Wildlife

Analysis Area

In general, the analysis area for wildlife includes all lands managed by the IPNF and KNF; however, for the purposes of this document it may include segments outside National Forest System (NFS) boundaries (FSH 1909.12 - 43.11). While the habitat range for the majority of wildlife species is located in NFS lands, most wildlife species generally move from area to area which often necessitates travel between private and NFS lands. As a result, suitable habitat conditions and areas located in NFS lands become critical to species survival. Where this differs for some of the species, habitats, or groups, it will be documented individually by section in the following.

In some cases National Forest lands may provide all or a high percentage of the habitat for a given species; however, in most instances, wildlife generally move from area to area and habitats on National Forest lands may be critical to a species survival. Where this differs for some of the species, habitats, or groups, it is documented in each individual section.

Management for various wildlife species and habitats is analyzed, measured and monitored at a variety of scales: timber stand, timber compartment, district, species recovery area, and Forest. Generally, an evaluation is conducted on an area of appropriate size (depending on the species) to understand the environmental context, opportunities, and limitations of NFS lands to contribute to the sustainability of a given species or ecological system.

Introduction

The AMS and AMS Technical Report described the wildlife revision topic and the need for change. The CER report assesses the conditions and trends under current management, updates information, and includes additional resources not fully described in the AMS and the AMS Technical Report.

The Kootenai and Idaho Panhandle National Forests fall within various hierarchical land units such as the Northern Rocky Mountain Ecological Province (Bailey 1994), the Canadian Rocky Mountains Ecoregion, the Upper Columbia River Basin, and the Kootenai River Basin. Recent broad scale assessments, such as the Interior Columbia Basin Ecosystem Management Project (ICBEMP), have been completed for each of these land units, which have included all, or portions of both Forests. In addition, assessments have been completed for large portions of each Forest (upper Kootenai Sub-basin Assessment on the KNF and Geographic Area assessments for the IPNF). Upon completion of these broad-scale assessments, they were reviewed and the resulting information is incorporated into this analysis.

The Forests provide a wide diversity of habitats that support over 340 vertebrate species, including approximately 67 mammals, 255 birds, 11 amphibians and 8 reptiles. Approximately 290 of these species are known to occur in the Forests seasonally or year round and possibly breed, nest or den there as well. Many bird species migrate through the area, while the appearance of other bird species is considered accidental or transient.

The AMS Technical Report provided a list of species known to occur in the Forests. Using information gathered during the revision process, this species list was updated to reflect

appropriate changes (additions, deletions, and modifications). As required by laws and regulations, the Forest Service works closely with other federal and state agencies (e.g., U.S. Fish and Wildlife Service [USFWS]; Montana Fish, Wildlife and Parks [MFWP]; and the Idaho Department of Fish and Game [IDFG]) in the management of wildlife resources. The Forest Service is primarily responsible for *management of wildlife habitat* on lands for which it has administrative responsibility. In contrast, state Fish and Wildlife agencies are directly responsible for *managing wildlife populations* and have authority to carry out statutory policy to preserve, protect, perpetuate, and manage all fish and wildlife species.

Close cooperation between the different state and federal agencies, and in some instances Canada (e.g., woodland caribou) is necessary to ensure proper management of the fish and wildlife resources. The Forest Service and state agencies work in partnership to achieve an optimum balance between wildlife population goals and habitat management in the Forests. Effects to most species due to management activities on NFS lands are measured by changes in habitat and habitat trends. Generally, habitats are comprised of varying combinations of vegetation groups or cover types and varying degrees of the following vegetative components: (a) vertical structure, (b) size class, (c) density, (d) species composition, (e) snags, and (f) down woody debris. Some species of wildlife are sensitive to human activity in close proximity during the breeding, nesting, and wintering portions of their life cycles. Human activities, whether intentional or unintentional, can increase stress to some species and may reduce their reproductive success.

Coordination with state wildlife agencies has occurred throughout the Proposed Land Management Plan revision process. In addition, numerous meetings and discussions have occurred with various state representatives. The recently completed Comprehensive Wildlife Conservation Strategy for each state (MFWP 2005 and IDFG 2005), as well as other recent state species management plans (e.g., elk, wolf, mule deer and white-tailed deer) have been reviewed and where appropriate incorporated into the development of the Plan. The Forests will continue to cooperate with state agencies in meeting population objectives by providing habitat for species identified as species of greatest conservation need and species of social and economic value to the states (e.g., big game).

Laws and Regulations

The AMS and AMS Technical Report briefly discussed some of the laws and regulations used in the management of wildlife habitats and species. The 2005 Planning Rule and associated directives have resulted in changes to forest planning regulations. This portion of the CER discusses some of the changes resulting from the 2005 Planning Rule and its associated directives.

Past and Current

The National Forest Management Act (NFMA) of 1976, other laws, and federal regulations require the Forest Service to maintain or improve biological diversity at the genetic, species, and ecosystem levels and to maintain viable populations of all existing native and desired non-native vertebrate species well situated within their range in the planning area. Forest Service policy included within FSM 2670 states that Regional sensitive species will be identified and management taken to ensure that these species do not trend toward federal listing as a result of management actions.

The United States Department of Agriculture's (USDA) policy for wildlife, fish, and plant habitat management in NFS lands is presented in Departmental Regulation 9500-4. This policy states that by means of the planning process habitat goals will be established for plants and animals, including wildlife and fish species in demand for hunting, fishing, and trapping and those with special habitat needs.

Other federal laws, such as the Sikes Act of 1960, and miscellaneous Forest Service policies recognize that State agencies and Indian tribes are responsible for the management of animals and assign National Forests a role in cooperatively managing wildlife habitat.

Additional requirements for wildlife were also identified and included in the 1982 Planning Regulations (36 CFR 219.19), which direct the Forest Service to:

- estimate the effects of changes to wildlife habitat
- consult with biologists from other agencies
- consider access and dispersal problems of hunting, fishing, and other uses
- evaluate the effects of pest and fire management
- select management indicator species (MIS) to be monitored

In the 1987 Forest Plans, management for wildlife focused on (1) native and desired non-native vertebrate wildlife species, (2) providing for the habitat needs of species for which there may be long-term population viability concerns, (3) monitoring population trends of MIS identified for each Forest and (4) providing for the habitat needs of big game species. In the 1987 Forest Plan, species receiving special management consideration due to population viability concerns were the species listed by the USFWS as being threatened, endangered or candidate species under the authority of the Endangered Species Act (ESA) of 1973, and those species listed on the Regional Forester's Sensitive Species list for Region 1 of the Forest Service.

The Migratory Bird Treaty Act of 1918 addresses concerns for migratory birds. In a subsequent Memorandum of Understanding (MOU) 2001, with the USFWS, the Forest Service agreed to:

1. Incorporate migratory bird habitat and population objectives and recommendations into agency planning process, in cooperation with other governments, state, federal agencies, and non-federal partners
2. Strive to protect, restore, enhance, and manage habitat of migratory birds, and prevent the further loss or degradation of remaining habitats on National Forest System lands

The 2005 Planning Rule

The 2005 Planning Rule (2005 Rule) and associated directives resulted in changes to the planning regulations, Forest Service Handbooks (FSH) and Forest Service Directives. While some of this direction is still being revised (e.g., Sensitive Species Policy 2670), regulations regarding migratory birds, other laws and regulations, and MOUs with various state and federal entities remain in place. As this direction is completed or clarified, however, it will be incorporated into management of the NFS lands when appropriate.

Self-sustaining Populations

The directives (Federal Register Vol. 71. 5138) require that National Forests continue to:

3. Identify listed species, species of concern (SOC) and species of interest (SOI)

4. Collect available data and information for the species, including population data
5. Develop management direction for the species
6. Assess the effects of management direction

Under the 2005 Rule and its directives, it is expected that conditions will be enhanced for fish and wildlife populations (Federal Register Vol. 71. 5137). The 2005 Rule does not include a viability provision.

Surrogate Species

The 2005 Rule states that Management Indicator Species (MIS) will no longer be specifically considered in Forest Plans. The directives (1909.12, Chapter 40), however, describe a similar strategy identified as *surrogate species*. Based on the analysis for selected federally listed species, SOC, and SOI, surrogate species could be identified and used as an evaluation and analysis tool to improve planning efficiency and for development of plan components. Surrogates could be selected for each broad group if it could be demonstrated they represent the ecological conditions for all species in the group. The premise being that if the needs of surrogate species are met, then most needs of other species within the habitat group will also be met (similar to MIS). The directives also indicate that surrogate species will only be used for evaluation and analysis purposes; therefore, there are no population monitoring or inventory requirements.

An analysis was performed for threatened and endangered species, SOC and SOI for the Forests and no surrogate species have been selected. Species that were considered MIS in the 1987 Forest Plans have been included in the analysis for determining SOC and SOI.

Sensitive species

In 2005, the Region 1 Sensitive Species list was amended, with the addition and removal of several species. FSM 2670, which provides direction for sensitive species, has also been amended and is currently being rewritten (Chris Iverson, personal communication). Upon implementation of the Proposed Land Management Plans, the sensitive species direction in this FSM will no longer apply. Those species recorded on the Regional Forester's Sensitive Species list and all those being considered as species at risk (as well as numerous others) have been included in the determination of species of concern and species of interest. For more information regarding species of concern and species of interest, refer to the appropriate discussion in this section and Appendix F.

Ecological Sustainability/Ecosystem Diversity/Species Diversity

Chapter 2 of the AMS Technical Report discusses ecological sustainability and one of its primary components, ecosystem diversity. The wildlife revision topic in the AMS Technical Report discusses management under the "coarse" and "fine" filter approaches and briefly discusses wildlife in terms of Management Indicator Species (MIS) and a second group of species described as species at risk. Species at risk were placed into one of four categories:

1. federally listed species (threatened and endangered species)
2. species of range wide or national imperilment
3. species of region wide or state imperilment (sensitive species)
4. species of concern in the Forest

The AMS Technical Report also provided a brief discussion of each of the species considered to be at risk.

Under the 2005 Rule, the Proposed Land Management Plan (the Plan) incorporates the coarse and fine filter strategies for management of wildlife and wildlife habitats in terms of ecosystem diversity and species diversity, respectively. These are encompassed under the much broader concept of Ecological Sustainability. Ecosystem diversity focuses on habitats and ties directly to the vegetation analysis and documentation. Species diversity addresses threatened and endangered species, as well as SOC and SOI.

Conditions and trends for wildlife habitats and species resulting from the ecosystem and species diversity analyses are discussed below. Further information related to SOC and SOI can be found in Appendix A of the Proposed Land Management Plan and in Appendix F to the CER.

The AMS discussed changes in management strategies that have taken place over time, including New Perspectives, Ecosystem Management, Biodiversity, and fragmentation. In recent times, management of NFS lands has emphasized fuel reduction, reducing the risk of fire and the designation of the Wildland Urban Interface (WUI) under the Healthy Forest Restoration Act (HFRA) and the Healthy Forests Initiative. Management strategies associated with these activities have the potential to impact wildlife habitats, especially those associated with big game winter range.

Management Areas (MAs)

The AMS Technical Report discussed the 1987 Forest Plans in terms of individual land units (Management Areas) with specific goals, objectives, standards and guidelines for management of the various resources. Under the 1987 Forest Plans, the principle method used for determining impacts to wildlife or wildlife habitat included the determination of whether Forestwide and Management Area (MA) standards and guidelines were being met. The 1987 Forest Plans contained 23-24 MAs, several of which were established with priority for management of wildlife habitats

Under the Proposed Land Management Plans, there are fewer MAs (11-12) that are much larger and generally follow distinguishable features on the landscape. In the 1987 Forest Plans, direction in the individual MAs is the principle mechanism for conducting analyses and determining effects. The management direction for wildlife habitats and species in the Proposed Land Management Plan is included in Forestwide desired conditions, objectives and guidelines. Additional direction is found for the Geographic Areas and MAs, but with little direction for the wildlife resource at the MA-scale. Forestwide plan components are to be incorporated into all land management activities.

The Proposed Land Management Plans establish direction for varying wildlife habitats in relation to the type, amount, spatial pattern, and function. The Plans also include direction for the protection, enhancement and restoration of threatened and endangered species, species of concern, and species of interest and their habitats. Resources were integrated during the development of the Plan components, in particular wildlife, vegetation/timber and access/recreation.

Wildlife Habitats (Vegetation)

A variety of sources was used to determine historic and existing vegetative conditions on the KIPZ (see Appendices B and G), including the range of variability and desired conditions. The development of management recommendations for the Plan to maintain or restore ecological communities was based on the range of variability. Movement toward the range of variability or

desired conditions for vegetation under the Proposed Land Management Plan will provide the necessary ecosystem diversity. A representative array of ecological communities of sufficient size, structure and distribution is expected to contain and maintain the vast majority of native species.

The range of variability and ecosystem diversity approach is directed at providing habitat for most species. Unlike the traditional approach of relying on the needs of a few species, providing for ecological diversity is a critical step in comparing the current abundance and condition of various habitats with ecological reference conditions (the range of variability) based on our knowledge of the past and on our understanding of processes (e.g., fire, flooding, insects and disease). The range of variability represents our best attempt to describe the vegetative conditions (spatial and temporal) under which native species evolved. If today's conditions are similar to the range of variability that occurred historically, it is assumed that adequate habitat is present for most species. The greater the deviation from the range of variability, the more species may be at risk. The desired condition for vegetation is to move toward Class A of the range of variability (see Appendix B of the CER for a description of the range of variability classes).

Species that may not be conserved through ecosystem diversity include those

- with very large home ranges
- with consistently sparse population densities
- with highly specialized or unique habitats
- that depend on public lands where these occupy a small part of the planning area
- occupy highly fragmented or isolated habitats
- use habitats which have undergone substantial changes due to the invasion of alien or exotic species (Samson 2005, amended 2006)

Population changes can occur when there is a change in habitat (e.g., reduction in density, loss, fragmentation, or habitat made inaccessible). However, fluctuations in species populations will occur even when there has not been a change in habitat. These fluctuations may be due to climatic changes, disease, predation, excessive harvest, competition or displacement from exotic species, and other factors not related to habitat changes. For migratory species, a change in population may not represent changes in local forest habitat conditions. Many species migrate at different times of the year and are influenced by activities or conditions that occur outside the Forests.

Potential Habitat Loss

Currently, in the northern Rocky Mountains, there are no field-based estimates of the level of ecosystem or habitat loss that may no longer provide for species persistence. Two recent model-based estimates suggest a "threshold" effect on species persistence is reached when approximately 20-30% of the habitat remains on the landscape (Samson 2005, amended 2006).

Past and Current Conditions

The AMS Technical Report discusses the ecosystem diversity (coarse filter) approach for five habitat conditions including warm/dry, warm/moist, cool/moist, cool/dry, and cold/dry. Since the AMS Technical Report was written, these five habitat conditions have been combined into three biophysical groups *warm/dry*, *warm/moist* and *subalpine*. See Appendix B for a discussion of the biophysical groups.

The AMS Technical Report discusses the major changes in both forested and non-forested habitats in the KIPZ. The vegetation section of the CER discusses changes in vegetative

conditions (habitats) in terms of Classes A, B, and C, based on the relative change from historic mean. For those vegetative conditions that are within or above Class A, it is assumed that adequate amounts of habitat exist to support associated species. Those habitats or habitat conditions where a change has resulted in a loss of habitats are discussed below in more detail. The importance of this is related to the amount of habitat loss and whether or not it will have an impact on species populations. Of particular concern are those vegetative conditions within Class C.

Potentially, ecosystem diversity could diminish if current conditions are outside and remain outside of the historic range of variability. This is not to say, however, that forests must or will become completely within the range of historical conditions in order to sustain ecosystem diversity (Morgan and Parsons 2001). Many factors need to be considered, including

- Social and economic values
- Impacts to wildlife species (e.g., roads, motorized use, human development [recreation, land, reservoirs])
- Natural and unnatural disturbance factors

Management activities may include short- and long-term habitat loss. Timber harvest and associated activities can result in habitat changes that last for 30 to 100 years, depending on the successional stage impacted. In old growth/late successional stands, these changes could last over 100 years. Of primary concern are those management activities that have resulted in the direct loss of habitat and whose impacts will continue for a longer period of time. Approximately 20 percent of the Forest has been permanently converted to uses such as roads, major power lines, railroads and reservoirs. The major factor in the decline and/or loss of wildlife species is a loss of suitable habitat, which can produce a related decline/loss in population levels. The following text describes habitat loss in relation to the current conditions in the Forest and the vegetative desired condition in the Proposed Land Management Plan.

IPNF

Habitats in the IPNF are most often associated with the *warm/moist* group (approximately 59 percent) followed by *subalpine* and *warm/dry* (26 and 15 percent, respectively). Less than five percent of the NFS lands are considered non-forested and are comprised of grasslands, rock, and water, etc. Historically, lodgepole pine, ponderosa pine and grand fir mix were all found in relatively small amounts on the Forest (≤10 percent). The highest percentage (up to 40 percent) consisted of white pine habitats, followed by Douglas-fir, western larch and subalpine fir mix (10-20 percent). In all dominance types (30 to 60 percent), the large size class, which includes old growth, made up the highest percentage of the Forest. This was followed by seedling/sapling and medium size classes with the small generally being less than 20 percent.

Forestwide, there have been reductions in ponderosa pine and western larch and significant reductions in white pine. In addition, there has been a slight increase in subalpine fir mix and a significant increase in grand fir mix. Douglas-fir and lodgepole pine dominance types and the large size class are within Class A. Reductions have occurred mainly in the seedling/sapling size class, with an increase in the medium size class and a significant increase in the small size class.

In summary, the ecosystem diversity analysis indicates there has been a significant reduction in the amount of ponderosa pine and seedling/sapling size class in the *warm/dry* setting, and in western larch and white pine in the subalpine setting. This is a result of reductions in both the seedling/sapling and large/old growth size class.

KNF

Habitats in the KNF are most often associated with the *warm/moist* and *subalpine* groups (37 and 41 percent, respectively) with warm/dry habitat type accounting for approximately 25 percent of the Forest. Less than ten percent of the NFS lands are considered non-forested and are comprised of grasslands, rock, water, etc. Historically, white pine, ponderosa pine and grand fir mix were all found in relatively small amounts in the Forest (≤10 percent). Western larch combined with Douglas-fir habitats made up the highest percentage (over 50 percent) followed by lodgepole pine and subalpine fir (10 to 20 percent). The large size class (including old growth) made up the highest percentage of the forest for all dominance types (ranging from more than 30 to almost 70 percent) followed by seedling/sapling with small and medium size classes generally less than 20 percent each.

Forestwide, there have been reductions in ponderosa pine, lodgepole pine, and western larch habitats and significant reductions in white pine. These losses have generally occurred in the large size class (including old growth). There have been significant increases in Douglas-fir especially in the small and medium size classes. Grand fir and subalpine fir dominance types and seedling/sapling size class are all within Class A.

In summary, the ecosystem diversity analysis indicates there has been a significant reduction in the amount of ponderosa pine, and western larch/Douglas-fir in the *warm/dry* setting, and white pine in the *warm/moist* and *subalpine* setting, mainly within the large/old growth size class.

Other Lands

The ecosystem diversity analysis does not account for wildlife habitat changes that have occurred on private lands. As a result, the changes in certain habitat conditions are greater than those shown for NFS lands only. Changes in habitats adjacent to the Forests (lands converted to agricultural use or urban development) will influence some species that utilize NFS lands. Furthermore, non-native wildlife species will utilize habitats differently than native wildlife species, which may cause competition between native and non-native species. Much privately held land is situated in the valley bottoms in the warm/dry biophysical setting and the warm/moist setting.

Future Trends

Under the Proposed Land Management Plan, management will trend toward Class A of the vegetative desired condition. This will move Forest conditions and associated habitat toward levels associated with species persistence (reduced risk and improved habitats). Plan objectives provide for an increase in ponderosa pine and western larch in the warm/dry setting and white pine in the warm/moist and subalpine setting. Identified existing old growth is to be maintained and additional lands identified to be managed to create old growth in the future.

Fragmentation

Another consideration to species loss is habitat fragmentation (Fahrig 1997 and Fahrig 2002). Habitat fragmentation is an event that creates more patches that are smaller in size than the original contiguous tracts of habitat. Although less obvious than habitat loss, fragmentation can potentially compound its effects, often producing an even greater population decline.

Fragmentation and increased edge are considered the primary factors in the decline of some neotropical bird species on their breeding grounds. Reduction in interior habitat increases

predation and nest parasitism by birds and mammals that favor more fragmented forest habitats. Also, vulnerability to human caused mortality (hunting, poaching, and trapping) is increased. Increased broad scale fragmentation of especially shrub/seedling/sapling and mature/old forest habitat patches is causing concern for some species (e.g. lynx and black-backed woodpeckers) or their prey. These wildlife species evolved with larger, more continuous and variable sized habitat patches with less edge, created by large stand replacing fires.

Past and Current Conditions

The FRAGSTATS model was used to assess current conditions. This model is a spatial pattern analysis program for quantifying landscape structure, which makes it possible to analyze and manage entire landscapes to meet multi-resource objectives. Calculation of “metrics” or “indices” were used to quantify current landscape fragmentation for the larger size classes in comparison to the smaller size classes using the FRAGSTATS model developed by McGarigal et al (2003). In particular, two metrics were used: patch size and interior habitats. These were then compared to historical conditions as defined in recent analyses of the Interior Columbia Basin, Upper Kootenai on the KNF, and the Geographic Area assessments for the IPNF.

The results of this analysis indicate that larger size classes patch shapes have become smaller and linear with accompanying increases in edge and decreases in core/interior habitats. This is especially true on the Fisher GA on the KNF. Species populations associated with edge have more suitable habitat, while species populations needing larger blocks of undisturbed interior habitat have less suitable habitat than was representative of historical levels. Patch sizes of the late successional, large tree classes declined across the Forests and patches became much less variable in size. Trends were very similar in the early successional class (seedling/sapling/pole).

On the Forests, the degree of fragmentation is greatest on the Fisher GA on the KNF, which has the highest ratio of boundary to length of area. The large size class is especially fragmented, with little remaining. This high degree of fragmentation is a result of ownership patterns in this GA, with large amounts of interspersed corporate timber lands. Most vertebrate species move over large areas. Potential management conflicts exist for a wide range of species and disturbance processes. The fragmented ownership pattern also presents problems for managing for self-sustaining populations of some wildlife species because the amount of NFS land is not large enough to maintain a population on its own and the consequences of dispersal between fragments are not well-studied.

Future Trends

Increasing development of subdivisions and towns, urban sprawl, reduction of agriculture areas, and increased roads, highways, utility lines, and cell towers add to the overall fragmentation and habitat loss. The majority of these activities occur in the warm/dry ponderosa pine and western larch/Douglas-fir community types. Most of these pressures are beyond Forest Service jurisdiction, occurring primarily on private lands.

Under the Proposed Land Management Plan, NFS lands will continue to move toward an ecosystem approach with harvest methods that produce less edge and retain more interior habitat conditions. The Plan components will increase the representation of ponderosa pine, white pine, western larch/Douglas-fir, western larch, and whitebark pine on the Forests and have addressed the need to increase patch sizes in the seedling/sapling and large size classes, in particular old growth. This will be much easier to accomplish in the former than in the latter, since vegetation

management activities can create seedling/sapling stands in the short term while it may take many decades to increase large size class representation.

Habitats Below Class A of the Historical Vegetation Conditions

The following describes conditions and trends for those habitats identified as being reduced or lost across the forest.

Seedling/Sapling Habitats
Many wildlife species (including sensitive species) breed, feed, or rest in early succession habitats, which include grass/forb, shrub, and seedling and sapling vegetation. Some seedling/sapling stands provide habitat for snowshoe hares, which are an important prey species for lynx, fisher, and other carnivores.

Past and Current Conditions

IPNF

The greatest reduction in habitat has occurred in the seedling/sapling size class, especially in ponderosa pine and western larch in the warm/dry setting, and western larch and white pine in the warm/moist and subalpine setting. Much of the younger seedling/sapling that occur as a result of timber harvesting in the 1960s, 70s, and early 80s, and large fires in 1967, are in the tall sapling stage. In addition to the reduction in seedling/sapling stands, fragmentation of those stands has also occurred, thus affecting an adequate representation of habitats.

KNF

Seedling/sapling stands are within (at the low end) Class A for all biophysical settings across the Forest, providing adequate habitat for associated species. Much of the seedling/sapling class, however, is in the tall sapling stage due to the length of time since harvest or fire has occurred, (e.g., timber harvesting in the 1960s, 70s, and early 80s, and large fires in the 1980s and early 1990s). Although most seedling/sapling patches are limited to 40 acres or less and created through regeneration timber harvest, fires on the Forest have resulted in some very large seedling/sapling stands that may be similar to historical patch sizes.

Future Trends

Proposed Land Management Plan components have been developed to increase the amount of early seral stands across both Forests and, if possible, to increase the patch size of those stands. Timber harvest and/or prescribed fire will be used to trend toward or maintain seedling/sapling stands within Class A, particularly in the warm/dry and warm/moist biophysical groups.

Large (Late Succession Habitats Including Old and Mature Forest) Habitats
Old and mature forests provide more diverse structure and function than younger forests. They are more likely than younger forests to provide habitat for species which prefer larger trees, structural and biological diversity, closed canopies, and/or depend on snags or down logs for nesting, foraging or raising their young. Almost 30 vertebrate species (including sensitive species) depend on late seral habitats (Wisdom et al 2000).

Past and Current Conditions

Historically, early seral, shade-intolerant trees (e.g., ponderosa pine, western white pine, western larch, and whitebark pine) were much more abundant. Pine nuts produced by whitebark pine may have been an important food source for grizzly bears before whitebark pine was virtually

extirpated by blister rust. Mature western white pine was probably an important nesting habitat for pileated woodpeckers.

IPNF

Forestwide, habitats associated with the large size class in the warm/moist vegetation approximate Class A of the vegetative desired condition in the Plan with a reduction of the large size class in the warm/dry and subalpine settings. Fragmentation of those stands has also occurred due to limiting harvest unit size and ingrowths of shade-tolerant species.

KNF

Forestwide, the strongest habitat declines have occurred in the large size class with reductions in old growth. In particular, this has occurred in low elevation, ponderosa pine and Douglas-fir/western larch in the warm/dry setting, western larch and white pine in the warm/moist and subalpine settings. In addition to the reduction in large/old growth habitats, fragmentation has also occurred.

Future Trends

Plan components will increase the amount of NFS lands being managed for old growth. There has been an increase in the medium size class (a significant increase in the Kootenai) that will trend toward providing more of the large size class in the future. Plan components will also increase the patch size of lands being managed for old growth and for stands of the large size class.

Warm/Dry Forests and Big Game Winter Range
Warm/dry forests provide a diversity of habitats for wildlife species, including those that prefer open dry forests with large trees created by frequent, low intensity fires as well as those that require a mosaic of vegetative conditions such as winter range habitat conditions for most big game species. Thermal cover is usually provided by stands of larger trees with high canopy closure that help moderate the effects of inclement weather. As winter temperatures decrease and snow depths increase, animals select these areas to minimize energy expenditures to maintain the most positive energy accumulation (Pauley 1990).

A Forestwide map of big game winter range was developed for use in the Proposed Land Management Plan based on the following criteria:

- lands generally below 4,000 feet elevation
- lands in the *warm/dry* biophysical setting (VRUs 1, 2 and 3)
- generally include current winter range management areas
- areas known to provide big game winter habitats

This map was compared to a winter range map developed by the Rocky Mountain Elk Foundation and reviewed by State and District biologists. Changes to the map are likely to occur at the project level based on site-specific information. This map only includes winter ranges associated with the warm/dry areas of the forest and does not include winter range habitats for other big game species such as moose or mountain goat.

Past and Current Conditions

Winter ranges were historically dry, open forests of ponderosa pine and Douglas-fir at lower elevations. Many of these areas were settled by homesteaders, are now converted to agriculture, pastureland, housing developments, etc., and no longer provide the habitat they once did. This places a greater emphasis on maintaining and effectively managing the warm/dry habitats that

occur on NFS lands. With the recent emphasis on fuels reduction and minimizing the risk of fire, especially in the community protection zone, it becomes increasingly important that NFS lands outside the protection zones are managed to provide an interspersion of hiding and thermal cover throughout big game winter range.

Frequent, low intensity fires played a key role in regenerating maintaining ponderosa pine, shrubs and grasses, resulting in highly productive winter ranges. In areas devoid of human development or disturbance, low elevation slopes offer good quality winter ranges.

IPNF

In the 1987 Forest Plan, big game winter range was designated in Management Areas 3, 4, and 5. The 1987 Forest Plan emphasized small cutting units, "openings in coniferous cover should not exceed ten acres in white-tailed deer winter range," throughout the Forest and the creation of forage areas for elk in the middle and southern portions of the Forest. A cover/forage ratio was established for the southern portion of the forest at 25:75.

KNF

In the 1987 Forest Plan, big game winter range was designated in Management Areas 10 and 11. The 1987 Forest Plan emphasized retention of cover (both hiding and thermal) and forage, as well as minimizing human-caused disturbance (especially motorized) during winter months. Standards for cover varied from 30 percent (bighorn sheep and moose) to 70 percent (white-tailed deer).

Winter range management under the 1987 Forest Plans appears to have been adequate on both Forests for all but the most severe winters (e.g., 1996-1997). Over the past several years, there has been an increased emphasis on fuels reduction/reduced fire risk in the Forest as part of the Healthy Forest Restoration Act (HFRA) and Healthy Forest Initiative (HFI). Approximately 70 percent of the winter range in the Forest is within the wildland urban interface (WUI)

Future Trends

The effects of WUI fuel reduction treatments on big game winter range are unknown at this time. Proposed Land Management Plan components emphasize cover retention and minimization of disturbances during the winter period, especially in critical winter range or during periods of deep snow. It is anticipated that big game populations will continue at levels comparable with current levels.

Riparian, Lake and Wetland Habitats

Riparian habitats represent a large percentage of the Forests and provide important habitat for numerous wildlife species, including a number of SOC and SOI. Riparian habitats consist of wet meadow; wetland shrub and cottonwood communities; old growth cedar hemlock; and ancient cedar and lake, marsh, bog, and seep habitats. Riparian zones are areas of potentially high biological diversity

Past and Current Conditions

In general, low elevation riparian wetlands and lake habitats have been heavily impacted, including cottonwood communities along major stream channels. Many small wetlands have been lost to such things as road construction and housing developments. Most shoreline habitats are now affected by water-related recreation traffic (e.g., boat and jet-ski). Human development has occurred around many of the isolated smaller lakes (private lands), where high quality emergent wetland habitats existed (e.g., shallow and protected waters). Islands are a preferred nesting

habitat for waterfowl and development of these high quality habitats for recreation and residential uses has made them unsuitable for nesting and brood rearing by shore nesting species.

Future Trends

Wetland habitats on private lands continue to be degraded as human development increases. In NFS lands, wetland and riparian habitats are expected to continue to be protected through Plan components developed for aquatic and watershed restoration.

Large Snags

The analysis conducted for the diversity matrix does not consider structure such as snags and downed wood (coarse woody debris). Forestwide, a minimum of 50 wildlife species depend on snags (dead trees) and hollow trees for their forage, cover, or a place to raise their young (see the AMS Technical Report). Large diameter snags (over 20 inches DBH) provide habitat for the greatest variety of cavity users and stand longer than smaller snags. They also provide the most stable microclimate (Bull et al 1997). Large snags provide den sites for fishers and other mammals, and roosts for several species of bats and owls.

Past and Current Conditions

Data does not exist in relation to historic snag densities. Before the Forest Service developed a policy of suppressing wildfires and human-caused fires, low intensity (underburning) mixed severity and stand replacing fires created numerous snags and snag patches of varying sizes and tree species across the landscape. Management direction for snags and downed wood outlined in the 1987 Forest Plans was the retention of a minimum number of snags based on habitat capability (40 percent or 60 percent within riparian areas). This was approximately 1 snag per acre outside of riparian areas and 1.5 snags per acre within riparian areas.

With inception of new OSHA regulations, emphasis has been placed on leaving snags in clumps or stringers and retaining green replacement trees versus existing snags. In the KNF, snag monitoring conducted for the 1987 Forest Plan found some areas where desired snag numbers were not achieved due to the felling of snags for safety reasons during harvest, initial lack of available snags in certain vegetation types, and loss of snags to firewood cutting.

Wildfires that created large numbers of snags burned almost 100,000 acres in the KNF in 1994 and again in 2000. Only a minor proportion of those areas (about 10% of the 53,000 acres burned in 1994) were harvested, leaving large areas where all fire-created snags were retained. Within those areas harvested (approximately ten percent of the burned area), many snags were retained in harvest units or in adjacent clumps and stringers.

Monitoring results indicate that management in the KNF is providing sufficient cavity habitat. The creation of numerous snags through wildfire and the existence of ample cavity habitat in the majority of the Forest that is outside the suitable timber base provide snags within acceptable limits established in the Forest Plan (USDA Forest Service, 2003)

Estimates of current snag numbers on NFS lands were provided using Forest Inventory and Analysis (FIA) data. Forestwide snag densities were calculated by size class and by Vegetation Reponse Unit (VRU) group (see Table W-1). Vegetation Response Units were grouped together to crosswalk with the three biophysical settings being used in the Proposed Land Management Plan. Due to the differences between the VRUs that make up the subalpine biophysical setting and based on differences in snag numbers, lower, upper, and combined subalpine settings are displayed in Table W-1.

Table W-1 Snag Densities by VRU Group for the KIPZ

Biophysical Setting	VRU	Mean no. of snags per acre 10-20" by biophysical setting	Mean no. snags per acre >20" by biophysical setting	Mean no. snags per acre total by biophysical setting
Warm dry	1, 2N, 2S, 3	0 – 6	0 – 1	0 – 1
Warm moist	4N, 4S, 5N, 5S	9 – 15	1 – 2	9 – 17
Lower Subalpine	7N, 7S	10 – 14	1 – 1	10 – 15
Upper Subalpine	9, 10	12 – 21	1 – 2	13 – 23
Subalpine	7N, 7S, 9, 10	10 – 21	1 – 2	10 – 23

Research (USDA Forest Service 2000, Bull et al. 1986) has determined that initial standards for snag retention underestimated the actual number of snags required to meet the needs of all associated wildlife species. Consequently, desired snag densities were recalculated and these results are currently being used in Forest analyses.

Of particular concern is the reduction and historic deviation in large diameter snags. A corresponding reduction in nesting and foraging substrates for associated species has also occurred.

Future Trends

Snags are expected to continue to be lost in areas where vegetation management activities occur and along most roads open to the public. Wildfire will continue to be suppressed in the general forest and WUI. There is expected to be the continual loss of snags in the warm/dry and warm/moist portions of the forest. Proposed Land Management Plan components were developed to provide adequate snag representation, based on research, recent analysis in the forest and the availability of snags identified in the FIA data.

Fire/Insect and Disease Created Stands
Fire, insects and disease can increase the abundance of several forest structures used by wildlife including snags, logs, shrubs, and other understory plants that provide food and cover for dozens of mammals, birds, reptiles and amphibians. Fire causes some plants to produce more abundant seeds, which can provide more food for seed eating wildlife. Burned stands have greater volumes of defective trees than stands treated with timber harvest. "Broom" trees result from infestations of mistletoe and fungus and provide nesting platforms, resting sites, and/or additional forage (e.g., mistletoe) for a number of species. Hutto (1995) lists 87 bird species associated with burns, and 15 bird species that are more abundant in early, post-fire burn areas. Burn species associated with burned habitats include several woodpeckers (black-backed, American three-toed, Lewis's), olive sided flycatchers, mountain bluebirds, Clarks nutcrackers and pine siskins. Black-backed and hairy woodpeckers and mountain bluebirds attain their highest nesting densities in post fire unlogged stands (Saab and Dudely 1998).

Past and Current Conditions

IPNF

Over the past several decades, large fires on the IPNF have been relatively few and significantly reduced from historical conditions. See Table W-2. Analysis conducted by Samson (2005, amended 2006) estimates that there has been a significant increase in insect infested habitat (4,014 hectares from 1990-1993 to 123,067 from 2000-2003). An increase in habitats for associated species has also likely occurred.

KNF

Large scale insect epidemics (mountain pine beetle) and fires have been fairly common on the Kootenai over the past four decades (see table W-2), providing large amounts of habitat for associated species. An estimate of how much fire has occurred on the forest is displayed in the table below. Analysis conducted by Samson (2005, amended 2006) estimates that insect infested habitat has been significantly reduced (72,582 hectares in 1990-1993 to 18,390 hectares in 2000-2003) on the forest with a reduction in habitat for associated species as well.

Table W-2 Acres of Wildfire by Decade

Decade	Acres of Wildfire on IPNF	Acres of Wildfire on KNF
2000 - present	7,100	47,100
1990 - 1999	6,800	73,800
1980 - 1989	4,800	31,800
1970 - 1979	10,700	13,100

The combination of large scale insect epidemics in the late 1970s and 1980s and natural fires over the past four decades have provided a large amount of habitat for species associated with burned habitats.

Future Trends

Natural fires will continue to be suppressed in the general forest (65% of the Forest) and WUI. Even with fire suppression, fires are likely to occur and provide habitat for associated species. The amount of burned forests and the size of those burns will not likely approach historical conditions. Acres burned that are not salvaged provide a source of habitat for the black-backed woodpecker and other species associated with fire killed habitats.

Motorized Access

Past and Current Conditions

The impacts of roads on wildlife are many and have been studied in detail (Wisdom et al 2000, Canfield et al. 1999, and ICOET 2003). Changes in access were described in the AMS Technical Report and are also discussed in the Access and Recreation sections of the CER. The effects of roads on wildlife species vary from total isolation of a species or habitat to indirect reduction in habitat. Many species of wildlife avoid roads, especially motorized use roads, and the security distance varies by species. The impacts of motorized use on wildlife are discussed, below, in the *Security* and *Connectivity* portions of this text.

An estimate was made for road densities for each 6th code hydrologic unit code (HUC) across the Forests. Table W-3 shows high road densities over a large percentage of each Forest. Roads on NFS lands are managed for a variety of reasons, many of which benefit wildlife. As a result, open road densities vary from season to season (spring, summer, fall, hunting season, and winter) and across the Forests.

Table W-3 Percent of Forest by Road Densities Class (miles per square miles)

Road Density (mi/mi^2)	KNF (% of the Forest)	IPNF (% of the Forest)
0 to 1	4	7
1 to 2	17	17
2 to 3	25	13
>3	53	59

Since implementation of the 1987 Forest Plans, there has been a dramatic increase in the amount of off-road vehicle and snowmobile use. When the 1987 Forest Plans were developed, both ATV and snowmobile use was fairly minor; thus, the associated potential effects were relatively minor. Few studies on the effects of snowmobile use on wildlife are available; however, research is now being conducted in Alberta and British Columbia, Canada, to document the results of snowmobile and other winter recreation uses on wildlife species (e.g., woodland caribou and wolverine).

IPNF

The majority of NFS lands in the north zone of the IPNF are managed for grizzly bear (Selkirk and Cabinet-Yaak recovery zone and occupied use areas), Canada lynx (recovery area) and woodland caribou (recovery area). Management of motorized use in grizzly bear habitat is generally conducted during the spring, summer, and fall period. Activities for lynx occur during the winter. Motorized access on big game winter range is managed to minimize disturbance during the winter period, as well. While portions of the Forest are managed to provide elk security, area closures provide disturbance-free conditions on critical winter or summer ranges. The remainder of the Forest provides additional opportunities for year-round recreation. Total and open road densities are taken into consideration in all activities that occur on NFS lands.

IPNF Future Trends

To meet the direction for management of grizzly bear habitats, a reduction in open and total motorized route densities within the Cabinet-Yaak and Selkirk recovery zones is required, as well as maintaining current linear total and open road densities in areas of occupied bear use. The majority of the lands on the north zone are within one of these two areas; thus, it is unlikely that there will be a noticeable increase in motorized use during non-winter seasons. Winter motorized access across the Forest will continue to be managed to meet the Lynx Conservation Assessment and Strategy.

The desire for additional motorized recreation opportunities (especially winter motorized) will continue to increase. There has been a substantial increase in motorized use in areas that were previously considered inaccessible. Increased winter use could result in a higher probability of conflicts with grizzly bear sows and cubs emerging from their den sites. In addition, increased levels of recreational activities during critical periods can place further stress on ungulates during spring “green-up,” which varies based on annual snow conditions.

As part of travel management planning, impacts to wildlife will be taken into consideration. In terms of research being conducted on winter motorized use, the best applicable and available science and information will be incorporated into management direction as appropriate.

KNF

The majority of the KNF includes lands managed for threatened and endangered species (recovery areas and occupied use areas for grizzly bear and recovery areas for lynx). Management of motorized use in grizzly bear habitat is generally conducted during spring, summer, and fall portions of the year while activities for lynx are done during the winter portion. Motorized access on big game winter range is managed to minimize disturbance during the winter period. Portions of the Forest are managed to provide elk security, and area closures provide disturbance-free conditions on critical winter or summer range. Total and open road densities are taken into consideration in all activities that occur on NFS lands. Off-road vehicle use on the KNF is

directed by the OHV Forest Plan amendment (USDA Forest Service 2001). Impacts from illegal and unauthorized off-road use are currently occurring in portions of big game winter range, often during the spring period for antler collection.

KNF Future Trends

It is unlikely that there will be a detectable increase in motorized use during the non-winter seasons. To meet current direction for management of grizzly bear habitats, a reduction in open and total motorized route densities within the Cabinet-Yaak and the Northern Continental Divide Ecosystem recovery zones is required. In addition, maintaining current linear total and open road densities in areas of occupied bear use will be necessary. The majority of the lands in the KNF, with the exception of a portion of the Fisher River drainage and lands surrounding the city of Libby are within one of these two areas.

Some winter ranges have snowmobile or four-wheeled vehicle traffic (on and off roads) depending on winter snow conditions. The desire for more motorized recreation opportunities (especially winter) will continue to increase. There has been a substantial increase in motorized use in areas that were previously considered inaccessible. In addition, increased levels of recreational activities during critical periods can place further stress on ungulates during spring "green-up," which varies based on annual snow conditions.

Winter motorized access will continue to be managed to meet the Lynx Conservation Assessment and Strategy. As part of travel management planning, impacts to wildlife will be taken into consideration. In terms of research being conducted on winter motorized use, the best applicable and available science and information will be incorporated into management direction as appropriate.

Security

Wildlife security provides areas of minimal human disturbance for those species that either avoid human disturbances or are directly threatened by trapping, hunting, or indiscriminate killing.

Past and Current Conditions

Prior to European settlement, Native Americans and local inhabitants lived and traveled mainly in the major river bottomlands. Human developments and disturbances outside these bottomlands were minimal. Historically, NFS lands were primarily considered as areas of security for wildlife species and they moved freely across the landscape.

Approximately 30 percent of the Forests are in an unroaded condition or has low road densities (see Table W-3 above). Generally, these low road density areas occur as large blocks of land in the interior forest areas.

Past management has emphasized habitat security for grizzly bear, which has also benefited elk and other species. The 1987 Forest Plans and recovery plans did not completely address the security needs of other species. Some wildlife species have been displaced from otherwise suitable habitats by human activities, including motorized traffic.

Future Trends

Under the Proposed Land Management Plans, management for backcountry and wilderness characteristics will continue to provide security for species. Upcoming travel management

planning will also consider and incorporate wildlife security needs. Some roadless areas (less than five percent) have been allocated to the General Forest MA, with the possibility of forest management activities that may affect security.

Connectivity

Connectivity can be defined as the relative degree to which individual animals and genes can move across a landscape. There are many terms that are used in conjunction with connectivity, including movement/travel corridors and linkages. Landscape connectivity is particularly important because connected populations have a higher likelihood of persistence over time (Noss 1991). Natural landscapes have an inherent degree of connectivity to which species have adapted over time. In the last decade, researchers and conservationists have focused on threats to connectivity, in particular habitat fragmentation. At the landscape or larger scale, many populations of wide-ranging species are at risk due to habitat fragmentation and the loss of connectivity.

However, linkages or connectivity are not entirely benign issues. There is considerable controversy on this topic. Increased connectivity can lead to the introduction of non-native species and noxious weeds through the linkages, creating competition for native species. There is debate in the scientific community about the desirability of creating isolated bio-reserves to essentially “wall off” biodiversity hotspots with the premise of preventing species loss through this possible introduction of non-native species.

Past and Current Conditions

The 1987 Forest Plans contained direction for connectivity, generally in terms of providing travel corridors for big game. In many cases, these travel corridors were simply timbered stands, approximately 150-300 feet wide, which occurred between regeneration harvest units. The importance of linkages, corridors, and connectivity have been addressed in various recovery plans (grizzly bear, woodland caribou), the Interagency Grizzly Bear Guidelines, various biological opinions, and the Lynx Conservation Assessment and Strategy (LCAS).

Several analyses (Servheen et al 2001 [updated 2003], American Wildlands 1998, Ruediger and Lloyd 2003, Mattson 2004 as well as others) have been conducted by various entities, including federal and private, to address this connectivity issue. These analyses emphasize the need to provide travel corridors and connectivity on a much broader scale by means of 1) connecting large blocks of undeveloped land and 2) safe passage across highly developed valley bottoms.

Analyses have been conducted for several of the major travel routes on the forest (Highways 200, 95, 56, 93, Interstate 90, and portions of Highway 2). Although more specific to the Forest, these analyses are still fairly broad in terms of placement of these approach areas with the intent that more site specific analysis would be conducted at the project level. A public lands task force, in “Identify and Manage Wildlife Linkage Approach Areas on Public Lands” (Summerfield and others 2004), have developed a strategy to further define these areas.

Future Trends

Development of subdivisions and transportation systems in mountain valleys is likely to continue in the future. Road construction on NFS lands has decreased and no increase is expected. The Plan emphasizes management for larger patch sizes, especially in older and young age classes. These larger patches will improve connectivity. Areas managed for connectivity will be kept in a

more natural or less developed condition. Continued cooperation with state and federal highway departments will continue, as sections of highway are constructed and/or reconstructed across the Forests,

Wildlife Species

Past and Current Condition

The companion approach to ecosystem diversity (coarse filter) is the "fine filter" approach in which conservation strategies are used for individual species or groups of species to contribute to species diversity. The fine filter approach narrows the focus to those species that require habitat that may be outside the range of variation. In addition, there are species whose populations have been reduced to levels requiring special management considerations (e.g., species listed as threatened, endangered, or SOC). The SOI are an additional group that may require a fine filter or more detailed approach to management for habitat or other factors that may threaten the species.

The AMS and AMS Technical Report identified that the amount of various species in the Forests are similar to historical levels and provided a list of vertebrate species known to occur on the forest. This species list has been updated based on information gathered during the revision process. See the project file for the updated list.

The Ecosystem Diversity approach assumes that maintaining vegetation within the historical range of variability will provide habitat for the majority of the 340+ species in the Forests. On the other hand, the Species Diversity approach narrows the focus to those species that require habitat that may be outside the range of variation or species for which there may be a viability concern. This section includes updated information for each species identified, and considers conditions and trends for species populations and habitats, where possible.

An extensive analysis was conducted using criteria established in the Forest Service directives (1909.12 chapter 40) to identify species of concern and species of interest. Under this analysis a much broader range of species were considered than under the 1982 planning rule; in addition to desired native and desired non-native vertebrate species, invertebrate species are also considered in addition to plant species and lichens. See Appendix F for more information on SOC and SOI.

Federally Listed Species

Threatened, endangered, and proposed species are managed under the authority of the Federal Endangered Species Act (ESA) of 1973 (PL 93-205 as amended) which requires that federal agencies: 1) carry out programs for the conservation of listed species (Sec. 7(a)(1)) and 2) insure that any agency action is not likely to jeopardize the continued existence of listed species (Sec. 7(a)(2)).

Species listed under the ESA fall into one of four categories based on viability concerns: threatened, endangered, proposed, or candidate. The Forest Service has a legal requirement to maintain or improve habitat conditions for threatened, endangered and proposed species under the ESA.

Table W-4 displays changes in federally listed species from the 1987 Forest Plan to current (2006).

Table W-4 Status of Federally Listed Species

Species Common Name	Species Scientific Name	Status 1987	Status 2006
Bald eagle	*Haleaeitus leucocephalus*	Endangered	Downlisted to Threatened - Proposed for delisting
Canada lynx	*Lynx Canadensis*	Not listed	Threatened
Gray wolf	*Canis lupus*	Endangered	Endangered - Proposed for delisting
		Experimental non/essential	Changes in 10J rule. Under State authority
Grizzly bear	*Ursus arctos horribilis*	Threatened	Threatened
Peregrine falcon[1]	*Falco peregrinus*	Endangered	Delisted – placed on Sensitive species list
Woodland caribou (IPNF only)	*Rangifer tarandus*	Endangered	Endangered

1 American peregrine falcon is discussed under species of concern.

The USFWS has not identified any critical habitat within the planning area for terrestrial species currently listed as threatened or endangered under the ESA. Recovery plans and biological opinions are developed for threatened and endangered species by the USFWS and provide goals and actions needed to recover species. Recovery plans are used as a reference document in identifying activities and steps that can be incorporated into forest management to promote the recovery of the species.

National Forests are responsible for ensuring that any action funded, authorized, or carried out be done in a manner that does not jeopardize the continued existence of Threatened and Endangered (T&E) species or adversely modify their habitat. This responsibility, under Section 7 of the ESA is fulfilled through the development of biological assessments that examine the proposed actions with respect to their potential for influencing T&E or their habitat. If this objective analysis, conducted by qualified personnel, cannot clearly determine that the action will not affect T&E or their habitat, then formal consultation with the USFWS is initiated. Historically, the Forests have conducted frequent formal and informal consultations with the USFWS.

Under the 2005 Planning Rule, species listed as Proposed and Candidate are included in the determination for SOC. There are no proposed or candidate wildlife species on the Endangered Species list in the Forests. Management for T&E will continue to use existing recovery plans and the most current scientific information available to aid in species recovery.

Bald Eagle

Past and Current Conditions

Bald eagle numbers, estimated at a quarter of a million in the lower 48 states before 1800, declined steadily throughout the late 1800s and early 1900s. In 1963, a National Audubon Society survey reported only 417 active nests in the lower 48 states.

In 1978, the Pacific States region listed the bald eagle as an endangered species. Between 1984 and 1994, the number of known breeding pairs in the Pacific States Bald Eagle Recovery Region increased from 479 pairs to 1,192 pairs. In 1995, the bald eagle was reclassified from endangered to threatened. Numbers increased nation-wide to a point that USFWS proposed delisting the species in 1999 (50 CFR part 17).

Population and habitat recovery objectives and the current status for Zone 7 of the Upper Columbia Basin Management Zone are displayed in Table W-5.

Table W-5 Zone 7 Bald Eagle Population Recovery Objectives and Current Status

Objective	1986 status	Current status (2005)
Habitat management goal of 98 territories	47	179
Recovery population goal 69 breeding pairs	40	149
Average reproductive rate 1.0 fledged young/pair with success/occupied site >65 % (5-year average)	*	1.28 fledged young/pair and success ratio is 78.7%
Stable to increasing winter populations	Increasing	Stable

*unknown

Eagles currently nest in both Forests, although the majority of the nests are on private land. Of the 55 known bald eagle nest territories in the IPNF, 10 are known to occur in NFS lands (IPNF 2003 monitoring report, page 34). In the KNF, 21 bald eagle nests are known to currently exist within and adjacent to the Forest.

Guidelines from the Montana Bald Eagle Management Plan (MBEMP) (USDI Fish and Wildlife Service 1994) provide direction for activities on the IPNF and KNF. Current management of bald eagles includes protection of nest sites, minimizing disturbance of occupied nests during the nesting and fledgling periods (generally February 1 to June 15), and managing vegetation within its home range. The MBEMP describes three nest site management zones and gives standard buffer distances in which to apply management direction that has been developed for each of the zones; the nest site (1/4 mile), the primary use area (1/2 mile), and the home range (2.5 miles). The zones are to be applied to every current and future bald eagle nest site in Montana, in the absence of a nest management plan.

To avoid disturbing nesting bald eagles, natural forested (or vegetative) buffers are generally maintained around active nest trees, and certain activities are avoided in this area during the nesting season. In general, NFS lands within one mile of major streams and lakes are managed to maintain large diameter trees for potential roosting and nesting.

Management of habitat for bald eagle under the 1987 Forest Plans appears to be adequate for recovery of the population, as recovery objectives have been met.

Future Trends

Under the Plans, management will continue to include protection of bald eagle nest sites, minimizing disturbance of active nests and maintaining habitat components of the nest site, primary use, and home range areas. Management for ecosystem diversity includes retention of and an increase in the large size class throughout the forest, including the warm/dry habitats associated with the major rivers and lakes, providing additional nest trees.

Direction from the MBEMP, including designated buffer areas, will continue to be used until such time as individual nest management plans are completed. Due to the variation in habitat conditions surrounding individual nests (such as topography, slope, elevation, and aspect), the Proposed Land Management Plan direction includes development of individual plans for nests in NFS lands.

After a delay of several years, the USFWS recently (2006) reopened the comment period on the 1999 proposal to remove the bald eagle from ESA protection (i.e., delisting). If delisted, the bald eagle would continue to be protected by the Bald and Golden Eagle Protection Act (as amended in 1962) and the Migratory Bird Treaty Act. The USFWS also recently completed the Draft National Bald Eagle Management Guidelines (2006) which are currently open to public review. As part of the delisting process, a revised monitoring strategy would be completed, with the

possibility that monitoring of nests may occur every three or more years rather than annually. The Forests will continue to aid in monitoring of nest sites and winter surveys, as possible, based on budgets, and monitoring criteria identified during the delisting process.

Canada lynx

Past and Current Conditions

Lynx in the conterminous U.S. are at the southern margins of a widely-distributed range across Canada and Alaska. At the present time, there are inadequate methods available to develop lynx population estimates. As a result, the USFWS has concluded that it is not practicable at this time to establish demographic criteria for delisting the species (Recovery Outline, page 14, USDI Fish and Wildlife Service 2005).

Lynx population numbers are unknown for either Forest. A three-year lynx survey conducted on the St. Joe Ranger District and snow-tracking surveys on the North and Central Zones of the IPNF did not result in any observation of lynx tracks or signs. Lynx are known to occur throughout the Kootenai, based on historic and recent trapping records. Research is currently being conducted throughout the region, including the Kootenai (Squires et al 2003) to capture and radio collar lynx in the Purcell Mountains. From 2003 to 2005, 25 individual lynx were captured and collared. Results of a three year effort to document lynx distribution in the U. S. through the National Lynx Survey are being prepared for publication (K. McKelvey, Rocky Mountain Research Station). McKelvey and others (1999) recently summarized all known lynx locations in the United States, which provide a framework for designing and conducting future surveys and demographic studies of lynx populations.

In March of 1998 an interagency (USFWS, USFS, BLM, and NPS) lynx coordination effort was initiated in response to the emerging awareness of the uncertain status of lynx populations and habitat in the conterminous United States and the onset of the listing process. Three products important to the conservation of lynx on federally managed lands were produced through this effort: 1) the “Ecology and Conservation of Lynx in the United States” (Ruggiero et al 2000), 2) the “Lynx Conservation Assessment and Strategy” (Ruediger 2000), and 3) a “Lynx Conservation Agreement.”

The lynx was listed as threatened under the ESA by the USFWS in 2000. A recovery plan for Canada lynx has not been completed. As a result, population recovery objectives have not been established. In lieu of a recovery plan, the conservation measures presented in the Lynx Conservation Assessment and Strategy (LCAS) are used as: 1) a tool for conferencing and consultation, 2) as a basis for evaluating the adequacy of current programmatic plans, and 3) for analyzing the effects of planned and ongoing projects on lynx and its habitat. In 2002, some of the terms and language found in the LCAS were clarified for Region 1 of the Forest Service in order to provide more consistent interpretation (McAllister 2002).

The LCAS identifies five geographic areas that provide habitat for lynx in the United States. KIPZ is within the Northern Rockies Geographic Area that encompasses lands in Idaho, Montana, Oregon, Utah, Washington, and Wyoming. Lynx habitat within the geographic area has been delineated into smaller lynx management units (LAUs) for analysis and management purposes.

Within each LAU, the LCAS identifies certain conservation measures to use in assessing the current vegetative condition of the LAU relative to sustaining a lynx home range. Specifically, the LCAS requires the following measures:

1. If more than 30 percent of lynx habitat is currently in an unsuitable condition, no further reduction of suitable conditions shall occur as a result of vegetation management activities by federal agencies.
2. Denning habitat must be maintained on and comprise at least ten percent of lynx habitat.
3. Management actions shall not change more than 15 percent of lynx habitat to an unsuitable condition within a 10-year period.

Conservation measures are being met for each of the three items listed above with the exception of one habitat components in one LAU on KIPZ.

Lynx linkage areas have been identified (Claar et al 2003) and are intended to maintain connectivity and allow for movement of animals between blocks of habitat that are otherwise separated by intervening non-habitat areas such as basins, valleys and agricultural lands, or where habitat naturally narrows due to topographic features. The results of managing habitat for lynx under the 1987 Forest Plans are unknown at this time, as recovery population objectives have not been established. Management objectives for lynx habitat have been met throughout the Forests.

Future Trends

Under the Proposed Land Management Plans, ecosystem diversity components that could benefit lynx include the creation of both early and late old forest structural stages consistent with historical variability. Fire or management activities that provide a suitable mosaic of early seral habitat rich in shrubs and well connected to late seral habitat will maintain suitable lynx habitat.

Advances in snowmobile capabilities have raised concerns about intrusion into previously isolated areas (Wisdom et al 2000).

The Forests will continue to manage lynx using the direction found in the Lynx Conservation Assessment and Strategy (as modified 2002). There is likely to be a lynx recovery plan completed during the life of the Proposed Land Management Plans, which may require new direction to be incorporated.

On November 9, 2005, the USFWS published a proposed rule (FR Vol. 70. No. 216. pp. 68294-68328) to designate critical habitat for the federally threatened Canada lynx, in compliance with a court order. The court order required the USFWS to issue a proposed rule by November 1, 2005, and to issue a final rule by November 1, 2006. The USFWS anticipates commencement of a formal recovery plan in early 2007, after final lynx critical habitat designation is completed. The USFWS also completed a Recovery Outline (2005) to provide interim guidance. Recovery outlines are intended primarily for USFWS use.

Gray wolf

Past and Current Conditions

Wolves are native to Idaho and Montana and as habitat generalists, were historically common in most parts of those states with big game herds. From about 1860 to the mid-1930s, a series of events resulted in the eradication of most wolves from the western United States and southern Canada, although individual wolves were occasionally killed in the 1940s thru the 1960s. It is believed that these individuals were dispersing animals from Canada.

Wolves began re-colonizing the area around Glacier National Park (GNP) in 1979. The first dens documented in Montana in over 50 years were found in GNP in 1986 and shortly thereafter in the Fortine Ranger District in the KNF. Wolves have since colonized much of northwestern Montana

as a result of dispersal from Canada and GNP. In 1995 and 1996, wolves were reintroduced into Yellowstone National Park (YNP) and central Idaho. Wolves resulting from these reintroductions have since expanded in numbers and distribution throughout both states.

The Northern Rocky Mountain Wolf Recovery Plan (USDI Fish and Wildlife Service 1987) outlines steps for the recovery of the gray wolf (*Canis lupus*) populations in portions of their former range in the Northern Rocky Mountains of the United States. This Recovery Plan presents guidelines and conservation strategies for the Northern Rocky Mountain Gray Wolf. USFWS maintains records of wolf sightings and monitors for establishment of additional packs throughout its range, including the KNF and IPNF.

To remove the Northern Rocky Mountain Wolf from federal listing, the recovery goal is to secure and maintain a minimum of ten breeding pairs in each of three recovery areas for a minimum of three successive years. Wolves reached this Federal biological recovery goal in December 2002, with "Thirty breeding pairs of wolves well distributed throughout the three states of Idaho, Montana and Wyoming for three consecutive years." In 2003, the USFWS reclassified, or down-listed wolves from endangered to threatened in the Northwest Montana recovery area (Idaho north of I-90 and northern Montana) and everywhere within the western Distinct Population Segment (DPS). On January 31, 2005, a federal court judge remanded the downlisting rule, causing wolves to be reclassified as endangered once again within the DPS outside of experimental population areas.

Recently, the USFWS has proposed delisting the Northern Rockies population of gray wolf. As a prerequisite to delisting gray wolves, the respective States are required to have USFWS-approved wolf management plans in place. In accordance with this requirement, the USFWS worked with Montana and Idaho as they developed and obtained approval for their plans (Montana Gray Wolf Conservation and Management Plan [MFWP 2003] and the Idaho Wolf Conservation and Management Plan [IDFG 2002]). The Implementation of these State plans will not occur until the USFWS transfers legal authority to manage wolves to Montana and Idaho as part of the delisting process.

Habitat for gray wolves includes a variety of forested lands and big game winter ranges. The principal foods of wolves in the Rocky Mountains are deer, elk, and moose. Management for wolves includes protection of denning and rendezvous sites and a sufficient year round prey base of ungulates and alternative prey. Den and rendezvous sites are generally buffered from management activity and use during the active periods. Den sites are used for rearing pups and are typically near forested cover and are protected from human activity. Wolves are sensitive to human disturbance near dens from mid April to July. Rendezvous sites are resting and gathering areas used by wolf packs after the pups are mobile and typically include meadow vegetation and adjacent forest with resting sites under trees.

The 1987 Forest Plan direction for management of wolf habitat appears to have been adequate for recovery of the population, as recovery objectives have been met. Wolf habitat has not changed significantly. Big game populations have rebounded from the severe winter of 1996-1997 and they are providing adequate prey resources for continued growth of the wolf population.

Future Trends

Under the Proposed Land Management Plans, land use restrictions to control intrusive human disturbance near active den sites would continue to be used as appropriate. Management of vegetation within or toward class A of the desired vegetation condition will provide suitable habitat for big game species, the main prey base for wolves.

Upon delisting, management authority for wolves will return to the state governments where wolves reside. When wolves are delisted and management authority is transferred to the state, state laws become the primary regulatory and legal mechanisms guiding management. State management plans enable the transition of the management of the gray wolf back to the states as a big game animal, furbearer, or special classification of predator that provides for controlled take after delisting. Hunting and trapping may be considered in the future when populations are at levels that justify public taking. Hunting of wolves may be authorized when necessary to meet big game harvest objectives and eliminate conflicts, while at the same time maintaining wolves at recovery levels that will ensure viable, self-sustaining populations.

Grizzly Bear

Past and Current Conditions

The grizzly bear's historic range covered much of North America, from the plains westward to California and from central Mexico north through Canada and Alaska. Today, the grizzly is found in only about two percent of its original range in the lower 48 states. Historically, the grizzly bear was primarily a plains species occurring in higher densities throughout most of eastern Montana. Between 1800 and 1975, grizzly bear populations in the lower 48 states receded from estimates of over 100,000 to less than 1,000 bears (USFWS 1993).

In July 1975, the grizzly bear was listed as threatened throughout its range in the lower 48 states. The Grizzly Bear Recovery Plan was approved in 1982 and revised in 1993 (USFWS 1993). The Interagency Grizzly Bear Committee (IGBC) developed management guidelines for Federal land management agencies such as the Forest Service and the Bureau of Land Management (BLM) to use when conducting management actions on their lands so that grizzly bears are not jeopardized.

Grizzly Bear Recovery Zones

The IGBC identified five recovery zones south of Canada where grizzly bears and grizzly habitat are managed for recovery, and within which the population parameters are monitored (IGBC 1994, revised 1998). The recovery zones are referred to as ecosystems to emphasize the ecological rather than jurisdictional nature of their boundaries (USDI Fish and Wildlife Service 1993). Three of the recovery zones are within the KIPZ: the Selkirk, Cabinet-Yaak, and Northern Continental Divide Ecosystems.

The Cabinet-Yaak Grizzly Bear recovery zone is situated in the IPNF, KNF, and a small portion of the Lolo National Forest. The KNF is responsible for administering the majority of the land in the Cabinet-Yaak Ecosystem, which constitutes approximately 70 percent of the 1.2 million-acre recovery zone or about 828,000 acres. The Selkirk Ecosystem is situated in the IPNF and Colville National Forests. A small portion (roughly three percent of the total acreage) of the Northern Continental Divide Ecosystem (NCDE) is situated in the KNF; however, the majority is in the Flathead National Forest. The Ecosystems/recovery zones are also tied to areas in Canada, with the back and forth movement of bears between the two countries.

Most of the management strategies for grizzly bears are focused on three major themes:

1. Management of habitat to ensure grizzly bears have large expanses of suitable interconnected lands in which to exist.
2. Management related to grizzly/human interactions that most often result in the death of bears (and sometimes humans). This is a particularly important concern for female bears

because their removal may have significant impacts on the demography of isolated populations.

3. Research to determine the population size and trends to ensure that grizzly bear populations are not being jeopardized.

For analysis and monitoring purposes, grizzly bear habitat within the recovery zones is further separated into bear management units (BMU), which approximate the size of a female's home range. Each BMU is monitored for various population and habitat components identified as important for recovery of the species. Recovery goals, as established in the recovery plan, are displayed in Table W-6.

Table W-6 Recovery Goals and Status of the Grizzly Bear Recovery Zones

Recovery Criteria	Current Status (2004)
Cabinet-Yaak Recovery Zone	
6 unduplicated sightings of females with cubs (6 year average)	1.7 females with cubs (6 year average)
18 of 22 BMUs occupied by females with young	13 of 22 BMUs occupied
Human caused mortality not to exceed 4% of the population estimate (6 year average)	1.7% mortality (6 year average)
Selkirk Recovery Zone	
6 unduplicated sightings of females with cubs (6 year average)	1.0 females with cubs (6 year average)
7 of 10 BMUs occupied by females with young	5 of 10 BMUs occupied
Human caused mortality not to exceed 4% of the Population estimate (6 year average)	1.3% mortality (6 year average)
Northern Continental Divide Recovery Zone	
10 females with cubs inside Glacier NP (GNP)/12 females with cubs outside GNP, total 22 (6 year average)	Inside 8.7 females with cubs, outside 13.2 females with cubs, total 21.8 females with cubs (6 year average)
21 of 23 BMUs occupied by females with young, Mission Mtns. occupied	23 of 23 BMUs occupied, Mission Mtns. occupied.
Human caused mortality not to exceed 4% of minimum population (less than 12.7%)	16.0% mortality (6 year average)

Population recovery goals for the grizzly bear in the Selkirk and Cabinet-Yaak Ecosystems are not being met. The USFWS (Kasworm et al 2006) stated "recent population trend calculations for the Cabinet-Yaak ecosystem grizzly bear population indicate a decline. Improved survival of bears and population augmentation are necessary in this area to reverse this decline. Successful recovery of the Cabinet-Yaak grizzly population will require a combination of improved survival, augmentation of additional bears, and functional linkage between the Cabinets and Yaak portions of this ecosystem." With the exception of the mortality component, population objectives are being met in the Northern Continental Divide Recovery Zone.

In 2004, an access amendment to the Forest Plans for the KNF, IPNF, and LNF was completed for motorized access management within the Selkirk and Cabinet-Yaak Grizzly Bear Recovery Zones (USDA Forest Service 2004). This amendment established standards for core, Open Motorized Route Density (OMRD) and Total Motorized Route Density (TMRD) for each BMU in the Recovery Zones. Route densities include both roads and trails. The standards that were established and their current status are displayed in Table W-7.

Table W-7 Selkirk, Cabinet-Yaak Bear Management Unit Summary 2005 Bear Year (May 2006)

BMU	BMU priority	OMRD Maximum Percent of BMU >1mi/mi^2		TMRD Maximum Percent of BMU >2mi/mi^2		Minimum % Core	
		Standard	2004 status	Standard	2004 status	Standard	2004 status
Cabinet-Yaak Recovery Zone							
1	2	15	14	15	8	80	85
2	2	20	19	18	14	75	77
3	3	33	26	26	24	59	63
4	2	36	37	26	26	63	63
5	1	30	27	23	24	60	59
6	1	34	35	32	31	55	54
7	2	26	24	23	20	63	67
8	3	32	32	20	23	55	56
9	2	33	28	26	26	55	59
10	2	44	42	34	29	52	51
11	1	33	28	26	29	55	53
12	1	45	42	31	31	55	56
13	1	33	34	26	24	60	61
14	1	33	28	26	26	55	56
15	1	33	33	26	34	55	46
16	1	33	28	26	26	55	54
17	2	33	29	26	25	55	49
18	3	33	29	29	35	55	49
19	3	59	61	55	59	37	32
20	1	35	39	26	20	61	61
21	2	35	35	26	26	62	63
22	3	33	38	35	37	55	51
Selkirk Recovery Zone							
Blue-grass	1	31	28	26	28	55	51
Long-smith	1	25	28	15	14	67	73
Kalispell-Granite	1	33	29	26	27	55	48
Lakeshore	3	82	81	56	51	20	20
Salmo-priest	2	33	30	26	25	64	66
Sullivan-Hughes	1	23	24	18	21	61	59
Myrtle	2	33	32	22	21	56	58
Ball-trout	2	20	17	13	11	69	72
Northern Continental Divide Recovery Zone (that portion that occurs on the KNF)							
NC-1A	NA	19	22	19	5	68	72
NC-1B	NA	19	17	19	8	68	72

NOTE: Highlighted value does not meet standard.

The access amendment also established timeframes in which all standards in individual BMUs in the Cabinet-Yaak and Selkirk Recovery Zones would be met. For those BMUs that did not meet standards in 2003, the following timeframes were established: all standards will be achieved in 35 percent of the BMUs by December 31, 2009; 70 percent by December 31, 2011; and 100 percent by December 31, 2013. The Forests have established a timeframe estimate of when they anticipate these standards to be met. Actual accomplishment dates will depend on management priorities, funding, and the completion of required environmental analyses (NEPA). Additional information on direction for management of the Cabinet-Yaak and Selkirk Grizzly Bear Ecosystems can be found in the access amendment and associated documents.

Bears Outside Recovery Zones (BORZ)

In addition to direction for management within recovery zones, the 2004 Access Amendment (USDA Forest Service 2004) established standards for linear open and total road densities in areas outside the recovery zones that were occupied. Occupied areas are locations with recurring grizzly bear use over an extended time period (i.e., the past 5-10 years). The standards are: 1) no increase in linear open road densities above baseline conditions and 2) no increase in linear total road densities above baseline conditions. Table W-8 displays the baseline conditions established in 2003.

Table W-8 2003 Baseline Conditions for BORZ

BORZ Polygon Name	Baseline for Linear Open Road Density (mi/mi^2)	Baseline Linear Total Road Density (mi/mi^2)
Cabinet-Yaak		
Cabinet Face	2.2	3.9
Clark Fork	0.9	2.6
Tobacco	1.8	3.3
Troy	1.2	2.6
West Kootenai	1.3	3.0
Deer ridge	1.6	4.2
Selkirk		
Pack river	0.6	2.6
Priest	5.0	7.8

At the present, human-caused mortality is considered to be the major factor limiting grizzly bear recovery. Specifically, human-caused mortality is related to:

1. direct human bear conflicts in wilderness areas and parks (e.g., hikers and hunters)
2. attraction of grizzly bears to improperly stored food or garbage
3. attraction of grizzly bears to the improper disposal of dead livestock
4. chance interactions between livestock and grizzly bears
5. increased human occupancy of grizzly bear habitat, causing increased interactions and stress
6. hunting

Legal hunting of grizzly bears no longer occurs but grizzly bears are taken by poachers and occasionally are mistakenly killed during the black bear hunting season. There were no human-caused mortalities in the Cabinet-Yaak or Selkirk Ecosystem Recovery Zones reported in 2004. There was, however, one reported grizzly bear mortality just outside the KNF portion of the Northern Continental Divide Ecosystem Recovery Zone in 2004.

Lack of connectivity among habitat reserves is considered to be a major factor affecting the long-term persistence of grizzly bears. Connectivity for grizzly bears and other wildlife is discussed in the C*onnectivity* section of this document.

Augmentation

Grizzly bear population augmentation has been successfully accomplished on several occasions in the Cabinet Mountains between 1979 and 2005. The most recent instance occurred during the summer of 2005, with the addition of an adult female. It has been suggested that reversal of the current declining trend will necessitate augmentation of grizzly bears (in conjunction with an improved survival rate) in the Cabinet-Yaak Ecosystem (Kasworm et al 2006). On their own, the Cabinet-Yaak grizzly bear population would not likely reach recovery and would remain

extremely sensitive to any mortality or major habitat disturbances. Simulations of additional augmentation suggest that 12-24 grizzly bear transplants would be necessary under two different improved survival scenarios to produce a stable population trend (Kasworm et al 2006).

The second component of augmentation is an improved survival rate for bears beyond what has been observed in the Cabinet-Yaak Ecosystem recovery zone from 1983 to 2005. In order to produce a trend estimate that moves toward stability, improved survival is necessary. This survival rate will be critical to stability within the recovery zone, as more bears are added to the population. If survival rates remain at the values calculated for the timeframe 1983 to 2005, the trend estimate will not move toward being stable.

Future Trends

Under the Proposed Land Management Plans, the Forests will continue to cooperate and coordinate with the USFWS in the augmentation program. Augmentation program notwithstanding, the identified grizzly bear habitat on the Forests will be managed according to the guidance contained in the recovery plan, IGBC guidelines, the access amendment, Plan components, and other pertinent direction.

Direction related to motorized access management (USDA Forest Service 2004) will continue to be incorporated into management activities in NFS lands. The Plan emphasizes reducing conflicts and the number of human-caused mortalities of bears by providing the following:

- large, secluded habitats that reduce the potential for conflicts with humans
- minimizing human disturbance in important grizzly bear denning and foraging areas
- providing interregional habitat connectivity within and between recovery zones
- implementing a food storage Order and placing wildlife resistant containers in main campgrounds and other recreation facilities.

Woodland Caribou (IPNF only)

Past and Current Conditions

Historically, woodland caribou ranged from southeastern Alaska and much of Canada south into the northern U.S. from New England to Washington. Caribou rely on habitat conditions found in mature and old growth subalpine fir and cedar/hemlock stands (their primary food is lichens, which grow on trees [arboreal lichens]). Removal of the older stands probably had a dramatic effect on caribou populations. Woodland caribou populations experienced major declines in the 1900s and disappeared from many parts of their historic range. Throughout portions of Canada, some local populations were eliminated and the regional metapopulation declined during the 1970s. The estimated numbers of North American caribou at the time of settlement were three to five million animals. Currently, an estimated 1.1 million caribou inhabit North America, mostly occupying northern Canada and Alaska.

Woodland caribou in Canada, which were once widespread across the boreal forest (i.e., relating to forest areas of the northern North Temperate Zone, dominated by coniferous trees such as spruce, fir, and pine) now occur in many small local populations. These local populations are further distinguished by means of various ecotypes including the *boreal*, *northern*, and *mountain*. Included in the *mountain* ecotype are the South Selkirks and South Purcell woodland caribou herds located just above the United States border in British Columbia, Canada.

The Selkirk Mountain caribou population is the only woodland caribou herd frequenting the contiguous United States and the only caribou population listed as endangered. The southern Selkirks population of woodland caribou was emergency listed as endangered in 1983. The recovery area includes portions in the Colville National Forest in Washington, the northern portion of the IPNF and a portion in British Columbia, Canada. A cooperative management plan/recovery plan was completed in 1985 and revised in 1994 (USDI Fish and Wildlife Service 1994). Cooperating agencies included the British Columbia Ministry of Environment (Fish and Wildlife Branch), British Columbia Ministry of Forestry, Idaho Department of Fish and Game, Idaho Department of Lands, Washington Department of Wildlife, University of Idaho, Washington State University, and USDA Forest Service. The 1994 revision describes the current status, habitat requirements, and limiting factors associated with the species.

In the 1950s, the Selkirk population of caribou was estimated at about 100 animals. By the early 1980s this population had declined to 25 to 30 animals. The population in Idaho was augmented with animals from British Columbia several times with a total of 103 animals. Populations continued to decline however and in 2004 only three woodland caribou were observed on the forest during the winter period. The total population for the south Selkirks herd is approximately 30-40 animals.

No population recovery objectives have been established for the south Selkirks woodland caribou recovery area; however, the intermediate population target for the Selkirks herd is initially about 100 animals. This target is not assumed to be a recovered population, and if reached, a reevaluation of viable or recovered population size would be made.

The primary issues for woodland caribou reported in the Selkirk Mountain Woodland Caribou Recovery Plan (USDI Fish and Wildlife Service 1994) include: 1) reduction in source habitat in key portions of caribou range, 2) illegal shooting including accidental shooting by deer and elk hunters, 3) predation by mountain lions, bears, wolves, and coyotes, 4) mortality from vehicle collisions and 5) displacement resulting from disturbance (for example snowmobiles).

Habitat for woodland caribou has been identified as mature and old growth subalpine fir and cedar/hemlock forest. Currently on the IPNF, vegetation conditions are within the historic range of variability and habitat is not considered a limiting factor.

With the advancement in technology and increase in winter recreation in the Forest, there has been an increase in snowmobile use throughout the recovery area over the past several years. There is a potential that the number of caribou/snowmobile interactions have increased as well. Although the impact of some forms of motorized winter recreation (helicopter skiing etc.) on woodland caribou are well documented, the impacts of snowmobile use are not as well known. Research on this topic is currently being conducted in several areas in Canada.

Future Trends

Several factors that affect the South Selkirks woodland caribou herd will continue. However, these are beyond the control of the Forest, including mortality and the loss of habitat throughout its range in Canada. One important factor is how Canadian officials decide to manage this herd. There is a potential that this herd will continue to decline.

Under the Proposed Land Management Plan, habitat conditions throughout the recovery area will be maintained or improved. The Plan components will increase the amount of lands being managed for old growth and maintain or improve habitat conditions of known movement corridors (e.g., ridge tops). Snowmobile use in the recovery area will be addressed in travel management planning.

Species of Concern and Species of Interest (SOCI)

Species of concern and species of interest (SOCI) have been determined and selected through the process described in Chapter 40 of FSH 1909.12. Further information on this analysis can be found in Appendix A of the Proposed Land Management Plan and in Appendix F of the CER. When possible, species selected as SOCI were placed into groups, based in part on habitat requirements and associated risks and threats. Where ecosystem diversity components were not adequate to reduce the risks or threats and protect the species, additional plan components were developed.

Species of concern (SOC)

Species of concern (SOC) are those species for which a Forest Supervisor has determined management actions may be necessary to prevent listing under the Endangered Species Act. Wildlife species identified as SOC in the Forests include the American peregrine falcon and several terrestrial invertebrates (mollusks). The American peregrine falcon has been managed under the current sensitive species program.

Terrestrial Invertebrates – mollusks group

Past and Current Conditions

One of the principle differences between the Proposed Land Management Plans and the 1987 Forest Plans in terms of species considered for management is the inclusion of invertebrate species, such as terrestrial mollusks. Under the 1982 Forest Planning regulations, the Forest Service was directed (36 CFR 219.19) to maintain habitat for viable populations of existing native and desired non-native ‘vertebrate’ species. Therefore, terrestrial invertebrates, including mollusks, butterflies, etc. were not addressed in Forest plans developed under these regulations. Very little information exists for invertebrate species in the Forests or elsewhere. Information on distribution and status of terrestrial mollusks was gathered from the Montana Natural Heritage Program and the Idaho Conservation Data Center.

Terrestrial mollusks fall into two categories:

7. those associated with talus or rocky ground, ranging from low elevation canyons and valley bottoms to high elevation slopes well above treeline (sites occupied by this group are typically in terrain that is more open and mesic)
8. those that tend to be near permanent water, such as riparian corridors, and in dense conifer forests where there is more precipitation, litter and decaying wood

Threats include any type of habitat alteration that reduces the humidity of the microhabitats where these species occur. Timber harvest, fire, and road construction are probably the greatest threats to these species, including those associated with talus (Hendricks 2003). Grazing, rural home development and highway and road maintenance and the use of chemicals for controlling noxious weeds in low elevation valleys and slopes also have the potential to impact terrestrial mollusks.

Future Trends

Terrestrial mollusks in the IPNF fall into both habitat categories, while terrestrial mollusks in the KNF are associated with only the aquatic habitats. Implementation of the Plan components, including the use of riparian habitat conservation areas (RHCAs), is expected to maintain habitats for those in the aquatics group. Should activities occur in RHCAs, Plan components for protection of known locations will prevent disturbance.

The states of Montana and Idaho, under their Comprehensive Wildlife Conservation Strategies (MWFP 2005, IDFG 2005), will conduct surveys for various species, including terrestrial mollusks. These agencies recognize that new populations for several of these species are possible, even likely, as several have been identified in just the past decade. They also recognize that most species/subspecies are very rare, existing in small, often isolated populations. To date, survey coverage has been inadequate to provide a reasonable assessment of the distribution and status of most or all taxa. With additional survey information, new locations of existing species can be expected to be found as well as locations of new species may be identified. It is also anticipated that with additional survey efforts by the individual states, species may also be removed from the list. In the past six months, two species identified previously as species of concern were removed from that list and are now considered species of interest only. An additional review will be conducted prior to the final forest plan to determine any changes in the species list.

American Peregrine Falcon

Past and Current Conditions

Studies in the 1930s and 1940s estimated that there were about 500 breeding pairs of peregrine falcon in the eastern United States and about 1,000 pairs in the West and Mexico. Worldwide the peregrine falcon populations plummeted from tens of thousands to several hundred from the 1950s to the 1970s. This decline was mainly the result of unusually high concentrations of the pesticide DDT and its breakdown product DDE in peregrine falcons and other birds of prey. In 1972, the EPA banned the use of DDT for most uses in the U. S.

The peregrine falcon was federally listed as a threatened species when the1987 Forest Plans were developed. Management for falcons under the 1987 Forest Plans included protection of nest sites, minimizing disturbance of occupied nests during egg laying and raising of young, and managing habitat for prey species. As a result of recovered populations, the peregrine falcon was removed from the federal threatened and endangered species list in 1999. With the recovery of the species, management for American peregrine falcon appears to be adequate.

On the KIPZ, the peregrine falcon is an uncommon seasonal migrant and observations on the forests have been rare, generally birds that are migrating through the area. On the KIPZ there are two falcon nests known to have been constructed (one on the KNF and one on the IPNF). The nest on the IPNF has not been active for the past three seasons, while the nest on the Kootenai remains active. According to biologists with the Peregrine Fund, quality potential nesting sites, consisting of sheer vertical cliffs adjacent to feeding habitat are rare on the KIPZ. Potential feeding habitat, consisting primarily of valley bottoms and riparian areas is abundant.

Future Trends

Under the Proposed Land Management Plans, management for peregrine falcons will continue to emphasize protection of the nest site. Due to the lack of suitable habitat, it is unlikely that there will be a substantial increase in the number of nesting falcons in the Forests. Populations are expanding elsewhere, however, and there is the potential that additional nests could be developed. Provisions from the 2001 MOU relating to migratory and neotropical birds are incorporated into the Proposed Land Management Plans. Management of the Forests toward Class A of the desired vegetation conditions will provide habitat for prey species (small birds and mammals). The Plan components include protection of active nests and minimizing human-caused disturbance during egg laying and raising of young (generally March 1 to August 31). These components will be applied to all activities near the existing, active nest site in the KNF, on the inactive nest site in

the IPNF if and when it becomes active, and on any additional nests that are established on either Forest.

The peregrine continues to be protected by the Migratory Bird Treaty Act (MBTA). The MBTA (and its implementing regulations 50 CFR parts 20 and 21) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests except when specifically authorized by the Interior Department, such as in the case of regulated hunting seasons for game birds.

Species of Interest (SOI)

Species of interest are those species for which the Forest Supervisor has determined specific management actions may be necessary or desirable to achieve ecological or other multiple use objectives. SOI are species previously identified as the following: a) sensitive species, b) species at risk, c) management indicator species, d) State species of concern, e) species identified as Species of Greatest Conservation Need in State Comprehensive Wildlife Conservation Strategies, and f) species identified by various entities during forest plan revision. A more detailed discussion of SOI is included in Appendix A to the Proposed Forest Plan and Appendix F to the CER. Management for ecosystem diversity under the Proposed Land Management Plans will provide adequate habitat conditions for the majority of the species considered in the analysis for species of interest.

Aquatic/riparian group

Species in this group include black swift, common loon, fisher, harlequin duck, northern bog lemming, and additional terrestrial invertebrates (mollusks). Habitat varies for the species in this group including: waterfalls, perennial streams, lakes, peatlands, and associated riparian areas (terrestrial mollusks).

Past and Current Conditions

Currently, all of these species are being managed under the sensitive species policy, with the exception of terrestrial invertebrates. Trends for these species are either unknown or considered to be stable.

Known risks and threats to each of the species, with the exception of fisher, include human-caused disturbance during critical timeframes such as egg laying, nesting, and rearing of young.

Future Trends

Habitat components for each of these species will be maintained or restored through the Proposed Land Management Plan components for watershed and aquatics. Plan components for ecosystem diversity will provide for the upland portion of fisher habitat requirements. Proposed Land Management Plan components will minimize or eliminate disturbance during critical timeframes in NFS lands for the following species: black swift, common loon, harlequin duck and northern bog lemming.

Three of the above-mentioned species are migratory in the Forests (black swift, common loon, and harlequin duck). Due to their transitory presence in the Forests, changes in populations or trends are not necessarily related to the presence or absence of suitable habitat conditions in NFS lands. Activities or habitat conditions on their wintering grounds also play a role in determining populations or trends.

Snags/Down Wood Group

Species in the snag group include black-backed woodpecker, flammulated owl, Lewis's woodpecker, olive-sided flycatcher, pygmy nuthatch, red-naped sapsucker, white-headed woodpecker, Williamson's sapsucker, and three species of bats (which will be discussed in the bat group).

Past and Current Conditions

All of these species are currently being managed under the sensitive species policy, with the exception of the red-naped and Williamson's sapsuckers. A conservation assessment has recently been completed for two of these species: black-backed woodpecker and flammulated owl (Samson 2005, amended 2006). Trends for these species are either unknown or considered to be stable.

Three of these species (flammulated owl, pygmy nuthatch, and white-headed woodpecker) are associated with large diameter ponderosa pine and Douglas-fir community types, which are reduced in the Forest. The current policy is to manage these stands to a more open condition and retain the large tree component.

Four of the species are also associated with burned forests: black-backed woodpecker, Lewis' woodpecker, olive-sided flycatcher, and Williamson's sapsucker. These species are discussed below.

Future Trends

The Plan components for ecosystem diversity include the restoration of large diameter ponderosa pine habitats and old growth that will increase habitats for these species. Over the short term, there may be a slight increase in habitats; however, it may take many decades before this habitat representation is available for associated species.

Under the Plan, management for ecosystem diversity to maintain or restore snags will also increase suitable habitat. Flammulated owl populations are influenced by activities off forest (particularly in wintering areas); therefore, a change in population may not represent changes in habitat conditions in the Forests.

Burned Forest/Insect and Disease Group

Species in this group include black-backed woodpecker, Lewis's woodpecker, olive-sided flycatcher and Williamson's sapsucker.

Past and Current Conditions

All of these species are currently being managed under the sensitive species policy, with the exception of Williamson's sapsucker. In addition, a conservation assessment has recently been completed for the black-backed woodpecker (Samson 2005, amended 2006). Trends for these species are either unknown or considered to be stable.

Future Trends

Under the Proposed Land Management Plan (see the Fire section of Chapter 2 of the CER), wildfire suppression will most likely continue in the General Forest MA (MA 6) and the WUI. The General Forest MA comprises approximately 65 percent of the forests, and almost all of the warm/dry and warm/moist community types. Burned forest habitats will likely remain below historical estimates in the Forest, although it is estimated that an adequate regionwide

representation of these habitats presently exists (Samson 2005, amended 2006). Proposed Land Management Plan components identify the need to allow more fire on the landscape, especially in areas outside the WUI.

Bat Group

This includes the California myotis (IPNF only), fringed myotis and Townsend's big-eared bat.

Past and Current Conditions

All species in this group are currently being managed under the sensitive species policy, with the exception of the California myotis,

Human disturbance, either direct (e.g., roost sites) or indirect (e.g., habitat alternation) is a primary factor in the decline of bat populations. Maternity colonies, hibernacula (i.e., a shelter occupied during the winter) and roost sites are most sensitive to disturbance. Pesticide use also affects bat populations by decreasing the available insects, which are a primary food source of most North American bats. Habitat alteration may also affect bat populations (e.g., timber harvest, fire, mine closures, and construction of reservoirs and roads).

Management strategies for these bats are presented in "Species Conservation Assessment and Strategy for Townsend's Big-Eared Bat" (Pierson et al 1999). Inventory and monitoring projects conducted through various agencies, such as the IDFG, the MWFP, the US Forest Service and the BLM, contribute to the statewide conservation efforts. In 2005, a program was initiated to monitor bat species occurrence across the region and will continue in 2006.

There is insufficient data to determine population trends; however, it is believed to be declining due to human disturbance to roosts, declining snag densities, degradation of riparian areas and other factors on NFS and private lands.

Future Trends

Mine closures in the Forests that incorporate bat-accessible gates and decreased human disturbance will improve habitat for these and other bat species. The Proposed Land Management Plan components are expected to protect roost and hibernation areas and minimize disturbance of those areas when active. Additional Proposed Land Management Plan components are expected to also maintain or restore snags.

Big Game

Included in this group are bighorn sheep (KNF only) and elk.

Past and Current Conditions

Management for big game habitat will continue to incorporate the best available science (e.g., cover, forage, openings, and security). State management plans for these species will be reviewed and management for population objectives will be coordinated with the States to contribute toward meeting state population objectives.

Future Trends

Proposed Land Management Plan components for ecosystem diversity will provide habitat components for these species. Proposed Land Management Plan components is expected to minimize or eliminate disturbance to bighorn sheep during the lambing season.

Species Not Placed Into a Group

North American Wolverine

Past and Current Conditions

Wolverines are currently being managed as a sensitive species. Winter motorized use may be affecting previously isolated natal denning areas. As the amount of winter backcountry recreation increases, wolverine den sites may become more susceptible to human disturbance.

Increasingly, wolverine denning is a subject of rising interest to researchers and managers since it now appears that it is a critical limiting factor. Wolverine dens are located in the upper subalpine zone, at or near treeline, and are associated with boulder fields, avalanche debris, or log jams. Wolverines may abandon dens in response to disturbance or relocate to less preferred habitat, which may reduce reproductive success.

Future Trends

Generally, very few management activities are conducted in high elevation habitat; however, recreation activities will likely continue to increase, including snowmobile use of these areas. Impacts to high elevation habitats including wolverine den sites as well as other species (mountain goat, grizzly bear) most likely will be addressed in Forest travel management planning.

Proposed Land Management Plan components have been developed to minimize disturbance to wolverine den sites. Actual den sites are unknown and extremely difficult to identify. The Forests have mapped areas considered as highly likely to contain wolverine denning habitats (e.g., high elevation cirque basins and talus areas). Based on this information, an estimate was then made regarding the amount of denning habitat that was situated in management areas where snowmobiling may be a generally suitable use (to be determined by travel management planning). Approximately 45 percent of the modeled denning habitat in the KNF and 45 to 76 percent in the IPNF was in management areas where snowmobile use may be generally suitable. This is not an indication of how much snowmobile use is occurring or will occur; it is only an indication that snowmobiling may have a impact on wolverine den sites if allowed to occur in all management areas where it may be generally suitable. Actual recreation use allowed is expected to be determined during further project or Forestwide travel management planning.

Northern Goshawk

Information on northern goshawk ecology, behavior, and habitat can be found in “A Conservation Assessment of the Northern Goshawk, Black-blacked Woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service” (Samson 2005, amended 2006).

Past and Current Conditions

The northern goshawk is currently being managed as a sensitive species. Human disturbance does not appear to be a factor to the northern goshawk, provided that 70 percent of the nest stand structure is maintained and timber management operations are time restricted, (Samson 2005, amended 2006). It has been identified that short-term viability for this species is not an issue (Samson 2005, amended 2006).

Future Trends

Further review of this species will be conducted prior to Plan finalization. A reduction in suitable habitat conditions may occur as a result of Plan objectives in portions of the WUI (e.g., community protection zones). Nevertheless, a large portion of the Forests would continue to provide suitable habitat conditions. Regionwide estimates indicate an adequate representation of habitat for this species (Samson 2005, amended 2006). Proposed Land Management Plan components for protection of raptor nests is expected to minimize disturbance related to timber management activities.

Mountain Goat

Mountain goats are usually found in the most rugged mountainous areas of steep cliffs and rock bluffs, narrow ledges, rocky canyons, talus and rock slopes. They are considered non-migratory, although there is often a vertical movement from high elevation summer ranges to lower elevations during the winter period.

Past and Current Conditions

In the KNF, mountain goats are found only in the Cabinet Mountains (East and West). A management plan has been developed for the mountain goats in the Cabinet Mountains (Joslin 1980). Long-term population trend in the Forest is considered stable; however there appears to be a declining trend in other locations in Montana (Brown, Personal Communication).

In the IPNF, mountain goats are found in the Selkirk Mountains, the west Cabinet Mountains, and in the St. Joe GA. Goats in the St. Joe GA are found only in the Mallard Larkins recommended wilderness area and are generally not impacted by management activities. The long-term population trend in Idaho is believed to be stable, although short-term population fluctuations occur regularly.

Of all the ungulate species, mountain goats appear the most sensitive to disturbance. Unlike deer, elk or moose (but similar to bighorn sheep), mountain goats have evolved with limited behavioral capabilities. This limited but specialized behavior has helped them to efficiently exploit the niche of rigorous terrain that they occupy. Highly traditional behavior restricts mountain goats to regular seasonal use patterns, which in turn make them vulnerable to human activities or habitat changes within their range. Compared to other North American ungulates, mountain goats have a high natural mortality rate. Human-induced mortality appears to be additive rather than compensatory. Increases in winter motorized and winter backcountry use may be intruding into previously isolated areas, making mountain goat populations more susceptible to human disturbance.

Future Trends

Proposed Land Management Plan components recognized the need to minimize disturbance during the winter period, the need to identify clearly areas available for snowmobile use, and the need to monitor use and enforcement. Analysis conducted for the Forestwide travel/access management plan is expected to consider mountain goat winter habitats.

Conclusion

The Proposed Land Management Plan meets the requirements of laws, regulations and policy and addresses the public's interest in and need for terrestrial wildlife. The Proposed Land Management Plan is designed so that:

- Terrestrial wildlife habitats in NFS lands contribute to ecosystem sustainability and biological diversity of the Forests and for wide-ranging species and larger landscape scales.
- Habitats contribute to supporting populations of wildlife that address people's current and future need for and interest in the many aesthetic, commercial, subsistence, recreational, cultural, wildlife-watching, hunting, fishing, and scientific uses and values of wildlife.
- Habitats are present in quantity, quality, and distributions that maintain self-sustaining populations for threatened and endangered species and SOC.
- Habitats that promote an adequate and representative array of habitat conditions that supports sustainable and acceptable levels of human uses.
- Actions that may cause a species to become listed as threatened or endangered are avoided.

The 2005 Rule approaches diversity at two levels of ecological organization: the ecosystem level and the species level. The 2005 Rule focuses on ecosystem diversity as the primary means of providing for the diversity of plant and animal communities. The more effective the ecosystem management guidance is in sustaining species habitat, the less need there is for analysis and planning at the species level of ecological organization. Plan components have been developed to address management for species diversity. The 2005 Rule does not include a requirement to provide for viable populations of plant and animal species. Requirements for species population monitoring are also not included in the Rule. The agency's monitoring program will focus on habitat in NFS lands where the agency can adjust management to meet the needs of certain species at the project level.

In compliance with NFMA, the ecological sustainability provision in the 2005 Rule provides the foundation for the Plan to provide for diversity of animal communities. The Plan components for ecosystem diversity, in addition to fine-filter, species-specific plan components, have been developed to provide adequate habitat components for federally listed species, SOC and SOI.

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