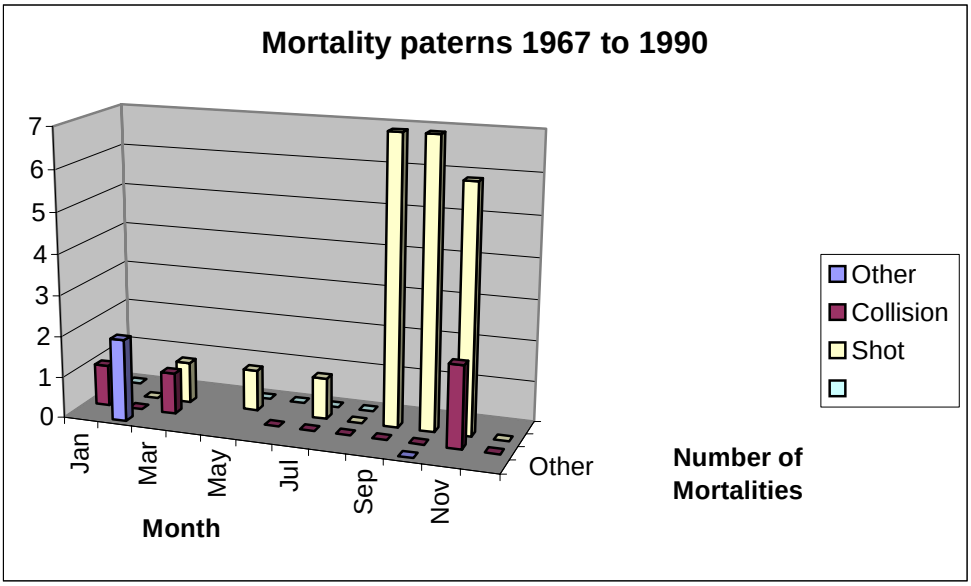
management, timber harvest in Caribou Management Units is directed by requirements listed in Appendix N of the Forest Plan that limits vegetation activities in certain caribou habitat components. All Forest Plan direction will be reviewed in the revision with consideration of any new information, and the best available science, to determine if changes are necessary.

- **Forest Plan direction:** The current Forest Plan contains management direction that applies to caribou in many places. Appendix N of the Forest Plan contains management direction for timber harvest in caribou management units. Certain management areas also contain recreation direction that is applied in caribou habitat. All of this direction will be reviewed in context of recent scientific papers, monitoring information and the consideration of multiple species and activities.

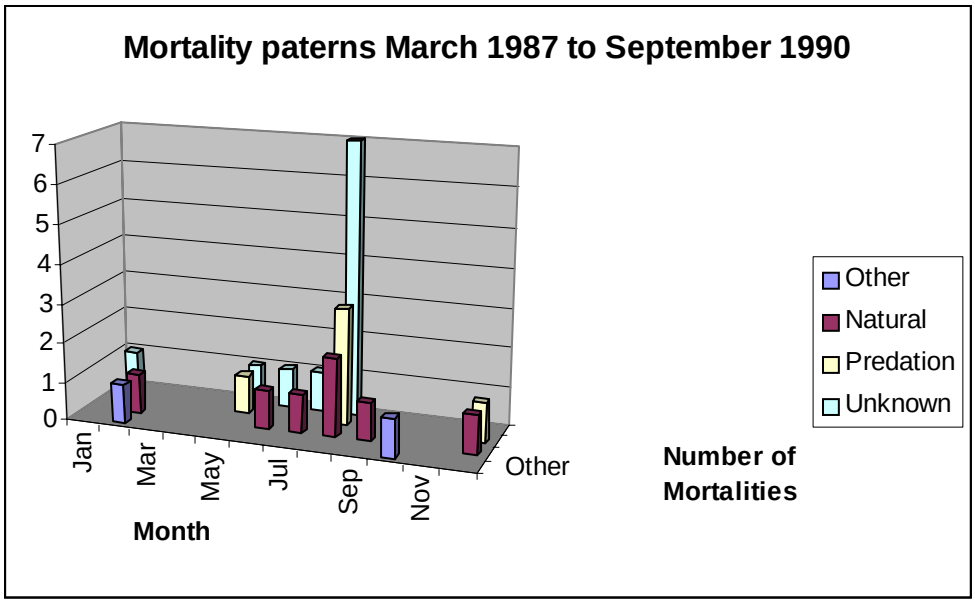
The Forest Plan revision may result in changes in management direction due to consideration of increasing forest use and ongoing and new resource issues. Public involvement will be community based and will occur throughout the process.

Appendix D Table of overlap areas between winter recreation and caribou and caribou habitat.

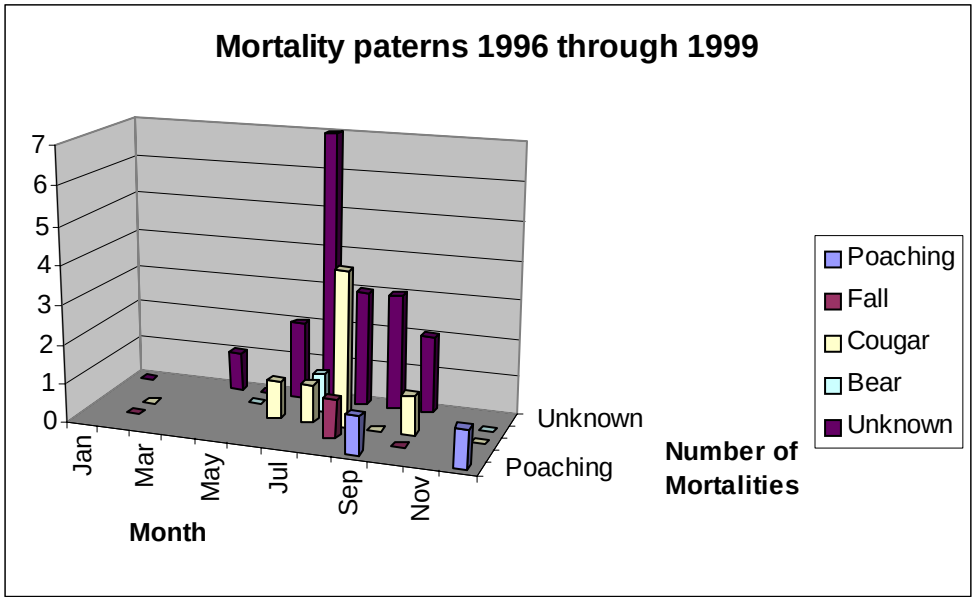
Identified overlap Area	Caribou Habitat types	Access points	Historic and current Use by Caribou	Motorized Use Levels	Impacts to Movement corridor	Management Recommendation
Bunchgrass Meadow	Capable Early and Late winter	Colville road system and road #319	Historic use. No current use	High	Yes	Enforce existing closure on Colville NF. Reduce negative impact to caribou movement on IPNF
Willow Creek	Capable and suitable early and late winter habitat	Access vis road #302, #1127	Historic and current use by caribou	Low	Yes	Reduce negative impacts to habitat and movement corridor. Implement an monitoring and I&E program.
Salmo-Priest Wilderness	Capable and suitable early and late winter habitat	Access via road # 302	Historic and current use by caribou	Low	Yes	Enforce existing wilderness closure, increase monitoring and I & E.
Hughes Meadows	Capable and suitable early winter habitat	Access via road #1342 and #662	Historic and current use by caribou	High	No	Implement a monitoring and I&E program.
Hughes Ridge	Capable and suitable early and late winter habitat	Access via road #1342 and #662	Historic and current use by caribou	Low	No	Reduce negative impacts to habitat. Implement a monitoring and I&E program.
Boulder Creek	Capable and suitable early winter habitat	Access via road #1013 and #401	Historic caribou use.	High	No	Implement a monitoring and I&E program.
Boulder Meadows	Capable and suitable early and late winter habitat	Access via road #1014	Historic caribou use	High	No	Reduce negative impacts to habitat. Implement an monitoring and I&E program.
Trapper Creek	Capable and suitable early and late winter habitat	Access via various points on PLRD, BFRD and IDL	Historic use and current us by caribou	High	Yes	Develop strategy to reduce negative impacts to caribou movement corridor, caribou use and habitat Implement a monitoring and I&E program.
Selkirk Crest	Capable and suitable Early and late winter Habitat	Access via Pack River and possible IDL	Historic and current use by caribou	Low	Yes	Enforce existing closure, increase monitoring and I & E.
Gunsight Peak	Capable Early and Late winter	Access via Pack River and IDL	Current caribou use	High	Yes	Develop strategy to reduce negative impacts to caribou movement corridor, caribou use and habitat. Implement an monitoring and I&E program.
Caribou Ridge	Capable Early and Late winter	Access via Pack River	Historic caribou use	High	No	Implement a monitoring and I&E program.
Linear snowmobile routes	Capable and suitable early and late winter Habitat	Various Access points	Historic and current use by caribou	High	Yes	Develop strategy to reduce negative impacts to caribou movement corridor, caribou use and habitat Implement a monitoring and I&E program.



Caribou mortality patterns from 1967 through 1990 (USDI, 1993, page 12) Information source does not include radio-collared animals.



Caribou mortality patterns for radio-collared animals from March 1987 through September 1990 (USDI, 1993, page 13)



Caribou mortality patterns for radio-collared animals from 1996 through 1999 (Almack, 2000, pages 14-16)