CHAPTER VII. CANADA LYNX

A. Status of the Species

1. Listing History

The Service listed the contiguous U.S. distinct population segment (DPS) of Canada lynx as threatened under the Endangered Species Act in March 2000. The Final Rule listing the Canada lynx identified the primary threat to the species was the inadequacy of existing regulatory mechanisms, specifically the lack of guidance for conservation of lynx and lynx habitat in the National Forest LRMPs and the BLM Land Use Plans (65 FR 58, pg. 16052-16086).

2. Description of the Species

The Canada lynx is a medium-sized cat with long legs; well-furred feet, long tufts on the ears; and a short, black-tipped tail. Their long legs and large feet make lynx especially adept at hunting in deep snow. The winter pelage of the lynx is dense and has a grizzled appearance with grayish-brown mixed with buff or pale brown fur on the back and grayish-white or buff white fur on the belly, legs and feet. Summer pelage is more reddish to gray-brown. Adult males average 22 pounds in weight and 33.5 inches in length (head to tail). Females are generally smaller, averaging 19 pounds and 32 inches in length.

3. Life History and Habitat Requirements

The breeding period for Canada lynx occurs through March and April in the north (Quinn and Parker 1987). Kittens are born in May to June in south Yukon (Slough and Mowat 1996). Male lynx do not participate with rearing young (Eisenberg 1986) and may be incapable of breeding during their first year (McCord and Cardoza 1982). Lynx use large woody debris, such as downed longs, root wads, and windfalls for denning sites with security and thermal cover for kittens (McCord and Cardoza 1982, Koehler 1990, Koehler and Brittell 1990, Mowat et al. 2000, Squires and Laurion 2000, Ruediger, et al. 2000). During the first few months of life, kittens are left alone at these sites when the female lynx hunts. Denning sites provide protection of kittens from predators, such as owls, hawks, and other carnivores during this period. This structure must be available throughout the home range providing multiple quality den sites, because it is likely that these structures are used when the kittens are old enough to travel but not to hunt (Bailey 1974). It is equally important that an abundance of high quality foraging habitat be available in close proximity to all den sites if they are to be functional.

Home range size varies by the animal's gender, abundance of prey, and season and density of lynx populations (Hatler 1988, Koehler 1990, Poole 1994, Slough and Mowat 1996, Mowat et al. 2000, Aubry et al. 2000). Female home ranges are largely governed by food distribution and denning availability and suitability, while male home ranges reflect the distribution of females and food availability. Documented home ranges vary from 8 to 800 square kilometers (3 to 300 square miles) (Saunders 1963, Brand et al. 1976, Mech 1980, Parker et al. 1983, Koehler and Aubry 1994, Mowat et al. 2000, Squires and Laurion 2000, Apps 2000) with males generally maintaining larger home ranges (Sandell 1989, Koehler and Aubry 1994). Distribution of

quality feeding, security, and denning habitat patches, and the availability of secure travel corridors between these patches determine the actual size and shape of the home range. Lynx are capable of dispersing extremely long distances, primarily when snowshoe hare populations decline, though subadult lynx disperse even when prey is abundant, presumably as an innate response to establish homes ranges (Poole 1994).

Both snow conditions and vegetation type are important factors to consider in defining lynx habitat. Across the northern boreal forests of Canada, snow depths are relatively uniform and only moderately deep (total annual snowfall of 39-50 inches) (Kelsall et al. 1977). Snow conditions are very cold and dry. In contrast, in the southern portion of the range of the lynx, snow depths generally increase, with deepest snows in the mountains of southern Colorado. Snow in southern lynx habitats may be subjected to more freezing and thawing than in the taiga (Buskirk et al. 2000), although this varies depending on elevation, aspect, and local weather conditions. Crusting or compaction of snow may reduce the competitive advantage that lynx have in soft snow, with their long legs and low foot loadings.

Lynx are associated primarily with upper elevation (1,400 – 2,700 m) coniferous forests dominated by one of the following vegetation types: Douglas-fir, spruce-fir, fir-hemlock, and on drier sites, lodgepole pine (Aubry et al. 2000). In extreme northern Idaho, northeastern Washington, and northwestern Montana, cedar-hemlock habitat types may also be considered primary vegetation. In central Idaho, Douglas-fir on moist sites at higher elevations may also be considered primary vegetation. Secondary vegetation that, when interspersed within subalpine forests, may also contribute to lynx habitat, include cool, moist Douglas-fir, grand fir, western larch, and aspen forests. Dry forest types (e.g. ponderosa pine, climax lodgepole pine) do not provide lynx habitat.

Lynx distribution and abundance appear to be closely associated with that of the snowshoe hare (*Lepus americanus*), the primary prey of lynx, comprising 35-97 percent of the diet throughout the range of the lynx (Koehler and Aubry 1994). Primary forest types that support snowshoe hare are subalpine fir, Englemann spruce, Douglas-fir and lodgepole pine in the western United States (Hodges 2000). Within these habitat types, snowshoe hares prefer stands of conifers with shrub understories that provide forage, cover to escape predators, and protection during extreme weather (Wolfe et al. 1982, Monthey 1986, Koehler and Aubry 1994). Snowshoe hares have evolved to survive in areas that receive deep snow (Bittner and Rongstad 1982). Within these forested communities, vegetation structure that provides for an abundance of snowshoe hares (e.g., dense understory), and lynx denning habitat (e.g., large woody debris) is important for supporting lynx (Aubry et al. 2000). Other prey species include red squirrel, grouse, flying squirrel, and ground squirrels, among others. During cycles when hares become scarce, the proportion and importance of other prey species, especially red squirrel, increases in the diet (Brand et al. 1976, O'Donoghue et al. 1998).

4. <u>Population Dynamics</u>

In Canada and Alaska, lynx undergo extreme fluctuations in response to snowshoe hare population cycles, enlarging or dispersing from their home ranges and ceasing the recruitment of young into the population after hare populations decline (Mowat et al 2000). In northern study

areas during the low phase of a hare cycle, few if any live kittens are born, and few yearling females conceive (Brand and Keith 1979, Poole 1994, Slough and Mowat 1996). However, Slough and Mowat (1996) reported yearling females giving birth during periods when hares are abundant. In the southern portion of the range in the contiguous United States, lynx populations appear to be limited by the availability of snowshoe hares, as suggested by large home range size, high kitten mortality due to starvation, and greater reliance on alternate prey. These characteristics appear to be similar to those exhibited by lynx populations in the taiga during the low phase of the population cycle (Quinn and Parker 1987, Koehler 1990, Aubry et al 2000). This is likely due to the naturally lower densities of hares and the patchy distribution of habitat in the contiguous United States.

Reported causes of mortality vary among studies. The most commonly reported causes include starvation of kittens (Quinn and Parker 1987, Koehler 1990), and human-caused mortality, primarily fur trapping (Ward and Krebs 1985, Bailey et al. 1986). In cyclic populations of the northern taiga, significant mortality due to starvation has been demonstrated during the first 2 years of hare scarcity (Poole 1994, Slough and Mowat 1996). Vehicle collisions on paved roads have been a mortality factor for lynx, most frequently observed in translocated animals (Brocke et al. 1990). Predation on lynx by mountain lion, coyote, wolverine, gray wolf, bobcat, and other lynx has been confirmed (Koehler et al. 1979, Poole 1994, Slough and Mowat 1996, O'Donoghue et al. 1997, Apps 2000, Squires and Laurion 2000). To observe such events are rare, and the significance of predation on lynx populations is unknown.

5. Historic and Current Distribution

The Canada lynx has a circumboreal distribution. In North America, the Canada lynx ranges across nearly all of Canada and Alaska, and extends south into northern, forested portions of the United States. Within the contiguous United States, the lynx's range coincides with that of the southern margins of the boreal forest along the Appalachian Mountains in the Northeast, the western Great Lakes and the Rocky Mountains and Cascade Mountains in the West. Lynx in the contiguous United States are part of a larger metapopulation whose center is located in the northern boreal forest of central Canada; lynx populations emanate from this area (Buskirk et al. 2000; McKelvey et al.2000). It appears that hare populations and, as a result, lynx populations in the southern part of their range are cyclic, although amplitude of the fluctuations in this portion of the range is not as extreme as in the center of their range (Aubry et al. 2000; Hodges 2000; McKelvey et al. 2000). When there is a high in the lynx population in central Canada, it acts like a wave radiating out to the margins of the lynx range (McKelvey et al. 2000). Some maps (e.g. Hall and Kelson 1959) incorrectly portray the range of the lynx by encompassing peripheral records from areas that are not within the boreal forest or do not have cold winters with deep snow, such as prairie or deciduous forest. Such maps have lead to the misperception that the historic range of the lynx was once more extensive than ecologically possible. Records of lynx outside the southern boreal forest in peripheral habitats that are unable to support lynx represent long-distance dispersers that are lost from the metapopulation unless they return to boreal forest and contribute to the persistence of the population. This includes records from Connecticut, Indiana, Iowa, Massachusetts, Nebraska, Nevada, North Dakota, Ohio, Pennsylvania, South Dakota and Virginia (Hall and Kelson 1959; Burt 1946; Gunderson 1978, McKelvey et al. 2000).

The extent of boreal forest in the United States and thereby the range of Canada lynx extends south through the Rocky Mountains, northern Great Lakes region, and northern New England. Historic and current range consists of Colorado, Idaho, Maine, Michigan, Minnesota, Montana, New Hampshire, New York, Oregon, Utah, Vermont, Washington, Wisconsin and Wyoming because these States support some boreal forest and have more frequent records of lynx. Lynx populations in the northeastern United States and the southeastern Canada are separated from those in north-central Canada by the St. Lawrence River. There is little evidence of regular hare or lynx population cycles in this area (Hoving 2001), but wide fluctuations in lynx and snowshoe hares do occur. Most records of lynx in the western United States are associated with Rocky Mountain conifer forest and most were within the 4,920-6,560 foot elevation zone. There is a gradient in the elevational distribution of lynx habitat from the northern to the southern Rocky Mountains, with lynx habitat occurring at 8,000-11,500 feet in the southern Rockies. The southern Rocky Mountains in Colorado, Utah, and southern Wyoming are disjunct from other lynx habitats in the United States and Canada.

6. Previously Consulted-on Effects

Following the listing of Canada lynx in March 2000, the USFS signed a Canada Lynx Conservation Agreement with the Service in 2001 agreeing to consider the Lynx Conservation Assessment and Strategy (LCAS) during project analysis and the USFS agreed not to proceed with projects that would be *likely to adversely affect lynx* until their plans were amended. The LCA was renewed in 2005 and added the concept of occupied mapped lynx habitat. In 2006 the LCA was amended to define occupied habitat and to list those National Forests that were occupied. In 2006 it was also extended for 5 years (until 2011), or until all relevant Forest Plans were revised to provide guidance necessary to conserve lynx (USFS and Service 2000, 2005, 2006a, 2006b). The 2007 decision documented in the Northern Rockies Lynx Management Direction FEIS, commonly referred to as the Northern Rockies Lynx Amendment (NRLA), fulfilled the agreement to amend the plans for all National Forests in the Northern Rockies Lynx Planning Area (see Table 30) and most National Forests in Idaho. The NRLA incorporated the goals, objectives, standards and guidelines of the selected alternative (Alternative F, Scenario 2). The direction provided by the NRLA applies to mapped lynx habitat on National Forests System lands presently occupied by Canada lynx, as defined by the *Amended Lynx Conservation Agreement between the Forest Service and the Service* (USFS and Service 2006). When National Forests are designing management actions in unoccupied mapped lynx habitat they should consider the lynx direction, especially the direction regarding linkage habitat. If and when those NFS lands become occupied, based upon criteria and evidence described in the LCA, the direction shall then be applied to those forests. If a conflict exists between the NRLA management direction and an existing plan, the more restrictive direction will apply.

On March 16, 2007, the Service issued its Biological Opinion on the NRLA and determined that the management direction would not jeopardize the continued existence of lynx. The Service provided non-discretionary terms and conditions and reasonable and prudent measures in their Biological Opinion which are incorporated into the NRLA Record of Decision. The Service also provided exemption of take of lynx habitat through that Opinion up to 6 percent of mapped lynx habitat associated with fuel management projects. Such projects must be compliant with the

terms and conditions in the NRLA Opinion and remain within 6 percent of the mapped lynx habitat take exemption.

The SWIE completed revising their plans prior to initiation of the NRLA and fully incorporated the LCAS protective provisions into their standards and guidelines and associated formal consultations for lynx. Also, as stated above, the Wallowa-Whitman NF remains subject to the conditions of the LCAS, pending revision of its LRMP. Based on the lack of appropriate vegetation types, there is no mapped lynx habitat on the Caribou National Forest and therefore the LCAS, nor the NRLA applies. Appendix B of the Assessment for the MIRR provides a description of the standards and guidelines relevant to management of lynx habitat in the LCAS, LRMPs for the SWIE, and the NRLA.

Table 30. Lynx management direction for Idaho National Forests.

National Forest	**Recovery role[1]**	**Management Direction**
Bitterroot	Secondary	NRLA (2007)
Boise	Secondary	Revised LRMP (2003)
Clearwater	Secondary	NRLA (2007)
Idaho-Panhandle	Secondary	NRLA (2007)
Kootenai	Core	NRLA (2007)
Nez Perce	Secondary	NRLA (2007)
Payette	Secondary	Revised LRMP (2003)
Salmon-Challis	Secondary	NRLA (2007)
Sawtooth	Secondary	Revised LRMP (2003)
Targhee[2]	Core	NRLA (2007)
Wallowa-Whitman	Secondary	Lynx Conservation Agreement

[1]As determined by Service (2005)
[2] Only applicable to the Targhee National Forest.

Any projects in IRAs would need to be consistent with applicable plan components associated with the national forest within which the IRA is located. For lynx, these constitute specific goals, objectives, standards, and guidelines have been incorporated into the Forest Plans for the SWIE (i.e., Boise, Payette, and Sawtooth National Forests), the NRLA (see USFS 2007), and the LCAS (i.e., relevant to the Wallowa-Whitman only) to minimize adverse effects to Canada lynx and to establish a framework for managing lynx habitat to promote recovery of the species. All activities proposed in IRA must also undergo Section 7 consultation under Act with the Service (and NMFS for listed anadromous fishes). However, within the Forests covered under the NRLA, effects to lynx from timber cutting were analyzed within the Biological Opinion on the NRLA (Service 2007). Since the Service also provided exemption of take of lynx habitat up to 6 percent of mapped lynx habitat associated with fuel management projects, such projects must be compliant with the terms and conditions in the NRLA Opinion and remain within the 6 percent of mapped lynx habitat take exemption.

7. Conservation Needs

On September 12, 2005, the Service issued a Recovery Plan Outline for the Contiguous United States Distinct Population Segment of lynx (Service 2005). The outline is to serve as an interim strategy to guide and encourage recovery efforts until a recovery plan is completed. In the Recovery Outline, the Service categorized lynx habitat as: 1) core areas; 2) secondary areas; and 3) peripheral areas. The areas with the strongest long-term evidence of the persistence of lynx populations in the United States are defined as core areas. Core areas have both persistent verified records of lynx occurrence over time and recent evidence of reproduction. Focusing lynx conservation efforts on these core areas will ensure the continued persistence of lynx in the contiguous United States by addressing fundamental principles of conservation biology to lynx (Service, 2005). Areas classified as secondary areas are those with historical records of lynx presence with no record of reproduction; or areas with historical records and no recent surveys that document the presence of lynx and/or reproduction. Much of the secondary habitat is unoccupied, but may contribute to lynx persistence by providing habitat to support lynx during dispersal movements, allowing animals to then return to core areas. In peripheral areas, the majority of historical lynx records are sporadic and generally correspond to periods following cyclic lynx population highs in Canada. While peripheral areas show no evidence of long-term presence or reproduction of lynx, they may enable successful dispersal of lynx between populations or subpopulations.

The recovery outline identifies four preliminary objectives for calculating progress toward the goal of delisting lynx. The objectives are:

a. Retain adequate habitat of sufficient quality to support the long-term persistence of lynx populations within each of the identified core areas.
b. Ensure sufficient habitat is available to accommodate the long-term persistence of immigration and emigration between each core area and adjacent populations in Canada or secondary areas in the United States.
c. Ensure habitat in secondary areas remains available for continued occupancy by lynx.
d. Ensure threats have been addressed so that lynx populations will persist in the contiguous United States for at least the next 100 years.

8. Critical Habitat

On November 9, 2006, the Service issued a Federal Register (71 FR 66007) notice entitled Designation of Critical Habitat for the Contiguous United States Distinct Population Segment of Lynx (Service, 2006). No National Forest System lands were designated as critical habitat because these lands were found to already provide special management and/or protection for lynx. On July 20, 2007, the Service announced a review of the November 9, 2006 final rule after questions were raised about the integrity of the scientific information used and whether the decision made was consistent with the appropriate legal standards. On February 28, 2008, the Service proposed a rule in the Federal Register (73 FR 10860) to revise designated critical habitat for the contiguous United States distinct population of Canada lynx. The proposed designation would add an additional 40,913 square miles to the existing critical habitat designation of 1,841 square miles in Idaho, Maine, Minnesota, Montana, Washington and

Wyoming (73 FR 10860). In Idaho, approximately 32,000 acres of proposed revised designated critical habitat is located in Boundary County primarily on federal land including the IPNF and a portion of the Buckhorn Ridge Roadless Area. This Opinion addresses this proposed revised designated critical habitat on the IPNF involving a portion of the Buckhorn Ridge Roadless Area in the following chapter.

B. Environmental Baseline

1. Status of the Species in the Action Area

The following National Forests in Idaho have mapped primary and secondary vegetation as lynx habitat and identified Lynx Analysis Units (LAUs) to assist in project-level analyses: Bitterroot, Boise, Clearwater Idaho Panhandle, Kootenai, Nez Perce, Payette, Salmon-Challis, Sawtooth, Targhee, and Wallow-Whitman (Figure V-2 in the Assessment). As stated above, there is no mapped lynx habitat on the Caribou National Forest based on the lack of appropriate vegetation types. In total, mapped lynx habitat on these Forests covers 7,354,755 acres (Table 31). Approximately 3,641,858 acres (~48%) of mapped lynx habitat on Idaho's National Forests overlap IRAs (Table 31).

Based on historical and current documentation of lynx presence, mapped lynx habitat is considered 'occupied' on the following National Forests in Idaho (USFS and Service 2006): Idaho Panhandle, Clearwater, Kootenai, and Targhee. However, none of these forests are considered occupied based on recent documented reproduction of lynx (T. Bertram, pers. comm., 2008). Lynx presence has been well documented, historically and currently, throughout the Panhandle of Idaho. In 1998, a survey for lynx using hair-snagging techniques and DNA analyses was conducted in the Priest Lake, Bonners Ferry, and Sandpoint areas of northern Idaho. Lynx hair was collected at 5 separate locations across the survey area (Weaver 1999). Interviews of Idaho residents documented additional records of lynx in the Salmon, Upper Snake, and Bear River watersheds as well (Lewis and Wenger 1998). Other areas in Idaho that have consistent historical records over time include the Stanley Basin, the Henry's Lake/Island Park area, the Lemhi Range, and the upper Bear River watershed (Ruggiero et al. 2000, pg. 4-7).

Due to the absence of recent records of lynx presence and reproduction, the Nez Perce, Wallowa-Whitman, and Salmon-Challis are considered 'unoccupied'. The Service continues to include Canada lynx on 90-day species lists for Payette, Boise, and Sawtooth National Forests, though based on criteria applied to the other Forests in Idaho, current occupancy by lynx may be unlikely.

2. Factors affecting the Species in the Action Area

The LCAS identified 15 criteria for evaluating risks to Canada lynx, and in the Service's 2000 Opinion regarding land management effects to lynx range-wide, the Service grouped them into four categories: reduction in habitat quality or quantity, habitat fragmentation contributing to the loss of connectivity, improved access for competing carnivores, and direct mortality. These risk factors were further condensed to productivity, movement, and mortality as addressed in the

analysis for the Northern Rockies Lynx Management Direction (USFS FEIS March 2007) as well as by Ruediger et al. (2000) and Ruggiero et al. (2000a and 2000b).

Table 31. Mapped lynx habitat, overlap of habitat with IRA, likelihood of occupancy, and management direction for lynx on National Forests in Idaho.

National Forest	**Mapped Lynx habitat**	**Mapped lynx habitat in IRA**	**Percent**	**Likelihood of occupancy[1]**
Bitterroot	193,604[2]	0	0%	Not Likely
Boise	601,752	434,196	72%	Undetermined[3]
Clearwater	933,050	578,710	62%	Likely
Idaho-Panhandle	700,8002	305,599	63%	Likely
Kootenai	36,4052	25,846	71%	Likely
Nez Perce	805,048	217,174	27%	Not likely[4]
Payette	831,251	377,954	45%	Undetermined[3]
Salmon-Challis	1,803,502	798,757	44%	Not likely
Sawtooth	555,207	384,467	69%	Undetermined[3]
Targhee[3]	868,582	380,555	44%	Likely
Wallowa-Whitman	25,5552	41	0.16%	Not likely
Total	7,354,755	3,503,401	48%	

[1]Based on criteria described in USDA Forest Service and USDI Fish and Wildlife Service (2006).

[2] Does not include mapped lynx habitat on Forest outside Idaho.

[3]Lynx included on FWS 90-day species list (1/10/08), but current presence of the species on the Forest is unlikely based on criteria of 'occupancy' applied by USDA Forest Service and USDI Fish and Wildlife Service (2006).

[4]Status could change pending results of surveys to be completed during winter, 2008.

Timber Cutting

The effects of vegetation management on Canada lynx and its prey species will vary depending how such activities alter forest structure. Even-aged harvest, for example, removes or alters stand structure, and temporarily eliminates snowshoe hare forage/cover and lynx cover until the site is regenerated to forest cover. Even-aged harvest generally reduces potential for denning habitat by removing large trees and down logs from the treated acreage. Red squirrel habitat is also reduced by the harvest of large trees. Regeneration harvest can be a tool for creating high quality snowshoe hare habitat in the future, especially where natural regeneration would be expected to respond and provide dense young vegetation. Uneven-aged management, such as single tree selection or group selection, results in varying effects to snowshoe hare, red squirrel and lynx, depending on the stems removed, harvest system and post sale treatments. This harvest method can be used to replicate or mimic forest gap dynamics. In drier forests, particularly at the southern edge of lynx range, snowshoe hare abundance may exhibit unimodal distribution, with peaks in old growth forests (Buskirk et al. 2000a). Harvest in these stands may therefore have greater effects upon the prey base of lynx.

Reducing dense horizontal structure within forest stand understories through silvicultural thinning can reduce an area's carrying capacity for snowshoe hares (Homyack et al. 2007). In northwestern Montana, Ausband and Baty (2005) found that within individual forest stands, hares had a significant affinity for dense, unthinned sapling patches. Research conducted in northwestern Montana found that precommercial thinning (PCT) decreased snowshoe hare abundance, compared to both control and PCT thinned stands where 80 percent of the entire stand was thinned but 20 percent of the total stands was retained with saplings uncut (Griffin and Mills 2007). Declines were prominent in the second winter after treatment. In addition, estimated survival rates of snowshoe hares decreased as individuals spent proportionately more time in open young and open mature forest stand structure types (Griffin and Mills 2007). Additional research to investigate the relationship of various stand conditions to snowshoe hares is currently underway in several different regions of the western United States.

Fire management activities and salvage and timber harvests may remove existing coarse woody material and/or affect its recruitment. Loss of denning habitat may affect the survival of kittens. Fuel reduction projects have the potential to reduce or eliminate lynx habitat by simplifying stand structure and/or reducing stem densities below levels that provide suitable forage and cover conditions for snowshoe hares. These activities have the potential to diminish the landscape's ability to produce adequate densities of snowshoe hares to support persistent lynx populations, both effects anticipated to be adverse to lynx (Service 2008a).

Conversion of native plant communities, fire suppression and hazardous fuel reduction, precommercial thinning, and timber management may result in effects to prey species and alter the abundance and/or availability of denning habitat. Grazing by livestock and/or wild ungulates may increase forage competition with lynx prey or alter native plant communities that may reduce the quantity and/or quality of snowshoe hare habitat. Recreational activities, roads, and trails can create compacted snow conditions that may facilitate increased access into lynx habitat and competition for food resources by competitors (e.g., bobcats, coyotes and mountain lions).

The primary risk factors affecting the movement of Canada lynx include major highways and associated development within rights-of-way and private land development, especially along road corridors in mountain valleys (Ruediger et al. 2000). Though the MIRR proposes no activities directly affecting these factors, we address them here in their broader context existing between IRAs. Although empirical data are limited, observations of radio-collared lynx indicate they have crossed two lane highways (Squires and Laurion 2000). Other studies have found that lynx are reluctant to cross major highways (Gibeau and Heuer 1996, as cited in Ruediger et al. 2000). Apps (2000) found that radio-collared lynx in the southern Canadian Rockies crossed highways within home ranges less than expected. The highways that may have the highest potential of impacting lynx in Idaho are SR 12, 55, 75 and 95. As stated above, while the MIRR proposes no activities directly affecting these major highway in Idaho, it does propose permissions and prohibitions to road construction and reconstruction according to roadless area management themes. For this reason, the following information is provided as factors that could affect lynx in IRAs.

Road Construction and Reconstruction

In general, construction and reconstruction of forest roads are not considered a primary threat to resident lynx populations in and of themselves (Service 2000a and 2007). Vehicle speeds on forest roads are relatively slow in comparison to highways or other public roads due to topography, substrate and road conditions. Thus, the potential for lynx mortality or injury due to collisions with vehicles is probably low on forest roads (Service, NRLA BO, 2007, pg 21, pg 50). Further, although recreational, administrative and commercial uses of forest roads are known to disturb many species of wildlife (Ruediger 1996), preliminary information suggests that lynx do not avoid roads (Ruggiero et al. 2000a), except at high traffic volumes (Apps 2000). It is possible that summer use of roads and trails through denning habitat may have negative effects if female lynx are forced to move kittens because of associated human disturbance (Ruggiero et al. 2000b). However, new road construction continues to occur in many watersheds within lynx habitat, many of which are already highly roaded, and the effects on lynx are largely unknown. Further research directed at elucidating the effects of road density on lynx is needed (Ruediger et al. 2000, pgs. 2-12).

The primary mechanism through which forest and backcountry roads could negatively impact Canada lynx is through facilitation of winter recreation, such as snowmobiling, cross-country skiing, or snow-shoeing. These snow-compacting activities may facilitate the movement of competing carnivores, primarily coyotes, along snow compacted routes into lynx habitat during winter. Lynx have very large feet in relation to their body mass, which provides them with a competitive advantage over other carnivores in deep snow conditions. Various reports and anecdotal observations have documented coyotes using high elevation, deep snow areas (Buskirk et al. 2000b) when aided by mechanical snow compaction. Research conducted in central Alberta, attributed the use of more open habitats by coyotes to greater snow compaction (Todd et al. 1981). In another study in Alberta, coyotes were more selective of hard or shallow snow conditions than lynx (Murray et al. 1994).

Within lynx habitat in northwestern Montana, twelve radio-collared coyotes were monitored over three winter seasons to assess how coyotes interacted with compacted snowmobile trails (Kolbe et al. 2007). Coyotes remained in lynx habitat having deep snow conditions and traveled on compacted snowmobile trails more than random expectations. However, coyotes used compacted snowmobile trails for less than eight percent or their travel and used compacted and uncompacted roads similarly (Kolbe et al. 2007). Coyotes did strongly select for shallower and more supportive snow surfaces when traveling off of compacted trails. In this study, coyotes primarily scavenged ungulate carrion that was readily available during winter months, while snowshoe hare kills comprised only three percent of coyote feeding sites (Kolbe et al. 2007).

In the Uinta Mountains of northeastern Utah and in an additional three comparative study areas (Bear River range in Utah and Idaho, Targhee National Forest in Idaho, Bighorn National Forest in Wyoming), Bunnell et al. (2006) found that the presence of snowmobile trails was a highly significant predictor of coyote activity in deep snow areas. From track surveys it was determined that the vast majority of coyotes (90 percent) stayed within 350 meters of a compacted trail and that snow depth and prey density estimates (snowshoe hares and red squirrels) were the most significant variable in determining whether a coyote returned to a snowmobile trail (Bunnell et

al. 2006). Of these four study areas, recent lynx presence has only been documented on the Targhee National Forest.

It is important to note that in Kolbe et al. (2007), the study area was characterized by the presence of abundant ungulate carrion in the winter, primarily related to hunter mortality. This characteristic may be a rather unique occurrence within lynx habitat in northwestern Montana and may not occur within other portions of lynx habitat. Further, geographic variation in snow conditions (i.e., depth, supportiveness) may account for differences in coyote use of compacted snow trails documented in these two studies. Consequently, the effects of snow-compacting winter recreation activities on lynx may be dependent upon the environmental conditions which can vary with location.

Highways, predation by other species, predator control activities, shooting and trapping are all factors that could pose potential risk of mortality to Canada lynx. The MIRR will have no effect on these factors, but they are addressed briefly here to describe their potential influence on lynx in Idaho. Major high use highways such as I-90, I-15, US-2, US-12 and US-93 which occur between Idaho's dispersed roadless areas may result in lynx mortalities of both resident and dispersing individuals through vehicle collisions (Ruediger et al. 2000).

Discretionary Mining

Although it varies by commodity, surface use associated with the exploration and development of leasable minerals requires access and haul roads, open pits, facilities, power lines, pipelines, and communication sites, all of which can impact habitats for terrestrial species. For example, development of geothermal energy includes the following: exploratory drilling (some ground disturbance, road to access if not already there); if exploratory is favorable, construct well pad (about 3 acres); need a power plant within one to two miles, pipelines which are above ground (Abing 2008). Mining operations associated with phosphate extraction can contribute to the following impacts on species (BLM and USFS 2006):

- Physical removal of habitat and increased disturbance to adjacent habitats;
- Increased uptake by wildlife of contaminants (e.g., selenium) in mining disturbance areas and areas that are reclaimed;
- Increased potential for road-related mortality of wildlife due to collisions and human access.

Although the trapping of lynx is currently not permitted within Idaho, lynx may be trapped incidentally by bobcat and coyote trappers. Predator control activities may pose a risk to lynx within portions of the state. Lynx may also occasionally be shot and predation by mountain lions and wolves may be a source of mortality in some locations.

Lastly, hybridization between taxonomically similar species is a mechanism that can limit the recovery of threatened and endangered species. Hybridization between lynx and bobcats has been documented in Minnesota (Schwartz et al. 2004). However, the extent of this hybridization is unknown but at this time it appears to be a localized occurrence.

C. Effects of the Proposed Action

The previous section presented factors and activities that can affect Canada lynx in the action area, some of which (particularly road construction, road reconstruction, timber cutting and discretionary mining) may also result from future actions undertaken as allowed by the MIRR. To minimize duplication, these potential effects to lynx are not reiterated in their entirety below but are addressed specific to the proposed MIRR. Lynx productivity is directly related to the quantity and quality of habitat and indirectly related to competition with other predators. Conversion or alteration of native plant communities through timber management, fire suppression and natural fuel reduction, precommercial thinning, grazing by livestock, road and trail access and other recreational uses all serve as potential risk factors affecting the quantity and quality of habitat and thereby lynx productivity. The MIRR establishes prohibitions and permissions on timber cutting, road construction/reconstruction, and discretionary mining activities across IRAs, based on management area 'themes'. Unlike most USFS project analyses of alternatives and environmental consequences, the analysis of the MIRR does not include an analysis of project implementation and resulting direct effects; it is an analysis of activities that could occur pursuant to the MIRR and the indirect and cumulative effects that could occur from those actions. It is an analysis of what is allowed under the MIRR (by theme) versus an analysis of the on-the-ground activities, and therefore has no direct effects.

Of over 7.3 million acres of mapped lynx habitat on National Forests in Idaho, 48 percent (~3.5 million acres) or nearly half overlaps IRAs (Table 32). Conditions under which road construction/reconstruction, timber cutting, and discretionary mining could occur within IRAs vary with themes proposed by the MIRR. Generally, these themes rank in restrictiveness as follows (from most restrictive to least): WLR, PRIM and SAHTS, BCR, BCR-CPZ, and lastly GFRG (see Chapter II for more detailed descriptions of these themes). Approximately 1,000 acres of timber harvest (i.e., removal of a commercial product) and 3.3 miles of road construction/reconstruction are projected in IRAs per year across the entire state under the MIRR. Below we discuss the effects of these themes and potential management activities on Canada lynx.

Wild Land Recreation

About 7.5 percent of total mapped lynx habitat in Idaho (549,101 acres) overlaps WLR (Table 32). These lands were generally identified during the forest planning process as recommended for wilderness designation. Consequently, road construction/ reconstruction, timber cutting, sale, or removal, and discretionary mining activities are all prohibited in this theme, with very few exceptions (See Chapter II for exceptions). Therefore, under WLR, effects to lynx and its habitat that could occur due to road construction or reconstruction (e.g., facilitation of human access), vegetation management (e.g., degradation or loss of lynx habitat), and discretionary mining (e.g., habitat loss and disturbance) are not anticipated. Further, prohibition on new roads, temporary or permanent, should benefit the species in these areas by reducing disturbance and human access, which should preclude increased recreational impacts that might be facilitated by new roads. Beneficial effects to lynx (as discussed above) of certain vegetation management activities designed to improve snowshoe hare habitat would also be precluded in WLR.

Table 32. Overlap of Mapped Lynx Habitat with the MIRR themes.

	Mapped lynx habitat	**% of total mapped lynx habitat in Idaho**
Wild Land Recreation	549,101	7.47%
Primitive	649,028	8.83%
Backcountry	1,884,947	25.63%
Backcountry CPZ	152,327	2.07%
General Forest, Rangeland, Grassland	115,795	1.57%
Special Areas of Historical and Tribal Significance	36,503	0.50%
Other Forest Plan Special Areas[1]	115,296	1.57%
Total in IRA	3,502,997	47.64%
Total Mapped Lynx Habitat in Idaho	7,353,220	

[1]These are roadless areas that are already part of other land classification systems; they are not addressed by in the MIRR. They are only included here for sake of completeness.

Primitive and SAHTS

A total of 685,531 acres (9.3 percent) of mapped lynx habitat falls within PRIM and SAHTS themes. Road construction/reconstruction and mineral activities are prohibited with the same limited exceptions that apply to WLR. Consequently, we would not anticipate adverse effects to lynx or its habitat resulting from these activities in Primitive or SAHTS.

Timber cutting, sale, or removal could occur in PRIM under the same two exceptions as WLR (See Chapter II) and for two additional purposes: to improve threatened, endangered, proposed, or sensitive species habitat; maintain or restore characteristics of ecosystem composition and structure; and reduce the risk of uncharacteristic wildland fire effects to an at-risk community or municipal water supply system. Such activities could only be facilitated using existing roads or aerial systems, and projects would have to meet certain additional criteria (e.g., retention of large trees, Regional Forester approval, etc.) to generally ensure that roadless characteristics are maintained or improved. Therefore, timber management (and related activities such as prescribed burning) could occur in PRIM and SAHTS where they are designed to restore or improve lynx habitat. Such activities are likely to be benign or beneficial to lynx in the long-term, although short-term negative impacts to individual lynx could still occur.

Timber cutting in lynx habitat for the purposes of reducing fuels (as might be conducted to reduce the risk of uncharacteristic wildland fire effects to at-risk communities or municipal water supply systems) could adversely affect lynx by altering the habitat of its primary prey, snow-shoe hares (see Effects of the Action – Timber cutting above). About 43,346 acres of mapped lynx habitat in PRIM are within 1.5 miles of an at-risk community, where most fuels reduction activities would be expected to occur. Municipal water supply systems are primarily concentrated around urban areas, although there is some overlap with IRAs, particularly in the following regions of Idaho: panhandle, west-central, and south-east. Consequently, it is possible,

that timber cutting activities intended to protect municipal water supply systems could occur within and impact the quality of lynx habitat.

Backcountry Restoration

Approximately 2,037,273 acres of mapped lynx habitat (~27%) fall in BCR, including 152,410 acres within CPZ. Within BCR, construction/reconstruction of temporary roads would be permitted (see Chapter II for more details) under certain circumstances, including but not limited to the following: to reduce hazardous fuel conditions with the CPZ, or outside the CPZ if there is a significant risk that a wildland disturbance event could adversely affect an at-risk community or municipal water supply systems. If these purposes applied, activities would be further subject to certain conditions (See Chapter II for more details) which would likely reduce the likelihood that temporary roads would be constructed. Consequently, lynx could be impacted by road construction/reconstruction (as discussed above), particularly within CPZ, albeit the instances are likely to be infrequent given the limited conditions under which these activities could occur.

Similarly, timber cutting activities are permitted in BCR to address a number of purposes, including but not limited to: treating hazardous fuels, improving TEPC habitat, and restoring/maintaining characteristics of ecosystem composition and structure. These activities would occur using existing roads or aerial systems. Such vegetation management practices in BCR have the potential to adversely or beneficially affect lynx and its habitat, depending on the prescriptions applied, as described above.

Road construction or reconstruction related to discretionary mining is not permitted in BCR. However, surface occupancy to facilitate extraction of leaseable minerals (e.g., oil and gas, geothermal, phosphates) would be allowed where it is consistent with applicable plan components. Although the likelihood of new leases in IRAs under this theme is low without the ability to build new roads, surface occupancy for any new mines that use existing road systems could impact lynx via habitat loss and degradation where they overlap mapped lynx habitat.

Given over 25 percent of mapped lynx habitat overlaps the BCR theme, the likelihood for some type of effect to lynx, adverse or beneficial in nature, under this theme is considered moderate.

General Forest, Rangeland, or Grassland

Approximately 405,900 acres of IRA are proposed under this theme, including 115,795 acres of mapped lynx habitat (Table V-7). Both permanent and temporary forest roads can be constructed, reconstructed and/or maintained in GRFG and timber cutting, sale, and removal is permissible. In addition, there are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. The MIRR would allow road construction and reconstruction and surface occupancy for future phosphate exploration and development within the GFRG theme, which encompasses 5,770 acres of unleased KPLAs and any undiscovered phosphate acreage outside of KPLA within GFRG. Under the MIRR, the following IRAs contain unleased KPLAs in GFRG: Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek. These IRA's are all located in the Caribou portion of the Caribou-Targhee National Forest before these forests were consolidated. Since there is no mapped lynx habitat on the Caribou portion of the Caribou-Targhee National Forest due to the lack of appropriate

vegetation types, there is little potential risk to lynx on these 5,770 acres when and if this development should occur. Site-specific analysis and consultation would occur prior to any future leasing.

Most of the road construction/reconstruction and timber cutting projected under the MIRR is expected to occur in GFRG. No GFRG is proposed in the following Forests: Challis, Clearwater, Kootenai, Nez Perce, or the Wallowa-Whitman (Table 33). Given that approximately 29 percent of GFRG is also mapped lynx habitat, the potential for activities to occur in mapped lynx habitat is relatively high. However, this potential occurs on only 1.57 percent of total mapped lynx habitat on National Forests in Idaho, of which 20,028 acres are documented as "occupied" by lynx at this time. This suggests there is potential for individuals to be exposed and possibly adversely impacted on those forests considered occupied by lynx that have GFRG assigned to mapped lynx habitat (IPNF and Targhee National Forest). Given the limited overlap between GFRG and mapped lynx habitat that may be occupied by lynx, a relatively low risk to the species exists from select management activities (i.e., road construction/reconstruction, timber cutting, discretionary mining) in IRAs statewide.

Table 33. Overlap of Mapped Lynx Habitat with the MIRR themes by Forest.

Forest	**WLR**	**Prim.**	**BCR**	**BCR CPZ**	**GFRG**	**SAHTS**	**FPSA**
Bitterroot	0	0	0	0	0	0	0
Boise	75,900	173,087	158,553	4,533	13,327	0	8,796
Clearwater	171,039	121,188	261,893	885	0	21,448	2,256
Idaho-Panhandle	85,895	0	180,869	7,778	4,612	0	26,444
Kootenai	0	0	25,733	0	0	0	113
Nez Perce	91	64,387	120,534	13,042	0	15,055	4,064
Payette	97,461	43,462	202,532	22,112	68	0	12,319
Salmon-Challis	16,039	6,605	639,096	48,764	81,809	0	6,444
Sawtooth	47,146	179,660	86,951	34,692	481	0	35,538
Targhee	55,646	57,178	207,960	20,603	15,416	0	23,753
Wallowa-Whitman	0	0	41	0	0	0	0
Totals	549,218	645,567	1,884,162	152,410	115,712	36,503	119,729

Bolded National Forests are those determined 'occupied' by lynx at this time.

Prescribed Fire

Use of prescribed fire is not directly addressed by the MIRR. However, this activity is typically paired with timber cutting activities intended to reduce fuels, which is addressed by the MIRR and thus we also consider its impacts on Canada lynx. Fire exclusion has altered the pattern and composition of vegetation within lynx habitat within National Forests in Idaho (Hillis 2003).

These patterns, especially within stand replacing fire regimes (predominately spruce-fir communities), were likely important in providing young age class (i.e., stand initiation) snowshoe hare habitat across the landscape. Use of natural fire processes, such as wildland fire or prescribed fire, could be used as a restoration tool for these ecosystems that have been impacted by fire exclusion. These activities may temporarily reduce the quality of lynx habitat for several years following a burn (Fox 1978), as changes to understory may reduce snowshoe hare populations, remove cover, and possibly increase competition from coyotes in open habitats (Stephenson 1984, Koehler and Brittell 1990). However, in the longer term (10-15 years), areas burned may provide for higher densities of snow shoe hares than prior to treatment, resulting in a benefit to resident lynx.

Discretionary Mining

Generally, many of the impacts discretionary mining could have on terrestrial wildlife species, including Canada lynx, will result from removal of the substrate for the mine footprint and required infrastructure, primarily road construction and development. The impacts ensuing from these activities include habitat loss, degradation, fragmentation, and human disturbance. Most of the road construction/reconstruction and timber cutting projected under the MIRR is expected to occur in GFRG. However, this potential occurs on only 15,416 acres of mapped lynx habitat on the Targhee National Forest (which is considered "occupied" by lynx at this time) out of nearly 7.3 million acres of mapped lynx habitat on National Forest lands in Idaho. About 910 acres of unleased phosphate are located in GFRG on the Targhee portion of the Caribou-Targhee National Forest; however roads may not be constructed to access these deposits because they are not within the map specified in figure 3-20 of the FEIS (section 3.15 Minerals and Energy). Given the fact roads may not be constructed to access unleased phosphate deposits that may overlap occupied mapped lynx habitat there is a relatively low risk to the species from discretionary mining management activities in IRAs.

Surface occupancy to facilitate extraction of leaseable minerals (e.g., oil and gas, geothermal, phosphates) would be allowed where it is consistent with applicable plan components. There is no potential for oil and gas in IRAs other than on the Caribou-Targhee National Forest. The forest supervisor on the Targhee National Forest issued an oil and gas leasing decision in 2000. The decision made much of the forest either unavailable for leasing or available for leasing with a no surface occupancy (NSO) stipulation. The large expanse of the designated NSO renders them virtually impossible to economically explore and develop (FEIS, section 3.15 Minerals and Energy). Surface use and occupancy, and associated infrastructure could be granted in some areas for geothermal development although there is a low likelihood of new leases in IRAs without the ability to build new roads. Surface occupancy for any new mineral or energy development that uses existing road systems could impact lynx via habitat loss and degradation where they overlap mapped lynx habitat.

D. Cumulative Effects

Under the Act, cumulative effects are defined in 50 CFR 402.02 as: "those effects of future state and private activities that are reasonably certain to occur within the action area of the Federal Action subject to consultation." A non-Federal Action is "reasonably certain" to occur if the

action requires the approval of a state of local resource or land use control, such agencies have approved the action, and the project is ready to proceed. For Federal lands, state, Tribal, and local government actions could be in the form of legislation, administrative rules, or policy initiatives, or they could be actions proposed on non-federal lands that fall within the action area (e.g., inholdings).

We do not anticipate cumulative effects to the Canada lynx resulting from state, Tribal, and local government actions for the following reasons:

- The action area for the MIRR consists of IRAs (see definition in Section II of the Assessment), most of which are unlikely to contain significant inholdings given their current roadless character and thus effects on such intervening non-Federal lands are unlikely;
- Given the broad scope of this Federal Action, it is not possible to determine specific state, private or local government legislation, administrative rules, or policy initiatives that would be reasonably certain to occur in IRAs.

E. Conclusion

The Service has reviewed the current status of the Canada lynx, the environmental baseline in the action area, effects of the proposed action, and cumulative effects, and it is our conclusion that the proposed MIRR is not likely to jeopardize the continued existence of Canada lynx. The potential for adverse effects to Canada lynx and its habitat to result from site-specific actions that could occur pursuant to the MIRR are not discountable but are also not certain to result in take of individual lynx or lynx habitat. Slightly over half of the mapped lynx habitat in Idaho is not affected by the proposed MIRR. Of over 7.3 million acres of mapped lynx habitat on National Forests in Idaho, 48 percent (~3.5 million acres) or nearly half does overlap IRAs. About 549,101 acres (~7.5 percent) of this mapped lynx habitat overlaps WLR. Adverse effects to lynx or its habitat are not expected in this theme because the theme prohibits road construction or reconstruction (other than access to valid existing rights), vegetation management, and discretionary mining. Approximately 685,531 acres (9.3%) of mapped lynx habitat falls within PRIM and SAHTS themes. While timber management (and related activities such as prescribed burning) could occur in PRIM and SAHTS, such activities could only be facilitated using existing roads or aerial systems. Short-term negative impacts to individual lynx could occur within these themes but they are likely to be benign or beneficial to lynx in the long-term. About 43,346 acres (.58%) of mapped lynx habitat in PRIM are within 1.5 miles of an at-risk community, where most fuels reduction activities intended to protect municipal water supply systems and associated communities are expected to occur. The restrictive conditions under which these activities could occur and the limited habitat involved in PRIM themes adjacent to communities constrain the potential for adverse effects to lynx overall.

Approximately 2,037,273 acres (~27%) of mapped lynx habitat fall in BCR, including 152,410 acres (2.07% mapped lynx habitat) within CPZ. Within BCR, construction and reconstruction of temporary roads would be permitted under certain circumstances and the likelihood for some type of effect to lynx, adverse or beneficial in nature, under this theme may be considered moderate.

Approximately 405,900 acres of IRA are proposed under the GFRG theme, including 115,795 acres (1.57 %) of mapped lynx habitat. Both permanent and temporary forest roads can be constructed, reconstructed and/or maintained in GRFG and timber cutting, sale, and removal is permissible. Given road construction and reconstruction, timber cutting, and activities associated with phosphate mining projected under the MIRR are expected to be concentrated in GFRG, the potential for these activities to take place in lynx habitat is relatively high on the Targhee portion of the Caribou-Targhee National Forest. No GFRG is proposed in two of the forests considered currently occupied by lynx; the Clearwater and Kootenai. This suggests that the potential for individuals to be exposed and possibly adversely impacted by GFRG activities is limited to mapped lynx habitat on the IPNF (4,612 acres of GFRG in mapped lynx habitat) and Targhee (15,416 acres of GFRG in mapped lynx habitat) National Forests. Given the limited overlap (20,028 acres or 1.57 of mapped lynx habitat) between GFRG and mapped lynx habitat that may be occupied by lynx, a relatively low risk to the species exists from MIRR-proposed management activities (i.e., road construction/reconstruction, timber cutting, and discretionary mining) in IRAs statewide. This limited risk is further rendered unlikely due to the existing applicable land management plan components (e.g., standards and guidelines) that remain in place to protect lynx and lynx habitat.

All activities that take place under the authority of the MIRR in each of the assigned themes within IRAs, including GFRG would be subject to applicable land management plan components (e.g., standards and guidelines) as well as to specific conditions promulgated by this rule (See Chapter II for list of conditions). The revisions of the SWIE Forest Plans fully incorporate the LCAS and the Service's Biological Opinion completed in 2003 determined that lynx would not be jeopardized by continued land management within these forests. The March 16, 2007 Biological Opinion addressing the Northern Rockies Lynx Management Direction (Service, 2007) determined the management direction applied to the remaining forests in Idaho (except for the Wallowa-Whitman) would not jeopardize the continued existence of lynx and provided terms and conditions as well as reasonable and prudent measures to minimize impacts of any take that may occur. The management direction for lynx in the SWIE Forest Plans and the Northern Rockies Lynx Management direction are not inconsistent with the MIRR direction; therefore lynx management direction would be applied at the project level.

All of the objectives, standards and guidelines listed in Appendix N of the FEIS for the Northern Rockies Lynx Management Direction apply to IRA's located within the Clearwater, Idaho Panhandle, Kootenai and Targhee National Forests that are currently considered occupied by lynx. If a conflict exists between the NRLA direction and direction provided in an existing plan, the more restrictive direction will apply (USFS, NRLA ROD 2007). For the Nez Perce, Salmon-Challis and Bitterroot National Forests that are considered unoccupied at this time, the direction should still be considered when designing management actions in mapped lynx habitat within IRAs, especially direction regarding linkage habitat. If and when these unoccupied forests become occupied by lynx, based on criteria and evidence described in the LCA, the direction shall then be applied to those forests (including the IRAs within them) as well. Finally, the Biological Opinion for the Northern Rockies Lynx Management Direction included Term and Condition number 4 requiring the USFS to work with the Service to develop and complete an acceptable protocol to survey currently unoccupied lynx habitat in secondary areas. This

requirement should reveal new lynx occurrences in habitat currently unoccupied lynx habitat in secondary areas and afford NRLA protection to newly occupied IRAs in the future.

The same standards and guides in existing Forest Plans (including those amended by the Northern Rockies Lynx Management Direction) that support conclusions of no jeopardy to lynx in National Forest lands in Idaho extend to the MIRR as well. Site-specific analysis would occur prior to any road construction, reconstruction, timber cutting or future mineral leasing in IRAs. Section 7 consultation under the Act will also be required for site-specific proposals other than the exempted take of up to 6 percent of mapped lynx habitat associated with fuel management projects where the USFS will not need to consult with the Service regarding those types of activities. However, such projects must be compliant with the terms and conditions in the NRLA Opinion provided by the Service.

The Service's 2000 Biological Opinion determined that lynx would not be jeopardized by continued land management that was consistent with Interagency Agreements that applied the LCAS to all land management activities (Service 2000). The Wallowa-Whitman National Forest is the only National Forest still operating solely under the direction of the LCAS at least until their Forest Plan revision process is completed. No GFRG is proposed in the Wallowa-Whitman and this forest is not considered occupied by lynx at this time. Based on these considerations above, the Service concludes that implementing the proposed MIRR would not appreciably reduce the likelihood of survival and recovery of Canada lynx.

F. Incidental Take Statement

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without specific exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm in the definition of take in the Act means an act which actually kills or injures wildlife. Such acts may include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

1. Amount or Extent of the Take – No incidental take of lynx or lynx habitat is exempted herein as a result of the FS adopting the MIRR, although specific actions developed pursuant to the MIRR and associated LRMPs may cause effects that constitute take. The mere potential for take is not a legitimate basis for providing such an exemption. Subsequent consultation, as appropriate, on specific actions developed pursuant to the MIRR and relevant provisions of LRMPs will serve as the basis for determining if an exemption from the section 9 take

prohibitions is warranted. If so, the Service will provide Reasonable and Prudent Measures and Terms and Conditions, as appropriate, to minimize the impacts of the taking on the listed species in accordance with 50 CFR 402.14i.

2. Effect of the Take – Not applicable to this Opinion.

3. Reasonable and Prudent Measures and Terms and Conditions – As there is not take exemption under 7(o) of the Act in this Opinion, the Service is not providing Reasonable and Prudent Measures or Terms and Conditions.

G. Conservation Recommendations

Section 7(a)(1) of the Act requires Federal Agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities intended to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service does not recommend conservation measures specifically for the MIRR because any applicable conservation measures have already been applied to the Northern Rockies Lynx decision.