WILDLIFE SPECIES

THREATENED AND ENDANGERED

Introduction

Use of the Porter Mount Project Area by threatened and endangered wildlife species is not common. This is true for the entire Island Unit Geographic Area of the Swan Lake Ranger District. The gray wolf is known to occasionally use portions of the project area. Use by Canada lynx or grizzly bear would be very rare. Life history information on these species can be found in the reference document entitled, "Distribution, Life History, and Recovery Objectives For Region One Threatened and Endangered Terrestrial Wildlife Species Occurring on the Flathead National Forest" (Project File Exhibit F-4).

TABLE 3-31
THREATENED, ENDANGERED, AND PROPOSED SPECIES KNOWN OR SUSPECTED TO OCCUR WITHIN THE INFLUENCE AREA OF THE PROPOSED ACTION

Species	Status	Occurrence
Canada Lynx *(Lynx canadensis)*	Threatened	Rare
Gray Wolf *(Canis lupus)*	Endangered	Occasional
Grizzly Bear *(Ursus arctos)*	Threatened	Rare

Analysis Area

Spatial Bounds

Lynx - The Lynx Conservation and Assessment Strategy established Lynx Analysis Units (LAU's) as the basis for assessing the effects of proposed actions on lynx and lynx habitat. These units approximate the size of an area used by an individual lynx and encompass both lynx habitat and areas classified as non-habitat. The proposed Porter Mount Management Project is located in the Haskill Lynx Analysis Unit. This LAU will be the geographic area used to analyze direct, indirect, and cumulative effects for Canada lynx.

Grizzly Bear - The effects analysis area for direct, indirect, and cumulative effects to the grizzly bear is the Island Unit Geographic Area of the Swan Lake Ranger District. Grizzly bear ecosystems, like the Northern Continental Divide Ecosystem, have been broken down into Bear Management Units (BMU's) and subunits. This is the scale usually used for site-specific analysis of effects on habitat within a grizzly bear home range. For unoccupied grizzly bear habitat, including the Island Unit, no such delineations have been made. However, the Island Unit is approximately 230 square miles in size, or roughly the same size as a BMU subunit.

Gray Wolf - The effects analysis area for direct and indirect effects to the gray wolf is the Porter Mount Project Area (approximately 11,431 acres). The cumulative effects area includes the larger Island Unit Geographic Area of the Swan Lake Ranger District. This area is large enough to include portions of the home ranges of several individual wolves or a wolf pack. The area is representative of

the effects of fire, natural tree mortality, timber harvest, road management, and other effects factors, across the landscape. The actions proposed that could directly or indirectly affect the gray wolf are contained within this area.

Temporal Bounds

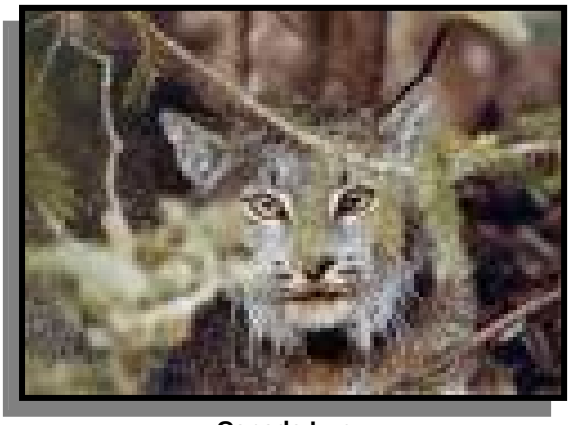
The length of time for effects analysis is approximately 5 years for the roads and fuel reduction portions of this project. This is based on the probable contract length for the proposed project, the timeframes for related activities, and the reasonably foreseeable actions identified. Ecosystem Burning proposed in this project may begin in 2008 and be completed by 2019, depending on the availability of burning windows, funding, and equipment needed to achieve the desired results. When conditions are favorable, the actual burning would only take a day or less for each project, but this time frame provides a conservative margin for all these elements to come together.

CANADA LYNX

Affected Environment

Historical Condition

The Canada lynx is a secretive forest-dwelling cat of northern latitudes and high mountains. Lynx habitat in Montana occurs primarily in the high elevation mountains. In the western United States most lynx occurrences (83 percent) have been associated with conifer forests in the Rocky Mountains, and most (77 percent) were within the 4,920 to 6,560 foot elevation zone. The primary vegetation that contributes to lynx habitat is lodgepole pine, subalpine fir, and Engelmann spruce. In western Montana, cedar-hemlock habitat types are also considered primary habitat (LCAS 2000). Secondary vegetation that, when interspersed with subalpine forests, may also contribute to lynx habitat, include cool, moist Douglas-fir, grand fir, and western larch.



Canada Lynx

Lynx require a mosaic of forest conditions. They feed primarily on snowshoe hare, which live in dense thickets of young trees and shrubs. Disturbance processes that create early successional stages used by snowshoe hare have commonly included fire, insect infestations, catastrophic wind events, and disease outbreaks. Lynx in northwestern Montana evolved with a fire regime that created new foraging opportunities in young stands, while leaving behind travel corridors and older forest stands. Older forests with a substantial understory of conifers or small patches of shrubs and young trees that provide dense cover that touches the snow in winter, generally also provide good quality lynx foraging habitat (LCAS 2000). These older forest stands also support red squirrel populations, an important alternate prey species for lynx.

The common component of natal den sites appears to be large woody debris, either down logs or root wads (Koehler 1990). Large amounts of large coarse woody debris provide escape and thermal cover for the lynx kittens. It also provides cover protection for kittens from predators. Den sites may be located in older forest, mature forest, or any regenerating stand with large amounts of debris. In order for denning habitat to be functional, it must be adjacent to foraging habitat, as the female lynx is more restricted while taking care of kittens.

As described above, suitable habitat for lynx is considered to be most of the moist/cool or moist/cold vegetative types, especially where vegetative cover is subalpine fir, spruce, cedar, hemlock, grand fir, lodgepole pine, or cooler Douglas-fir sites. Areas above 4,100 feet elevation are more likely to provide adequate habitat. The cool/moist subalpine fir/spruce vegetation types have never been very common on the Island Unit. Only about 12 percent of the area is subalpine fir/spruce cover type. There is little to no cedar or hemlock vegetation types. Warmer and drier habitats are generally more common on the Island Unit. It is unknown to what extent lynx may have used the Island Unit historically. There are several sightings of Canada lynx from the 1980's.

Existing Condition

Canada lynx habitat is widespread across the Flathead National Forest. A Regional, multi-scale lynx habitat assessment by Hillis et al. (2002) derived estimates of the proportions of foraging and unsuitable habitat components at the forest-scale and compared them to forage and unsuitable habitat estimates at larger scales (Table 3-32). The following table summarizes the situation for potential Canada lynx habitat across the region, and at the forest level.

TABLE 3-32
LYNX HABITAT COMPONENTS ON THE FLATHEAD NATIONAL FOREST COMPARED WITH LARGER SCALES

Habitat Component	HRV*	LCAS/NRLMD** Standard	Flathead National Forest	Region One
Unsuitable	9.5%	30% Max	10%	9.2%
Foraging	19%	---	5%	5.4%
Denning	10%	10% Min	---	15.1%

* HRV (Historic Range of Variability) reflects average conditions before fire suppression or logging substantially changed vegetative pattern.

** Northern Rockies Lynx Management Direction and old LCAS standard. Used as a recommendation for assessing effects.

Lynx productivity is highly dependent on the quantity and quality of winter snowshoe hare habitat. Winter snowshoe hare habitat may be found in dense young regenerating forests, where the young trees protrude above the snowline, and in multi-storied forests where limbs of the overstory touch the snowline and there is a shorter understory that provides significant horizontal cover.

Note that at the Region One scale, foraging habitat is described as being 5.4 percent of lynx habitat, below the historic average. This figure is based on dense young regenerating forests as foraging habitat (sapling stands). The figure is undoubtedly conservative because it does not include multi-storied forest stands that include an understory that provides significant horizontal cover. Also, the fires of 1988, 2000, 2001, and 2003 have provided a substantial "pulse" of unsuitable habitat that will provide foraging habitat in 5 to 12 years. Large fires in the last decade will ultimately help to recruit foraging habitat.

Denning habitat appears to be surplus at the scale evaluated. Denning habitat has only been calculated at the Region One Scale. Since the Region One level (15.1 percent) exceeds the historic level (10 percent) and the LCAS standard (10 percent), denning habitat is probably not limiting at the broad scales.

Current science and studies, Ecology and Conservation of Lynx in the United States (published by the Lynx Science Team), the Lynx Conservation Assessment and Strategy (LCAS), findings of the Lynx Biology Team, and local knowledge were used to determine lynx habitat across the Flathead National Forest. Distinct Lynx Analysis Units (LAU's) were established and the Forest developed a mapping protocol to designate lynx and non-lynx habitat within the different LAU's. A combination of snow depth and forest habitat criteria was used as the basis to model lynx versus non-lynx habitat. The snow depth below which lynx use is expected to decline on the Flathead National Forest has

been defined as less than 24 to 30 inches of snow. At this snow depth and below, there is usually increased use by mountain lions and coyotes (USDA 1999, p.89-95). The subsequent increase in competition for prey and the increase in potential predation on lynx results in the decreased use of these areas by lynx. Across the Island Unit, snow depth data suggests that an approximate elevational break between lynx and non-lynx habitat is 4,100 feet. The other main factor affecting lynx habitat designation was habitat type. Based on current habitat information, ongoing research, the lynx science team report, and the LCAS, dry forest types (ponderosa pine and very dry Douglas-fir or larch sites) were excluded and were designated as non-lynx habitat (USDA 1999, p.242-246, 379).

The following table summarizes the current situation for potential Canada lynx habitat in the Porter Mount Project Area (Haskill LAU). Permanent non-lynx habitat refers to areas that will probably never be lynx habitat due to dry forest types, low elevation (snow depth factor), or physical character (rock, and water). Suitable lynx habitat includes areas within an LAU that provide forage, denning, or cover for lynx. Foraging habitat includes sapling size stands that would probably support snowshoe hare, and multistory stands with a component of sapling-size trees (USDA 1999, pp.136-140, 184-195). Denning habitat includes forest stands where larger amounts of down woody material would be expected to occur (USDA 1999, pp. 346-347). Unsuitable lynx habitat would be areas within an LAU that are not permanent non-lynx habitat, but which do not presently provide forage, denning, or cover for lynx.

TABLE 3-33
SUMMARY OF CURRENT SITUATION FOR POTENTIAL LYNX HABITAT IN THE PORTER MOUNT PROJECT AREA

Lynx Analysis Unit	Total Area (acres)	Non-Lynx Habitat (acres)	Potential Lynx Habitat (acres)	Approx. Forage Habitat (%)	Approx. Denning Habitat (%)	Unsuitable Habitat (%)
Haskill	24,968	8,489	16,479	21%	12%	17%

It should be noted that the estimates for forage and denning habitat are conservative. Only sapling stands that have not been recently pre-commercial thinned, and multistory stands with a sapling component, were included as forage (snowshoe hare habitat). In reality, many mature forest stands would also provide forage (e.g., red squirrel; USDA 1999, pp. 375-377). Only old, mature forest stands (including designated old growth) were included as potential denning habitat. In reality, ongoing research suggests that lynx also commonly use second growth stands as denning habitat if there is a down woody component (e.g., stumps, root wads, blowdown). The remainder of the potential lynx habitat that is not forage or denning, but is still suitable habitat, is lynx cover.

Fire suppression, timber harvest, and regeneration practices across the Island Unit have altered the availability of lynx denning habitat, prey habitat, and forested connectivity. Although there is currently adequate potential foraging habitat for lynx, pre-commercial thinning of some sapling stands may lower the number of stems per acre and render the sapling stands either less desirable or unsuitable as foraging habitat for snowshoe hare, and consequently, for lynx. Blowdown and other large down woody materials are an important component of denning habitat for lynx. Excessive salvage or utilization of mature forest may limit denning habitat.

Species that may compete with lynx for prey, including bobcat, coyote, and mountain lion, have been frequently observed across the Island Unit. It is unknown if Canada lynx presently occupy the Island Unit.

Environmental Consequences

Alternative A - No Action
Direct and Indirect Effects

There would be no forest health, fuel reduction treatment, or associated activities, proposed with this alternative. There would be no direct effects to lynx or lynx habitat. Indirectly, there may be an increase in the potential for a larger, more intense wildfire, although extensive forest management has been occurring on adjacent forested lands in the Island Unit. Historically, wildfire positively affected Canada lynx by providing large areas of potential forage in the form of sapling stands (snowshoe hare habitat). A large intense wildfire would potentially decrease overall cover and potential denning habitat, for at least 10 to 60 years.

Alternative A - No Action
Cumulative Effects

Human activity levels across the Island Unit are very high and include timber management, a ski resort, private residences, snowmobile use, hunting, camping, OHV use, other recreational activities, mining claims, and special use permits. This level of activity is unlikely to decrease. Foreseeable projects on NFS lands include a snowmobile connector road near the ski resort and increased OHV trails in the Wild Bill Area.

Other management activities, on private and state lands, including timber management and road construction, are expected to continue. Due to the location of private and state lands in the lower elevation areas, these activities are located predominantly in non-lynx habitat. These activities would be unlikely to cumulatively affect lynx denning or foraging habitat. They do, however, contribute to a decrease in habitat connectivity and affect the ability of lynx to move across the landscape. Alternative A would not contribute significantly to cumulative effects.

Alternatives B - Proposed Action
Direct and Indirect Effects

There are approximately 663 acres of proposed treatment in designated lynx habitat. This is approximately 42 percent of the treatment acres. Depending on the silvicultural treatment, vegetative management can render a stand unusable as forage or denning. It may still be suitable for cover, or it may be unsuitable lynx habitat until reforestation occurs and the stand becomes a sapling stand (potential forage).

The proposed Commercial Thin, Salvage, Sanitation, and Non-commercial Thin-From-Below units would still provide cover for lynx following treatment. The Seed Tree and Clearcut with Reserve Tree units would not provide denning, forage, or cover. They would become unsuitable habitat. The proposed Ecosystem Burn is located in non-lynx habitat and would not directly or indirectly affect lynx.

Implementation of the Porter Mount Project would directly affect lynx habitat in the Haskill LAU by reducing the amount of potential lynx denning habitat and the amount of potential lynx cover. There would be a loss of 111 acres of potential lynx denning habitat, and a loss of 356 acres of potential cover. The existing cover would become unsuitable habitat for lynx. Approximately 28 acres of potential denning habitat would not function as denning habitat for lynx anymore but would remain cover and approximately 83 acres of potential denning habitat would become unsuitable for lynx until it regenerates into sapling size stands. Unsuitable lynx habitat in the Haskill LAU would increase by 439 acres.

Three of the proposed cutting units are located along a major ridgeline on Haskill Mountain. Ridgelines are topographic features that are known to be important for lynx movement (LCAS 2000). The proposed treatment under Alternative B along this ridgeline is Clearcut with Reserve Trees, which would essentially be a stand replacement treatment. These units would become unsuitable habitat until they reach the sapling stage. At that point, they would become potential lynx foraging habitat. There is a potential for increased snowmobile use along the ridgeline if the vegetation becomes more open. This could cause long-term lynx displacement. There is some existing cover in adjacent stands that would remain untreated.

The Porter Mount Project includes the construction of 4.7 miles of temporary road in Alternative B. Temporary roads would be reclaimed once harvest activities are completed. Approximately 3.4 miles of the temporary road construction is located within proposed treatment units. Approximately 1.3 miles of temporary road are proposed outside of any treatment unit. Of the temporary road that would be located outside of a proposed cutting unit, 1.26 miles are in lynx habitat that provides potential cover, and approximately 0.04 miles are in potential forage habitat for lynx. The actual loss of cover or foraging area would be minimal and short-term. If the temporary road “shrubs in” quickly, long-term affects (e.g., snowmobile use) would be avoided.

The Porter Mount Project may cause short-term (approximately 1 to 3 years) displacement of lynx from suitable habitats during project implementation and a temporary decrease in lynx security. Lynx occurrence in the vicinity of the proposed project is uncommon.

Alternative B
Cumulative Effects

The Cumulative Effects Worksheet for Canada lynx (Project File Exhibit F-1) considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect lynx or lynx habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to lynx or lynx habitat have not been included in this section.

Activities in the Porter Mount area (Haskill LAU) that may cumulatively affect lynx or lynx habitat include vegetation management on public, private, and state lands, recreational activities (e.g. snowmobiling, hunting, OHV use), and an overall high level of human activity due to the proximity of this area to a large population center.

The cumulative effect of vegetation management across the many different land ownerships, as well as the conversion of forest lands to private residences and to agriculture/range lands, has been a decrease in potential forage habitat for lynx. The primary factor driving lynx populations, behavior, and distribution is the abundance and distribution of snowshoe hare prey (USDA 2007). Changes in vegetation that limit the abundance and distribution of snowshoe hare habitat, have correspondingly limited the abundance and distribution of lynx in the Island Unit. Species that may compete with lynx for prey, including bobcat, coyote, and mountain lion, have been frequently observed across the Island Unit area; this condition would probably not change.

The high level of human activity in the Porter Mount area, including yearlong residences and conversion of forest land, is unlikely to decrease and contributes to a decrease in habitat connectivity, affecting the ability of lynx to move across the landscape. Patches of forest cover are more fragmented, which decreases the likelihood that lynx will move securely across the Island Unit landscape in search of quality foraging habitat. The existing levels of recreational activity, especially in the upper elevations where lynx are more likely to occur, is also probably limiting lynx use of habitats in the area.

Vegetative treatments proposed under Alternative B have the potential to be beneficial, benign, or detrimental to lynx, as described above under the direct and indirect effects discussion for Alternative B. The cumulative effect of past, present, and foreseeable activities, including the proposed activities in Alternative B, would not result in significant impacts to the Canada lynx population as a whole because the decrease in forested cover in lynx habitat as a result of implementing Alternative B would be small (356 acres), because potential snowshoe hare habitat is largely unaffected, and because lynx occurrence in the Porter Mount Area is rare. It is unknown if lynx occupy the Porter Mount Area or the Island Unit as a whole. There are historical records and known sightings of lynx from a decade or more ago, but no recent confirmed reports.

Alternative C
Direct and Indirect Effects

Under Alternative C, there are 583 acres of proposed treatment in designated lynx habitat.

As described in Alternative B, the proposed Commercial Thin, Salvage, Sanitation, and Non-commercial Thin-From-Below units would still provide cover for lynx following treatment. The Seed Tree and Clearcut with Reserve Tree units would not provide denning, forage, or cover. They would become unsuitable habitat. The proposed Ecosystem Burn is located in non-lynx habitat and would not directly or indirectly affect lynx.

Implementation of Alternative C would directly affect lynx habitat in the Haskill LAU by reducing the amount of potential lynx denning habitat and the amount of potential lynx cover. As in Alternative B, there would be a loss of 111 acres of potential lynx denning habitat. Approximately 28 acres of potential denning habitat would remain cover and approximately 83 acres of potential denning habitat would become unsuitable for lynx until it regenerates into sapling size stands. There would also be a loss of 276 acres of habitat that does not provide denning or forage habitat but does currently provide cover. The existing cover would become unsuitable habitat for lynx. Unsuitable lynx habitat in the Haskill LAU would increase by 359 acres.

A significant difference in regards to lynx effects, between Alternatives B and C, is the amount of cover removal along the major ridgeline on Haskill Mountain. Instead of three stand replacement units totaling approximately 105 acres (Alternative B), there would be two units totaling approximately 55 acres in Alternative C. The temporary road along the ridgeline would also be deferred in Alternative C, which would decrease the potential for increased snowmobile use in an area that may be important for lynx in the Island Unit.

Alternative C has less proposed temporary road than Alternative B. Under Alternative C, there is 0.86 miles of proposed temporary road construction. The temporary road would be reclaimed once harvest activities are completed. The Porter Mount Project may cause short-term (approximately 1 to 3 years) displacement of lynx from suitable habitats during project implementation and a temporary decrease in lynx security.

Alternative C
Cumulative Effects

As discussed above under Alternative B Cumulative Effects, activities in the Porter Mount Area that may cumulatively affect lynx or lynx habitat include vegetation management on public, private, and state lands, recreational activities, and an overall high level of human activity.

The cumulative effect of vegetation management has been a decrease in potential forage habitat for lynx. Changes in vegetation that limit the abundance and distribution of snowshoe hare habitat, have correspondingly limited the abundance and distribution of lynx in the Island Unit.

The high level of human activity in the Porter Mount Area, including yearlong residences and conversion of forest land, is unlikely to decrease and contributes to a decrease in habitat connectivity, affecting the ability of lynx to move across the landscape. Patches of forest cover are more fragmented, which decreases the likelihood that lynx will move securely across the Island Unit landscape in search of quality foraging habitat. The existing levels of recreational activity, especially in the upper elevations where lynx are more likely to occur, is also probably limiting lynx use of habitats in the area.

The cumulative effect of past, present, and foreseeable activities, including the proposed activities in Alternative C, would not result in significant impacts to the Canada lynx population as a whole because the decrease in forested cover in lynx habitat as a result of implementing Alternative C would be small (276 acres), because potential snowshoe hare habitat is largely unaffected, and because lynx occurrence in the Porter Mount Area is rare. Alternative C would not contribute significantly to cumulative effects to lynx in the Haskill LAU or Porter Mount Project Area.

Table 3-34
COMPARISON OF EFFECTS TO CANADA LYNX FOR THE HASKILL LAU BY ALTERNATIVE

Alternative	Acres Treated in Lynx Habitat	Loss of Denning Habitat (Acres)	Remaining Denning Habitat (%)	Remaining Forage Habitat (%)	Loss of Cover (Acres)	Un-suitable Habitat (%)
Alt. A	0	0	12	21	0	16.6
Alt. B	663	111	11	21 (no loss)	356	19.3
Alt. C	583	111	11	21 (no loss)	276	18.8

Regulatory Framework and Consistency

On July 8, 1998, the USFWS published a proposed rule to list the Canada lynx as a threatened species under the ESA, as amended. The normal 12-month rule-making process was extended for an additional 6 months to allow for consideration of new scientific information and additional public comments on the proposed rule. An interagency lynx coordination effort was initiated in March 1998. The USFWS, USDA Forest Service, Bureau of Land Management (BLM), and the National Park Service (NPS) participated in this effort. Three products important to the conservation of lynx on federally managed lands were produced:

1. “The Scientific Basis for Lynx Conservation – Ecology and Conservation of Lynx in the United States” (Ruggiero et.al. 2000),
2. The Lynx Conservation Assessment and Strategy (LCAS), and
3. The Lynx Conservation Agreement (CA).

The Canada lynx was classified as Threatened in Montana on March 24, 2000, and is currently protected under the ESA. A recovery plan for the Canada lynx has not yet been completed.

In September 2001, the Northern Rockies Lynx Amendment (NRLA) was proposed for 18 national forests (including the Flathead National Forest) and four BLM units. The NRLA was published in the Federal Register on June 15, 2007 and the Record of Decision for the Northern Rockies Lynx Management Direction (NRLMD) became effective July 16, 2007. The NRLA adds management

direction to land management plans that will conserve and promote recovery of the Canada lynx by reducing or eliminating adverse effects from land management activities.

The alternatives comply with Section 9, ESA of 1973 as amended. The Porter Mount Management Project was initiated under LCAS direction. Consequently, conservation measures, including standards and guidelines outlined in the LCAS, have been followed. In addition, the Porter Mount Management Project is consistent with the standards and guidelines outlined in the NRLA and described in the Northern Rockies Lynx Management Direction (NRLMD). A Biological Assessment (BA) for Threatened and Endangered Wildlife Species was prepared. **The USFWS concurred with the "may effect -- Not likely to adversely affect" determination.**

GRIZZLY BEAR

Affected Environment

Historical Condition

Historically, during pre-settlement of the Flathead Valley, grizzly bear probably moved through the area now known as the Island Unit. They would have been found throughout the valley, and it would have been natural for them to travel through the forests that are now west of the town of Kalispell. However, habitats common on the Island Unit do not typically provide high quality habitat for grizzly bears. Important foraging habitat includes riparian areas, shrubfields with berries, grassy meadows, and avalanche chutes. These types of habitats have probably never been abundant on the Island Unit. Grizzly bear dens are usually dug on steep slopes where wind and topography cause an accumulation of deep snow and where the snow is unlikely to melt during warm periods. Den site elevations are generally found at higher elevations well away from development or human activity. Historically, probably only the upper slopes of Blacktail Mountain or Haskill Mountain would have provided quality denning habitat for grizzly bears. Other areas in the Flathead Valley and adjacent mountain ranges would have provided higher quality foraging and denning habitat for grizzly bears.

Grizzly bear

Existing Condition

The Island Unit area is now a relatively isolated "island" of forested lands. All of the major drainages in the area have been roaded and management activities dominate the landscape. Lands in the Island Unit are outside of the Grizzly Bear Recovery Zone identified in the Grizzly Bear Recovery Plan. The Plan chose areas for recovery where grizzly bear were known or thought to have been present in 1975. In addition, recovery areas either have, or recently had, the potential to provide adequate space and habitat to maintain the grizzly bear as a viable and self-sustaining species. The Island Unit was not included in the recovery zone. Federal lands in the Island Unit are designated "Unoccupied Grizzly Bear Habitat" in the Flathead Forest Plan. There are no historic grizzly bear observations, or evidence of grizzly bear activity, recorded on the Island Unit in USDA Forest Service files. It appears that grizzly bear occurrence within the area is, at this time, rare.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

There would be no forest health, fuel reduction treatment, or associated activities, proposed with this alternative. There would be no direct effects to grizzly bear or grizzly bear habitat. Indirectly, there may be a slight increase in the potential for a larger, more intense wildfire, although extensive forest management has been occurring on adjacent forested lands in the Island Unit. Historically, wildfire on the landscape produced positive effects for grizzly bear by providing forage areas (Hammer and Herrero 1981, Zager et al. 1983, Martin 1983). The mosaic of forest and more open brushy areas across the landscape was beneficial to grizzly bear. Unfortunately, a large intense wildfire today would potentially decrease overall cover on a landscape that is already fragmented and does not provide abundant security for grizzly bear. Because grizzly bear use of the Porter Mount Project Area, and the Island Unit as a whole, is rare, direct and indirect effects as a result of Alternative A would be insignificant.

Human activity levels across the Island Unit are very high and include a ski resort, private residences, snowmobile use, hunting, camping, OHV use, other recreational activities, mining claims, and special use permits. This level of activity is likely to increase.

Other management activities, on private and state lands, including timber management and road construction, are expected to continue. Due to the lack of grizzly bear use of lands in the Porter Mount Project Area, Alternative A would not contribute significantly to cumulative effects.

Alternative B and Alternative C
Direct, Indirect, and Cumulative Effects

Potential direct and indirect effects to the grizzly bear would include effects on food production and hiding cover, displacement of bears, or effects on bear security.

The proposed project would decrease available bear forage and hiding cover over the project area in the short-term. The effects on grizzly bear would be insignificant due to the lack of use by grizzly bears of habitats in the Island Unit.

Implementation of the Porter Mount Management Project would include the construction of approximately 4.7 miles of temporary road under Alternative B and .9 miles under Alternative C. Temporary road would be reclaimed once harvest activities are completed. Overall security in the project area would potentially be decreased short-term. This short-term decrease in security would be insignificant to the grizzly bear; there would be no risk of displacement.

The overall effect to grizzly bears would be very low, due to the lack of quality grizzly bear habitat in the area and the apparent non-use of the area by grizzly bears. Adverse cumulative effects would not be expected with implementation of either Alternative B or Alternative C because use of the Porter Amount Area or Island Unit by grizzly bears is not known or suspected.

Regulatory Framework and Consistency

The grizzly bear is currently classified as Threatened in Montana and is protected under the ESA. Forest-wide management direction for grizzly bear is included in the Forest Plan, including

Amendments 8, 9, 11, and 19. Interagency Grizzly Bear Guidelines (1986) were adopted as Forest Plan Appendix OO.

The alternatives comply with Section 9, ESA of 1973 as amended, Forest Plan, as amended, and the Interagency Grizzly Bear Guidelines. A BA for Threatened and Endangered Wildlife Species was prepared. **The USFWS concurred with the "No Effect" determination.**

GRAY WOLF

Affected Environment

Historical Condition

Historically, during pre-settlement of the Flathead Valley, gray wolves probably moved throughout the lower elevations of the Island Unit area. They would have been found throughout the valley, following their ungulate prey base, and it would have been natural for them to travel through the forests that are now west of the town of Kalispell. Potential summer and winter range habitat for deer and elk, based on vegetative cover, were probably similar to the existing condition (Project File Exhibit Q-4). It can be assumed that there was adequate prey to sustain a wolf population.

Gray wolf

Existing Condition

The wolf population in the northern Rocky Mountains has generally increased over the last 7 years, with a notable increase in 2005 over 2004 (USFWS et al. 2006). There were a total of 46 packs (3 or more wolves) in 2005, resulting in an estimated minimum of 256 wolves in Montana. The average number of wolves per pack increased from about 4.5 wolves per pack in 2004 to 5.5 wolves per pack in 2005. There were 19 breeding pairs statewide. In 2006, the minimum wolf population estimate increased about 19 percent from 256 wolves to 316. The number of packs increased from 46 in 2005 to 60 in 2006, with 21 breeding pairs statewide. The Montana wolf population is secure but very dynamic (Sime et. al. 2007). Some packs do not persist from year to year for many reasons, including mortalities and poor pup production/survival due to parasites and disease, and lethal control to address conflicts with livestock.

Strategies to protect and recover populations in Montana are outlined in the Northern Rocky Mountain Wolf Recovery Plan (USFWS 1987). The Flathead National Forest (Swan Lake Ranger District) is in the Northwestern Montana Wolf Recovery Area identified in the Northern Rocky Mountain Wolf Recovery Plan (USFWS 1987) and is included within the State of Montana 2004 Wolf Conservation and Management Plan. The Northern Rocky Mountain Wolf Recovery Plan identifies wolf management zones. Based on these management zones, the Island Unit has been classified as Management Zone 3 in the Forest Plan. Zone 3 lands contain established human activity and development in sufficient degree as to render wolf presence undesirable.

Wolf population recovery numbers have been met and the process for delisting will be initiated once satisfactory state management plans are in place; possibly as early as the end of 2007.

The Island Unit Area is now a relatively isolated "island" of forested lands. All of the major drainages in the area have been roaded and management activities dominate the landscape.

The two major components of wolf habitat that provide survival and recovery value are adequate prey base and security from risk of mortality. Additional components include special habitats such as den

sites, rendezvous sites, and travel/dispersal corridors. Although summer and winter range habitat for the major wolf prey species (white-tailed deer and elk) is probably adequate to maintain historical population levels (Project File Exhibit Q-4), the increased level of human activity and the increased road access has increased hunting vulnerability and likely reduced potential numbers of white-tailed deer and elk in the Island Unit. Additionally, the increase in human activity, including livestock grazing, private residences, and road access has increased the risk of mortality for gray wolf in the Island Unit. There was a denning attempt by wolves in the Island Unit vicinity in 1997. That attempt was unsuccessful, largely due to the close proximity of people and livestock. The wolves were relocated, attempted to return, and were subsequently destroyed. There is currently known wolf pack activity in the Hog Heaven Range, adjacent to the Island Unit. There are no geographic or unnatural barriers that might impede wolf movement through the Island Unit, however, the human activity and disturbance level in this area is high and may in fact be a type of barrier to wolves.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

There would be no forest health, fuel reduction treatment, or associated activities, proposed with this alternative. There would be no direct effects to the gray wolf. Indirectly, there may be a slight increase in the potential for a larger, more intense wildfire, although extensive forest management has been occurring on adjacent forested lands in the Island Unit. Under the No Action Alternative natural vegetative succession would continue; seedling stands would grow into sapling stands and eventually mature stands; older forest stands would exhibit increased tree mortality and small openings would be created in the overstory.

Human activity levels across the Island Unit are very high and include a ski resort, private residences, snowmobile use, hunting, camping, OHV use, other recreational activities, mining claims, and special use permits. This level of activity is unlikely to decrease. Alternative A would not contribute significantly to cumulative effects.

Alternative B (Proposed Action) and Alternative C
Direct and Indirect Effects

Key components of wolf habitat are: (1) a sufficient, year-round prey base of ungulates and alternate prey, (2) suitable and somewhat secluded denning and rendezvous sites, and (3) security; sufficient space with minimal exposure to humans (USFWS 1987).

Prey Base

White-tailed deer make up the greatest proportion of the wolf diet in northwestern Montana, followed by elk and moose (Kunkel 1997). Mule deer and smaller mammals or birds may also be preyed upon opportunistically throughout the year.

The Island Unit has historically provided spring, summer, fall, and winter range for white-tailed deer, moose, and elk. White-tailed deer have probably always been the most numerous of the big game species occurring in the Porter Mount Project Area. White-tailed deer sightings are common in the Island Unit. Forest-wide population trends for ungulates are thought to be stable (Project File Exhibit F-1).

Approximately 357 acres, or 23 percent of the proposed treatment acres, are located in areas that have been mapped in the Forest Plan as white-tailed deer winter range (See Chapter 3 - Wildlife -

Management Indicator Species; Commonly Hunted Big Game). Forest Plan standards for winter range would be adhered to; a minimum of at least 50 percent thermal cover would be maintained across the winter range. Although treatments and associated human activity may alter white-tailed deer use patterns as they adjust their behavior to avoid human presence or disturbance in the short-term, an adequate prey base for wolves would be maintained in the Porter Mount Project Area.

The proposed prescribed burn may benefit the gray wolf by improving foraging habitat for ungulates.

Key Habitat Areas (denning sites, rendezvous areas, and whelping sites)

There are no known or historical den sites, rendezvous areas, or whelping sites in the project area. There would be no direct or indirect effect on wolf security from disturbance to these key habitat areas.

Security/ Mortality Risk

Some displacement of wolves may occur as a result of implementing the proposed activities. In addition to the actual logging activity (vegetative treatments), approximately 4.7 miles of temporary road would be needed to access units. All temporary roads would be reclaimed and public use of temporary roads would be prohibited.

Because wolves are fairly adaptable animals, the expected increase in activity level within the project area would only result in temporary displacement of wolves from habitats that they might otherwise use for hunting. Wolves occupying the project area would likely move to adjacent areas further from human development and disturbance. The mortality risk for the gray wolf, as a result of implementing the Porter Mount Project, would not be significantly increased. Any increased chance for an encounter between wolves and humans as a result of the Porter Mount Management Project would present a low risk of mortality for the wolf since the encounter would center around land management activities and not livestock depredation or other high risk activities commonly associated with wolf mortality.

Alternative B (Proposed Action) and Alternative C Cumulative Effects

The Cumulative Effects Worksheet for gray wolf (Project File Exhibit F-2), considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect the wolf or wolf habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to the wolf or wolf habitat have not been included in this section.

Activities in the Porter Mount area that are most likely to cumulatively affect the gray wolf or wolf habitat include vegetation management that affects wolf prey (e.g. white-tailed deer), and an overall high level of human activity due to the proximity of this area to a large population center. As described in the Big Game Management Indicator Species (MIS) portion of this document, proposed actions under Alternative B or Alternative C may temporarily change ungulate use patterns, but it is unlikely that ungulate populations would decrease or increase as a result of the proposed Porter Mount Project.

The high level of human activity in the Porter Mount and Island Unit area, including yearlong residences and the presence of livestock, hunting, and ORV use, is unlikely to decrease and increases the chance for a human / wolf encounter. Wolves that live in close proximity to humans have a higher potential of being killed due to conflicts with livestock, and the resultant agency control of problem wolves, and due to illegal killing. Road closures for deer and elk security in the Island Unit, and within the Porter Mount Area, provide security for wolves as well.

The cumulative effect of past, present, and foreseeable activities, including the proposed activities in Alternatives B and C, would not result in significant impacts to the gray wolf population as a whole because proposed activities would maintain the existing wolf prey base, there are no livestock grazing concerns associated with this project, road closures in the Porter Creek and Mount Creek areas that have been implemented for big game security would be maintained, and there would be no increase in mortality risk for gray wolf as a result of implementation of the Porter Mount Project.

The gray wolf population in Montana has seen a steady increase since the late 1970's. The biological requirements for wolf recovery in the northern Rocky Mountains of Montana were met in December 2002 (Sime et. al. 2007). In response to the increasing population, the USFWS has proposed the gray wolf for delisting as a federally endangered species. For additional information on the status of the gray wolf on the Flathead National Forest, and the status at broader scales, reference the document Flathead National Forest Evaluation and Compliance with NFMA Requirements to Provide for Diversity of Animal Communities, April 2007, Appendix B.

Regulatory Framework and Consistency

The gray wolf is currently classified as Threatened in Montana and is protected under the ESA. Strategies to protect and recover populations in Montana are outlined in the Northern Rocky Mountain Wolf Recovery Plan (USFWS 1987). The Recovery Plan identifies three recovery areas:

1. Northwest Montana,
2. Central Idaho, and the
3. Greater Yellowstone Area.

The Porter Mount Project area lies within the Northwest Montana Recovery Area.

The biological requirements for wolf recovery in the northern Rocky Mountains of Montana, Idaho, and Wyoming were met in December 2002. Before the USFWS can propose to de-list gray wolves, Federal managers must be confident that a secure, viable population of gray wolves will persist if protections of the ESA were removed. To provide that assurance, the states of Montana, Idaho, and Wyoming developed wolf conservation and management plans and adopted other regulatory mechanisms in state law. In late 2003, Montana, Idaho, and Wyoming submitted wolf management plans to USFWS for review. The USFWS approved the Montana and Idaho management plans. Wyoming's plan was not approved. Since that time (2004 to 2006), the USFWS, and the states of Montana and Idaho, have been waiting on a proposed delisting of the gray wolf until Wyoming has an approved management plan. A cooperative agreement between the MDFW&P and the USFWS allows Montana to implement its approved state plan to the extent possible within the guidelines of Federal regulations.

Forest-wide management direction for gray wolf is included in the Forest Plan, including Amendments 8, 11, 12, and 21. The Northern Rocky Mountain Wolf Recovery Plan (1987) was adopted as Forest Plan Appendix PP.

The alternatives comply with Section 9, ESA of 1973, as amended, the Montana Gray Wolf Conservation and Management Plan, Forest Plan, as amended, and all finalized recovery documents. A BA for Threatened and Endangered Wildlife Species was prepared. **The USFWS concurred with the "No Effect" determination.**

Old Growth Associated Species

Introduction

Old growth is defined in Amendment 21 of the Forest Plan as “a community of forest vegetation that has reached a late stage of plant succession.” The generic description is as follows:

- The age of the dominant cohort of trees is significantly older than the average time interval between natural disturbances (interval will vary depending upon forest cover type and habitat type);
- The dominant trees are approaching their average life expectancy on the site;
- Forest composition and structure are different from younger stands;
- Rates of change in composition and structure of the stand are slow relative to younger forests;
- There is a significant showing of decadence (wide range of defect and breakage in both live and dead trees).

In The Dictionary of Forestry (Helms 1998), old growth forests are described as having:

- Large trees for the species and site;
- Accumulations of large dead standing and fallen trees;
- Decay or breakage of tree tops, boles, or roots;
- Multiple canopy layers;
- A wide variation in tree size and spacing; and
- Canopy gaps and understory patchiness.

The characteristics of old growth forest described above provide habitat for many plant and animal species. For the purpose of this discussion, old growth associated species includes any wildlife species that use the various attributes of old growth forests for some or all of their ecological needs. These needs may include nesting, denning, security, or foraging habitat. For some species, closed canopy old growth provides snow capture and reduces snow depths, insulates the animals from cold winds, and provides protection from predators. More open canopies, or open understories, provide foraging opportunities for prey and predator species alike.

Stands across the analysis area were screened for old growth characteristics. The Western Montana Zone Old Growth Type Characteristics were used to classify old growth forests (Green et al. 1992 [updated 2005]). The Western Montana Zone definition uses certain criteria, including forest type, tree age and diameter, trees per acre, number and diameter of snags, amount of down woody, and tree canopy layer structure. Field surveys were conducted to verify old growth characteristics in mature stands.

Analysis Area

Spatial Bounds

Direct, indirect, and cumulative effects to old growth associated wildlife species are generally analyzed at the 5th/6th order watershed level. On the Island Unit geographic area, the 5th/6th watershed levels range from approximately 5,000 acres in the Patrick Cramer Area to 20,000 acres in the Mount and Emmons Creek drainage. For the old growth associated species effects analysis for

the Porter Mount Project, the Porter Mount Project Area (11,431 acres) was the area used for direct and indirect effects. This old growth analysis area is large enough to include the home ranges of old growth associated species, and is representative of the effects of fire, natural tree mortality, timber harvest, and road management across the landscape. At the same time, this analysis area is small enough to not obscure the effects of the alternatives. A multi-scale assessment was also conducted to address population diversity concerns.

Temporal Bounds

The length of time for effects analysis is approximately 5 years for the roads and fuel reduction portions of this project. This is based on the probable contract length for the proposed project, the timeframes for related activities, and the reasonably foreseeable actions identified. Ecosystem Burning proposed in this project may begin in 2008 and be completed by 2019, depending on the availability of burning windows, funding, and equipment needed to achieve the desired results. When conditions are favorable, the actual burning would only take a day or less for each project, but this time frame provides a conservative margin for all these elements to come together.

Affected Environment

Historic Condition

Historically, the amount of old growth in a watershed was highly variable by forest type and elevation. The highest proportion of old growth was probably in the ponderosa pine and western redcedar cover types, with very little in lodgepole pine. In the past, old growth was most likely to develop in the valley bottoms and along streams, where less intense fires occurred. On slopes where more frequent stand-replacing fires occurred, large blocks of old growth were not as abundant. Because severe, stand-replacing fires burn at irregular intervals, in response to weather patterns and fuels accumulations, significant variation in the amount of old growth in a local area could be expected over time. Based on various information sources, the amount of old growth on the Flathead National Forest historically would have been on the order of 15 to 60 percent (USDA 1999). Generally, across the Flathead National Forest, and the entire Columbia River Basin, there was, historically, a higher percentage of old forest across the landscape than there is currently.

For more information on old growth habitat conditions across the Flathead National Forest and on the Island Unit portion of the Swan Lake Ranger District, see the Final Environmental Impact Statement for Forest Plan Amendment 21 (USDA 1999) and the Island Unit Ecosystem Analysis at the Watershed Scale (Project File Exhibit Q-4).

Existing Condition

Over the last 100 years, old forests in the Interior Columbia Basin have declined by 27 to 60 percent and large residual trees and snags have decreased by 20 percent (Quigley et al. 1996). These changes have contributed to declining habitat conditions for numerous species of wildlife associated with old growth forests. This decrease in old growth forest has occurred within all sub-basins of the Flathead National Forest (Forest Plan Amendment 21). Based on a broad Regional review using Forest Inventory and Analysis (FIA) data, approximately 10.1 percent of the Flathead National Forest is old growth forest, with the range of old growth in $5^{th}/6^{th}$ order watersheds being from 8.2 to 12.0 percent (USDA 2006). During the Island Unit Ecosystem Analysis at the Watershed Scale (EAWS), old growth was estimated across the Island Unit; the analysis suggested that approximately 10.4 percent (6 to 17 percent) of the area was older forest habitat (Project File Exhibit Q-4).

Although there are no detailed records that compare exact changes in old forest across the Island Unit, the overall trend findings are consistent between various analyses (Freedman and Habeck 1985, Hart 1994, USFS 1994). Older forest stands in the Island Unit are more fragmented now than

historically. There are more patches of smaller size. This translates into smaller blocks of older forest that are not as “secure” as larger blocks of old growth with more interior area. This is probably due to the different effects of natural disturbances (e.g., fire, windstorms, disease) versus the effects of timber management (logging and road construction).

In the Porter Mount Project Area, approximately 14 percent of the capable area is old growth forest. This analysis area does not include adjacent private lands. Patch size of old growth forest is an important characteristic in its function as habitat. As mentioned previously, one of the changes from historical conditions is the fragmentation, or disruption of continuity, of old growth forest patches that are presently available across the Island Unit. Old growth associated wildlife species use other habitats as well, but rely on old growth for at least a portion of their habitat needs. Many of these species are sensitive to fragmentation. In the Porter Mount Project Area, the average patch size (uninterrupted continuity) of old growth is 66 acres. There are approximately 23 “patches,” ranging from 10 acres to 317 acres. Any old growth stand that was isolated and less than 10 acres was not included as a “patch.” These stands did, however, contribute to the total 14 percent old growth in the Porter Mount Area. Refer to Map 3-6 for a display of existing old growth stands in the Porter Mount Project Area.

Environmental Consequences

Alternative A - No Action
Direct and Indirect Effects

There would be no forest health, fuel reduction treatment, or associated activities, proposed with this alternative. There would be no direct effects to old growth habitats on NFS lands or to old growth associated wildlife species using these lands. This alternative would sustain habitat for old growth associated species, at least over the short-term. Fire suppression efforts would likely maintain existing old growth structure.

It is possible that an indirect effect of Alternative A would be an increased likelihood of the loss of mature and old growth forest, should a wildfire occur. The level of effects would depend on the size and intensity of the wildfire.

Alternative A - No Action
Cumulative Effects

Alternative A would contribute to cumulative effects to the degree that it does not alter current and ongoing increases in fuel buildup and ladder fuels in stands immediately adjacent to old growth stands. The specific cumulative effects of Alternative A as it relates to possible wildfire are not possible to predict, however, as they would depend on the actual location, intensity, moisture, and weather conditions associated with a presently unknown future fire event. Natural vegetative processes would continue on NFS lands throughout the Porter Mount Area. Future structural changes within old growth stands could result in a decrease in the amount of old growth available to wildlife, at least until recruitment occurs naturally from other mature forest stands and from younger stands. Cumulative affects from existing, and possible future, changes in land ownership are reflected in the old growth analysis. Old growth on private lands is not assumed to contribute to present or future old growth in the analysis area. On private lands it is assumed, for cumulative effects purposes, that old growth does not exist.

Alternative B (Proposed Action)
Direct and Indirect Effects

Under Alternative B, there would be no direct effects to old growth forest stands from treatment in old growth. There is no forest health or fuels reduction treatments proposed in old growth forest stands.

Treatments adjacent to existing old growth stands can affect the integrity of the stand and its potential for providing quality habitat for old growth associated species. New "edge" is created when stands adjacent to old growth habitat are converted from a late or mid-seral structural stage to an early seral structural stage. The creation of edge adjacent to old growth forest has two negative effects on old growth: 1) It directly affects the adjacent old growth stand or old growth block by reducing the interior integrity of the stand or block, and 2) it narrows or eventually severs the connection between different old growth patches. In Alternative B, new edge would be created adjacent to existing old growth stands where Seed Tree and Clearcut with Reserve Tree treatments are proposed adjacent to old growth forest. In Alternative B, high-contrast edge would be created adjacent to ten old growth patches for a total edge distance of approximately 3.6 miles (approximately 19,000 feet). Table 3-35 below displays the edge effects resulting from Seed Tree and Clearcut with Reserve Tree treatments proposed in Alternative B.

TABLE 3-35
ALTERNATIVE B HIGH CONTRACT EDGE EFFECTS

Old Growth Patch	Proposed Unit Adjacent	Edge Effect	Comments
79 acre patch	Unit 14 (Seed Tree) Unit 3 (Seed Tree)	0.32 miles 0.6 miles	The patch is linear in shape. The creation of edge along the long, narrow portion of the patch would create a narrower interior habitat.
38 acre patch	Unit 3 (Seed Tree)	0.24 miles	
36 acre patch	Unit 3 (Seed Tree) Unit 12(Seed Tree)	0.24 miles 0.16 miles	
10 acre patch	Unit 10 (Clearcut)	0.28 miles	This is a small "patch," actually a single old growth stand. The creation of high-contrast edge adjacent to a small patch may compromise the overall integrity of the old growth "patch."
39 acre patch	Unit 23 (Seed Tree) Unit 24 (Seed Tree)	0.4 miles 0.16 miles	
14 acre patch	Unit 20 (Clearcut)	0.28 miles	
117 acre patch	Unit 8 (Clearcut)	0.08 miles	
45 acre patch	Unit 28 (Clearcut)	0.32 miles	
37 acre patch	Unit 40 (Seed Tree)	0.04 miles	
317 acre patch	Unit 42 (Clearcut)	0.48 miles	This is the largest patch in the Porter Mount Area. The proposed Clearcut would create high-contrast edge along a narrow riparian portion of the old growth patch.

Other proposed treatments adjacent to existing old growth stands (e.g., commercial thinning, salvage, sanitation, non-commercial thinning from below) would not create high-contrast edge. In the salvage units and the proposed commercial thinning units, 40 to 60 percent canopy closure would remain. All

dominant and most co-dominant crown classes would be retained. These stands would continue to provide mature forest habitat conditions after treatment and could potentially provide old growth habitat for associated species in the future.

Mature forest stands where regeneration harvest is proposed (e.g., Seed Tree or Clearcut with Reserve Tree treatments) would not be considered recruitment for old growth habitat for approximately 200 years. In Alternative B, there are 410 acres of proposed Seed Tree harvest and 323 acres of proposed Clearcut with Reserve Tree harvest.

There is no proposed temporary road construction in or adjacent to old growth forest.

Alternative B includes a proposed Ecosystem Burn (Unit 1). Below the proposed burn is an existing road. On the other side of the road (across the road from the proposed burn) is an 83 acre patch of old growth. The potential for unplanned fire in the old growth patch is very low, due to the proposed burn prescription and the existing fire break (road).

Alternative B (Proposed Action)
Cumulative Effects

The Cumulative Effects Worksheet for old growth associated wildlife species (Project File Exhibit F-3) considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect old growth habitat or associated species. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to old growth or old growth associated wildlife species have not been included in this section.

Activities in the Porter Mount Area that are most likely to cumulatively affect old growth associated species include vegetation management on public, private, and state lands, road construction associated with management activities, recreational activities like firewood cutting, and an overall high level of human activity due to the proximity of this area to a large population center.

The cumulative effect of vegetation management across the many different land ownerships, as well as the conversion of forest lands to private residences and to agriculture/range lands, has been a decrease in mature forest stands and consequently a decrease in potential habitat for old growth associated species. The mature and old growth forest that remains across the Porter Mount Area and the Island Unit as a whole exists in smaller blocks of habitat and is more broken up and fragmented. It is likely that habitat quality for some old growth associated species has declined.

The high level of human activity in the Porter Mount Area, including yearlong residences and conversion of forest land, is unlikely to decrease and contributes to a decrease in old growth habitat connectivity, affecting the abundance and distribution of old growth associated wildlife species across the landscape. The removal of large snags for firewood has decreased habitat for old growth associated species that utilize snag or down woody habitat.

Vegetative treatments proposed under Alternative B have the potential to be beneficial or detrimental to old growth associated species, as described above under the direct and indirect effects discussion for Alternative B. The cumulative effects of the proposed activities in Alternative B combined with the effects of past, present, and foreseeable activities, is not expected to result in significant impacts to old growth associated wildlife species on a whole because there is no proposed treatment in existing old growth forest, proposed treatments other than Seed Tree and Clearcut with Reserve Tree, in non-old growth forest stands, are designed to increase the amount of old growth forest over the long-term, and because Alternative B would reduce the risk of stand replacement fire in the stands treated and in adjacent stands as it would alter current and ongoing increases in fuel buildup.

Alternative C
Direct and Indirect Effects

There is no forest health or fuels reduction treatments proposed in old growth forest stands under Alternative C. In Alternative C, new edge would be created adjacent to existing old growth stands where Seed Tree harvest and Clearcut with Reserve Tree treatments are proposed adjacent to old growth forest. In Alternative C, high-contrast edge would be created adjacent to 10 old growth patches for a total edge distance of approximately 2.96 miles (approximately 15,600 feet). Table 3-36 below displays the edge effects resulting from Seed Tree and Clearcut with Reserve Tree treatments proposed in Alternative C.

TABLE 3-36
ALTERNATIVE C HIGH CONTRACT EDGE EFFECTS

Old Growth Patch	Proposed Unit	Edge Effect	Comments
79 acre patch	Unit 14 (Seed Tree) Unit 3 (Seed Tree)	0.32 miles 0.4 miles	Less high contrast edge along narrow portion than in Alt. B.
38 acre patch	Unit 3 (Seed Tree)	0.04 miles	Less high contrast edge than in Alt. B.
36 acre patch	Unit 12(Seed Tree)	0.16 miles	Less high contrast edge than in Alt. B.
10 acre patch	Unit 10 (Clearcut)	0.28 miles	This is a small “patch,” actually a single old growth stand. The creation of high-contrast edge adjacent to a small patch may compromise the overall integrity of the old growth “patch”.
39 acre patch	Unit 23 (Seed Tree) Unit 24 (Seed Tree)	0.4 miles 0.16 miles	
14 acre patch	Unit 20 (Clearcut)	0.28 miles	
117 acre patch	Unit 8 (Clearcut)	0.08 miles	
45 acre patch	Unit 28 (Clearcut)	0.32 miles	
37 acre patch	Unit 40 (Seed Tree)	0.04 miles	
317 acre patch	Unit 42 (Clearcut)	0.48 miles	This is the largest patch in the Porter Mount Area. The proposed clearcut would create high-contrast edge along a narrow riparian portion of the old growth patch.

Other proposed treatments adjacent to existing old growth stands (e.g., commercial thinning, salvage, sanitation, non-commercial thinning from below) would not create high-contrast edge. In the salvage units and the proposed commercial thinning units, 40 to 60 percent canopy closure would remain. All dominant and most co-dominant crown classes would be retained. These stands would continue to provide mature forest habitat conditions after treatment and could potentially provide old growth habitat for associated species in the future.

Mature forest stands where regeneration harvest is proposed (e.g., seed tree or clearcut with reserve tree treatments) would not be considered recruitment for old growth habitat for approximately 200 years. In Alternative C, there is 107 acres less of regeneration harvest (349 acres of proposed Seed Tree harvest and 277 acres of proposed Clearcut with Reserves Trees).

There is no proposed temporary road construction in or adjacent to old growth forest under Alternative C.

Alternative C includes a proposed Ecosystem Burn (Unit 1). Below the proposed burn is an existing road. On the other side of the road (across the road from the proposed burn) is an 83 acre patch of old growth. The potential for unplanned fire in the old growth patch is very low, due to the proposed burn prescription and the natural fire break (road).

Alternative C
Cumulative Effects

As described above in the cumulative effects discussion for Alternative B, activities in the Porter Mount Area that are most likely to cumulatively affect old growth associated species include vegetation management, road construction associated with management activities, recreational activities like firewood cutting, and an overall high level of human activity due to the proximity of this area to a large population center.

The cumulative effect of vegetation management across the many different land ownerships, as well as the conversion of forest lands to private residences and to agriculture/range lands, has been a decrease in mature forest stands and consequently a decrease in potential habitat for old growth associated species. The mature and old growth forest that remains across the Porter Mount area exists in smaller blocks of habitat and is more broken up and fragmented. It is likely that habitat quality for some old growth associated species has declined.

The high level of human activity in the Porter Mount Area, including yearlong residences and conversion of forest land, is unlikely to decrease and contributes to a decrease in old growth habitat connectivity, affecting the abundance and distribution of old growth associated wildlife species across the landscape. The removal of large snags for firewood has decreased habitat for old growth associated species that utilize snag or down woody habitat.

The cumulative effects of the proposed activities in Alternative C combined with the effects of past, present, and foreseeable activities, is not expected to result in significant impacts to old growth associated wildlife species on a whole because there is no proposed treatment in existing old growth forest, proposed treatments other than Seed Tree and Clearcut with Reserve Tree, in non-old growth forest stands, are designed to increase the amount of old growth forest over the long-term, and because Alternative C would reduce the risk of stand replacement fire in the stands treated and in adjacent stands as it would alter current and ongoing increases in fuel buildup.

Regulatory Framework and Consistency

The NFMA requires that the Forest Service “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives.”

Amendment 21 to the Forest Plan was signed in January 1999. It has a goal to:

> *“maintain and recruit old growth forests to an amount and distribution that is within the 75 percent range around the median of the historical range of variability. Where current conditions are below this amount, actively manage to recruit additional old growth.”*

Amendment 21 further states that management actions within old growth stands should be limited to those actions that “maintain or restore old growth composition and structure consistent with native disturbance and succession regimes, or reduce risks to sustaining old growth composition and structure.” Implementation of all alternatives would comply with the standards contained in the Forest Plan relative to old growth.

Sensitive Wildlife Species

Introduction

Sensitive wildlife species are those species that may show evidence of a current or predicted downward trend in population numbers or in habitat suitability that could substantially reduce species distribution. The Regional Forester has identified 13 wildlife species as sensitive, including the de-listed peregrine falcon and recently de-listed bald eagle.

The Biological Evaluation (BE) for Sensitive Wildlife Species has been incorporated into the text of this document, with a separate signature page and summary document in the Project File (Exhibit F-6). The common loon, harlequin duck, northern bog lemming, northern leopard frog, peregrine falcon, and wolverine are sensitive wildlife species that are not expected to be found within the Porter Mount Project Area, will not be affected by this project, and will not be discussed further in this report.

Analysis Area

Spatial Bounds

The Porter Mount Project Area, approximately 11,431 acres, was the area considered for the evaluation of direct and indirect effects on sensitive wildlife species. This project area is large enough to include the home ranges of several individuals or pairs of a species, and is representative of the effects of fire, natural tree mortality, timber harvest, road management, and other potential effects, across the landscape. The actions proposed that could directly or indirectly affect sensitive species are contained within this area. The larger Island Unit Geographic Area was considered in the cumulative effects analysis and a multi-scale assessment was conducted to address population viability concerns.

Temporal Bounds

The length of time for effects analysis is approximately 5 years for the roads and fuel reduction portions of this project. This is based on the probable contract length for the proposed project, the timeframes for related activities, and the reasonably foreseeable actions identified. Ecosystem Burning proposed in this project may begin in 2008 and be completed by 2019, depending on the availability of burning windows, funding, and equipment needed to achieve the desired results. When conditions are favorable, the actual burning would only take a day or less for each project, but this time frame provides a conservative margin for all these elements to come together.

BALD EAGLE

Affected Environment

Historical Condition

Bald eagles are associated with large bodies of water or major river drainages. In Montana, bald eagles nest in stands containing large trees [>30 inches diameter at breast height (DBH)] with uneven canopy structure and in direct line of sight of a large river or lake generally less than one mile away (Montana Bald Eagle Working Group, 1991). The only potential nesting sites, historically or currently, in the vicinity of the Island Unit, are Flathead Lake, Lake Mary Ronan, Rogers Lake, and perhaps Smith Lake. These large bodies of water probably provided, historically, many potential nesting sites

for bald eagles along the lakeshores. The surrounding forests in what is now known as the Island Unit Geographic Area would not have provided quality nesting habitat historically due to the greater distance from water.

Bald eagles are opportunistic feeders, preying on fish, waterfowl, and small mammals; stealing food from other predators; and scavenging carrion. It can be assumed that the lands surrounding the larger bodies of water, including the Island Unit Geographic Area, provided ample forage opportunities for bald eagles.

Existing Condition

Potential nesting habitat on the Island Unit is limited due to the distances to major bodies of water. Bald eagles have been known to make nesting attempts on NFS land in the Island Unit; these attempts however have been unsuccessful. There are currently no known bald eagle nests on NFS lands in the Island Unit. This situation does not represent a change from historical conditions to current conditions. However, it should be noted that lakeshores in the vicinity that provided potential bald eagle nesting habitat in the past have been built up and experience high levels of human activity now. Bald eagle nesting habitat has decreased adjacent to the Island Unit.

Bald eagles are known to pass through the area, but there are no known concentrated feeding sites or roosting areas. Bald eagles use the adjacent Flathead River Valley for foraging and bald eagles are known to use the Flathead Valley as a migratory route.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

Alternative A would have no direct effect on bald eagle roosting, foraging, or nesting sites. There would be no indirect effects to bald eagle foraging or nesting sites. Indirectly, by not treating forest stands in the Porter Mount Area there would conceivably be an increased risk of a more intense wildfire occurring in the Porter Mount Area and an increased risk of the loss of potential roosting trees.

Activities that are most likely to cumulatively affect bald eagles or bald eagle habitat include lakeshore recreation activities, vegetation management that removes large live trees or snags, and the occurrence of environmental poisoning in the bald eagle’s food chain (e.g. pesticides, lead, etc.). The overall effect to bald eagle nesting or foraging habitat from activities on the Island Unit would be low since the Island Unit does not contain many nest sites or known primary use areas (areas within 0.25 to 0.50 mile of a nest site). Activities on adjacent private and State lands, along lakeshores where eagles nest, could effect bald eagle production. Alternative A would not contribute significantly to the cumulative effects of past, present, and reasonably foreseeable activities because there would be no disturbance of bald eagle foraging, roosting, or nesting habitat. Alternative A would have no effect on lakeshore habitats and does not present a mortality risk for bald eagle from environmental poisoning.

Alternative B (Proposed Action) and Alternative C Direct and Indirect Effects

Nesting Habitat

Bald Eagle Nest

There is a known nesting site approximately 0.5 miles away from proposed cutting Unit 15. The nest is located on State land, along the shoreline of Roger's Lake. There would be no direct effect to this bald eagle nesting site. There is the potential for indirectly affecting bald eagle production at the nest site if activities in or near Unit 15 inadvertently disturb the nesting bald eagles. In order to decrease the chance of disturbance at the nest site, high intensity activities would not occur during the nesting season. At this lake, those dates are typically February 1 to July 15.

Feeding/Roosting Habitat

There are no known concentrated feeding sites or roosting sites in the vicinity of the proposed project area. Typically, bald eagles select the larger, more dominant trees as individual roost trees. There is no proposed treatment in old growth habitat or riparian habitat under Alternative B or C. Old growth habitat areas have the greatest potential for providing high quality roost trees. Implementation of the proposed project would not significantly alter the number or availability of potential roost trees in the Porter Mount Area or the larger Island Unit Geographic Area. There would be no measurable direct or indirect effect to bald eagle roosting or feeding sites.

Mortality Risk

Possible mortality factors include hazardous structures such as power lines, collision with vehicles, disturbance during incubation and nesting periods, illegal killing, and use of certain pesticides that can cause reproductive failure. Implementation of the proposed project would not increase the risk of mortality. Log haul would be spread out over time and space and local highways that would be used for log haul already receive large amounts of traffic. There would be no significant increase in road kills as a result of project implementation.

Alternative B (Proposed Action) and Alternative C Cumulative Effects

The Cumulative Effects Worksheet for sensitive wildlife species (Project File Exhibit F-5) considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect these species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects have not been included in this section.

As described in Alternative A, the activities that are most likely to cumulatively affect bald eagles or bald eagle habitat include lakeshore recreation, vegetation management that removes large live trees or snags, and the occurrence of environmental poisoning in the bald eagle's food chain (e.g. pesticides, lead, etc.).

The overall effect to bald eagle nesting or foraging habitat from activities on the Island Unit would be low since the Island Unit does not contain many nest sites or known primary use areas (areas within 0.25 to 0.50 mile of a nest site). Activities on adjacent private and State lands, along lakeshores where eagles nest, could effect bald eagle production.

Alternatives B and C would not contribute significantly to the cumulative effects of past, present, and reasonably foreseeable activities for the following reasons: There would be no disturbance of bald eagle nesting habitat, the overall effect to bald eagle nesting habitat from other activities in the Porter Mount Area would be low since this area does not contain bald eagle nesting habitat, potential foraging habitat for bald eagles would still be available in the Porter Mount Area, across the Island Unit, and on adjacent private and State lands, Alternatives B and C would have no effect on lakeshore habitats, and Alternatives B and C do not present a mortality risk for bald eagles from environmental poisoning.

Determination

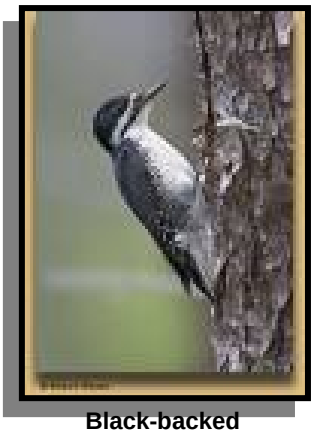
In accordance with FSM 2673.42, a determination has been made as to the degree of impact the activities proposed might have on sensitive species. Based on available information on the bald eagle's distribution, habitat requirements, and management strategies, as well as project design and location, the determination for Alternative A is "**no impact**" and the determination for either Alternative B or C is "**may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species."**

BLACK-BACKED WOODPECKER

Affected Environment

Historical Condition

Black-backed woodpeckers forage in areas with concentrations of dead or decaying trees and logs, often in recently burned forests. The trees in which they feed have frequently only been dead for 2 to 3 years, since these trees harbor the most insects. They use live or dead trees (usually 8 to 12 inches DBH) for nesting. Black-backed woodpecker populations have always been transitory. When an epidemic, windstorm, or fire occurred in the past, black-backed woodpeckers would move into that area. As time went on and the insect numbers decreased, the woodpeckers would move on to another area. There was probably more feeding habitat historically, prior to fire suppression activities.



Black-backed woodpecker

Existing Condition

Habitat for the black-backed woodpecker is abundant and well distributed across the Northern Region and by Forest (Samson 2005). In addition, habitat amounts are expected to increase as fires and insect outbreaks continue to increase in size and in a pattern distinctly different from that evident historically (Gallant 2003, Hessburg and Agee 2003 and others). No scientific evidence exists that the black-backed woodpecker population is decreasing in numbers (Samson 2005).

Black-backed woodpeckers are known to occur on the Island Unit, usually in low numbers. Mature and old growth forest stands in the Porter Mount Area provide potential habitat conditions for a low-density population. For additional information on the status of the black-backed woodpecker on the Flathead National Forest, and the status at broader scales, reference the document Flathead National Forest Evaluation and Compliance with NFMA Requirements to Provide for Diversity of Animal Communities (Project File Exhibit F-12).

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

Alternative A would maintain the existing situation. There would be no direct physical change to the landscape and no direct effect on black-backed woodpeckers. Indirectly, if a wildfire occurs in the future and spreads to become a large fire on the landscape, it would not be a negative circumstance for the black-backed woodpecker since this woodpecker responds positively to wildfire events. The probability of this condition occurring may be increased under Alternative A.

Timber harvest on NFS lands and on private and State lands in the Island Unit would continue, probably salvaging a portion of the potential feeder and nesting trees for black-backed woodpeckers. High levels of human activity would continue, with the potential for potential feeder/nesting trees to be taken out as firewood along open roads. Fire suppression efforts would continue, and to the extent that they are successful, black-backed woodpecker population levels would remain low. Since 2001, there have been a number of large wildfires on the Flathead NF and throughout western Montana. For the next 2 to 3 years, and possibly longer, black-backed woodpecker numbers on the Flathead NF should remain high. There would be no adverse cumulative effects with Alternative A.

Alternative B (Proposed Action)
Direct and Indirect Effects

Proposed timber management operations and associated human activity may temporarily displace individual black-backed woodpeckers foraging in the area. There would be no long-term impact from this kind of displacement because the birds would likely return as soon as the activity is completed.

Commercial and Non-Commercial Vegetative Treatments

With implementation of the Porter Mount Project, a direct effect to the black-backed woodpecker would be the reduction of potential feeder trees and nesting trees on 1,421 acres, in the Seed Tree, Clearcut with Reserve Trees, Commercial Thin, Sanitation, Sanitation with Pre-commercial Thin, and Salvage units. Design Criteria common to Alternatives B and C that would help to mitigate this impact is the requirement to retain snags and recruitment snags in sufficient numbers to meet the wildlife objectives of Amendment 21 of the Forest Plan, (See Design Criteria Table 2-13). Amendment 21 Design Criteria for tree and snag retention were created to insure that project areas would retain sufficient trees and snags to meet the basic habitat requirements of many species including the black-backed woodpecker. The proposed Non-commercial Thin From Below treatment would not have any measurable effect on the black-backed woodpecker because the stands being treated do not provide nesting or foraging habitat. Black-backed woodpeckers would not be expected to be occupying these stands.

There is no proposed treatment in old growth habitat under Alternative B or Alternative C. Old growth habitat has a higher potential for providing both nesting and feeding habitat for black-backed woodpeckers, so deferring treatment in these areas would help to mitigate potential effects to the black-backed woodpecker.

Temporary Roads

There is 4.74 miles of temporary road construction proposed under Alternative B. Other roads that are managed as closed roads would also be used for accessing units. An increase in public access increases the risk of losing high quality snags to firewood cutters. Public use of closed roads would

not be permitted and temporary roads would be reclaimed following use. Reclaiming roads following use should help reduce the risk of snag loss over the long-term.

Ecosystem Burning

The proposed ecosystem burn (128 acres) would likely create some snag habitat for black-backed woodpeckers. There would be no significant negative direct or indirect effects to the woodpecker as a result of the proposed burning.

Alternative C
Direct and Indirect Effects

Commercial and Non-Commercial Vegetative Treatments

In Alternative C, there would be the reduction of potential feeder trees and nesting trees on 1,329 acres; 92 acres less than in Alternative B. As described under Alternative B, snag and recruitment snags would be retained and there is no proposed treatment in old growth habitat under Alternative C.

Temporary Roads

In Alternative C, there is less proposed temporary road construction; 0.86 miles compared to 4.74 miles. As explained in Alternative B, reclaiming roads following use should help reduce the risk of snag loss over the long-term.

Ecosystem Burning

The proposed ecosystem burn (128 acres) would likely create some snag habitat for black-backed woodpeckers. There would be no significant negative direct or indirect effects to the woodpecker as a result of the proposed burning.

Alternative B (Proposed Action) and Alternative C
Cumulative Effects

The Cumulative Effects Worksheet for sensitive wildlife species (Project File Exhibit F-5), considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect sensitive species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to sensitive species or their habitat have not been included in this section.

Fire suppression has been the greatest factor limiting the distribution of potential black-backed woodpecker habitat. Prior to 2001, there were few wildfires of considerable size since 1926. Then, across the Flathead National Forest and most of western Montana, large acreages of black-backed woodpecker habitat were created by wildfires. Between 2001 and 2004, approximately 200,000 acres in over 70 fires burned on the Flathead National Forest, creating a substantial amount of black-backed woodpecker habitat. Less than 5 percent of this habitat was salvage harvested, leaving the vast majority of potential black-backed woodpecker habitat intact.

As discussed in Westerling et al. (2006), virtually all climate model projections indicate that warmer springs and summers will occur over the region in coming decades.

> *"These trends will reinforce the tendency toward early spring snowmelt and longer fire seasons. This will accentuate conditions favorable to the occurrence of large wildfires, amplifying the vulnerability the region has experienced since the mid-1980's."*

Furthermore, a recent state insect and disease condition report shows dramatic increases in acreages of tree mortality from 2002 to 2005 (USDA 2006).

Alternatives B and C would not contribute significantly to cumulative effects on black-backed woodpeckers or black-backed habitat in the Porter Mount Area or across the Island Unit because the amount of potential feeder or nesting trees removed is not significant on a landscape scale, and because the highest quality habitat, other than recently burned-over areas, are old growth habitats and there is no treatment proposed in old growth stands. In addition, the proposed prescribed burning is likely to increase potential black-backed woodpecker habitat on a very small scale. Adverse cumulative effects are not expected. There appears to be little risk of population loss and, as described in the Flathead National Forest Evaluation and Compliance with NFMA Requirements to Provide for Diversity of Animal Communities document (Project File Exhibit F-2), the Flathead National Forest should maintain a viable population of black-backed woodpeckers where the capability of the natural habitat permits.

Determination

In accordance with FSM 2673.42, a determination has been made as to the degree of impact the activities proposed might have on sensitive species. Based on available information on the black-backed woodpecker's distribution, habitat requirements, and management strategies, as well as project design and location, the determination for Alternative A is "**no impact**" and the determination for either Alternative B or C is "**may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species."**

FISHER

Affected Environment

Historical Condition

Fishers are large, weasel-like predators that occupy a variety of upland and lowland forests, with an affinity for forested riparian habitats. Fishers have been found to prefer to rest in stands that exceed 60 percent canopy cover, and avoid stands with less than 40 percent canopy cover (Jones 1991). The highest quality fisher habitat is dense (60 to 80+ percent cover) coniferous and mixed coniferous/deciduous forest with an available water source (Ruggerio et. al. 1994). They very rarely stray far from streams (within 100 meters) or other wet sites (Powell and Zielinski 1994). Fishers need good snow interception in the winter months (Allen 1983). Sites used by the fisher for shelter or sleeping include hollow logs, tree cavities, brush piles, and used burrows and/or dens. In a study done in Idaho, the average diameter of trees used by fisher as resting sites was 22 inches (Jones 1991). Maternity dens tend to be hollow cavities high in trees. The fisher preys on small mammals (snowshoe hare, grouse, voles, squirrels, and mice) and carrion.

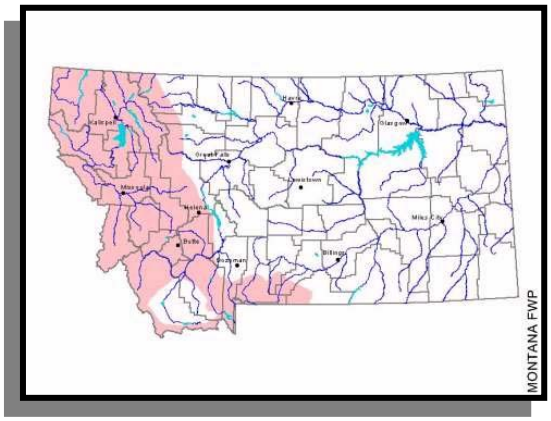
Fisher

In the Northern Rockies, fishers have existed under a disturbance regime that has created numerous openings in a matrix of mature forested habitats. The denser, coniferous stands near water, which are preferred by fisher, would have experienced longer intervals between fires than drier, more open forest

lands. The increased pulse of large logs on the ground that would have followed a fire or insect event would have been beneficial.

During the late 19th and early 20th century, trapping, logging, and the conversion of forested areas to agricultural lands contributed to the fisher being extirpated from much of its range in the United States and eastern Canada. The fisher appeared to be eliminated from Montana at one time, as there were no trapping records in Montana from 1920 to1960. Within Montana and Idaho, over a million acres of mature coniferous forest burned in the early part of the 20th century. This may have played a role in the decline of fisher populations.

Historically, the Island Unit may have provided higher quality habitat for fisher in the form of larger, less fragmented blocks of dense forest cover.



Fisher Distribution in Montana

Existing Condition

Fisher are common in the Northeastern and Midwestern portions of the United States, but rarer in the West. Restrictions on harvesting and re-introduction programs in the late 1950's have contributed to population recovery in portions of the fisher's historic range. In the Rocky Mountains, they occur in Idaho, Wyoming, and Montana. Since 1968, fisher occurrence has been verified in the Flathead, Mission, Swan, and Whitefish Ranges (Vinkey 2003). Across the Island Unit, older forest patch sizes have decreased over time, and there are more patches per unit area. In other words, the current landscape has a higher density of patches than historically; there are more patches of smaller size, closer together. This is probably due to the difference of effects between fire and other natural disturbances versus the effects of timber management.

There are no documented observations of fisher in the Island Unit, although there appears to be potential habitat in the area.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

The Porter Mount Management Project would not be implemented under this alternative. There would be no effect to canopy cover on NFS lands in the Porter Mount Area, and any existing or potential den sites would be maintained. Human activity and associated disturbance would be less under this alternative.

Under Alternative A, there may be an increased potential for more intense fires in the project area than would have occurred under more historic fire and fuel loading conditions. Though precise impacts of such fires is dependent on location and many other conditions, to the degree that such fires were stand replacing, they would tend to reduce the amount of fisher habitat available.

Alternative B (Proposed Action)
Direct and Indirect Effects

Commercial and Non-Commercial Vegetative Treatments

A potential direct effect to fisher as a result of implementing Alternative B would be the reduction of canopy cover in stands where Seed Tree cutting, Clearcut with Reserve Trees, Commercial Thinning, Sanitation, Sanitation with Pre-Commercial Thinning, and Salvage harvest are proposed. Following treatment, if these stands initially provided potential denning or resting habitat for fisher, they would no longer do so. This means that there would be a decrease in the amount of available fisher denning or resting habitat. Fisher would still be able to use the stands proposed for Commercial Thinning, Sanitation, Sanitation with Pre-Commercial Thinning and Salvage harvest (688 acres) for travel and probably for foraging, but they would not be as high quality as stands with denser canopy cover. The stands where Seed Tree and Clearcut with Reserve Tree treatments are proposed (733 acres) would be unsuitable fisher habitat (unsuitable for denning, resting, foraging or travel) following proposed treatment. If fisher presently occupy these stands they would be displaced long-term, until the stands grow into mature forest again. In the Non-Commercial Thin From Below treatment areas the affects would be minimal; these stands presently provide only marginal potential fisher habitat and would still provide travel cover following treatment.

As described previously, snag and down woody material are important components of fisher habitat. Hollow logs, tree cavities, and brush piles are frequently used for maternity dens and resting areas. In each of the commercial treatment units, there would be a reduction in snags and down woody material as a result of harvesting operations.

A number of Design Criteria listed in Table 2-13 would be implemented to maintain snag and down woody habitat.

It should be noted that the greatest potential for fisher habitat in the Porter Mount Area is in old growth and riparian stands. Old growth habitats and riparian habitats are very important to fisher. These habitats frequently have denser canopy cover and abundant large live trees, snags, and down woody material for shelter, sleeping, and denning. There would be no vegetative treatment in old growth or riparian habitats under Alternative B.

Temporary Roads

There are 4.74 miles of temporary road proposed under Alternative B. Possible effects from temporary road construction include the loss of overstory cover along the temporary road corridor and a potential increase in public access which may increase the risk of snag loss (firewood cutting). Under Alternative B public use of temporary roads would not be permitted, reducing the risk of losing high quality snags (denning/resting habitat) to firewood cutters. Temporary roads would be reclaimed once harvest activities are completed. There would still be a long term loss of overstory canopy along the temporary road corridor.

Ecosystem Burning

Ecosystem Burning has been proposed on 128 acres of dry, open grown forest. There is no Ecosystem Burning proposed in riparian areas or old growth habitats. The prescribed fire area is less likely habitat for fisher. Effects from burning would be minimal and the potential for displacing fisher would be low.

Alternative C
Direct and Indirect Effects

Commercial and Non-Commercial Vegetative Treatments

As in Alternative B, under Alternative C, a potential direct effect to fisher would be the reduction of canopy cover which would reduce the quality and abundance of potential fisher habitat. The overall effects from canopy reduction would be less in Alternative C than in Alternative B due to the difference in the amount of regeneration harvest (Clearcut/Seed Tree) between the alternatives. Following treatment, if treated stands provided potential denning or resting habitat for fisher, they would no longer do so. There are 703 acres of Commercial Thinning, Sanitation, Sanitation with Pre-Commercial Thinning, and Salvage harvest proposed in Alternative C. In these treatment areas, fisher would still be able to use the stands for travel and probably for foraging, but they would not be as high quality as stands with denser canopy cover. Under Alternative C, there are also 626 acres of Clearcut with Reserve Trees and Seed Tree treatments proposed. The Clearcut and Seed Tree Units would be unsuitable fisher habitat (unsuitable for denning, resting, foraging or travel) following proposed treatment. In the Non-Commercial Thin From Below treatment areas the affects would be minimal, as described above.

Snag and down woody material are important components of fisher habitat. In each of the commercial treatment units there would be a reduction in snags and down woody material as a result of harvesting operations. The snag and down woody standards for retention would be the same as those described above under Alternative B and would help to mitigate the potential loss of snag / down woody habitat characteristics.

There would be no vegetative treatment in old growth or riparian habitats under Alternative C.

Temporary Road

There are only 0.86 miles of proposed temporary road construction under Alternative C as compared to 4.74 miles of temporary road proposed under Alternative B. Possible effects from temporary road construction include the loss of overstory cover along the temporary road corridor and a potential increase in public access which may increase the risk of snag loss (firewood cutting).

Ecosystem Burning

As in Alternative B, under Alternative C there is no Ecosystem Burning proposed in riparian areas or old growth habitats. The prescribed fire area is less likely habitat for fisher and the risk of negative effects is minimal.

Alternative B (Proposed Action) and Alternative C
Cumulative Effects

The Cumulative Effects Worksheet for sensitive wildlife species (Project File Exhibit F-5) considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect sensitive species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to sensitive species or their habitat have not been included in this section.

The current landscape is fragmented, with older forest and riparian blocks of habitat existing as small patches of habitat across the landscape. Forest cover has been reduced in many places by timber management, road construction, residential development, and agricultural conversion of forested land. Open roads across the Island Unit increase the risk of mortality from trapping. In addition, high human use levels may displace fisher from potential habitat or remove important components like

down woody or snags (firewood cutting). Grazing (cattle) has had a negative impact on several riparian areas. These effects would be cumulative to the direct and indirect effects described above.

Hillis and Lockman (2003) mapped fisher habitat in Region One, where fishers are generally limited to west of the Continental Divide. Fisher habitat was defined as low-to-mid elevation, mesic, mature and old forests, within 100 meters of streams. To address patch size and habitat connectivity relevant for fishers, they excluded any patch of habitat that was less than 160 acres and more than 600 feet from the nearest patch of adjacent cover (Jones 1991, Ruggiero et al. 1994). That habitat was compared against levels of habitat that would have been available in pre-fire suppression/pre-logging periods, (HRV – Historic Range of Variability) as displayed in the following table.

TABLE 3-37
PERCENTAGES OF EXISTING MATURE AND OLD FOREST FISHER HABITAT AND DEPARTURE FROM HRV AT THE FLATHEAD NATIONAL FOREST AND REGION ONE SCALES

	HRV *	Flathead NF (2004)	Region One
Mature and old forest habitat	38% - 64% **	71%	77.5%
Evidence of significant departure		None evident	None evident

* Losensky 1993

** Based on 1900 distribution of mature/old age classes in grand fir, red cedar, and Englemann spruce cover types.

This suggests that fisher habitat occurs at historically normal levels at both the Flathead National Forest and Region One scales. This should not be interpreted that management activities have not had adverse effects on fisher habitat. Rather, when fisher habitat was mapped, it clearly showed portions of Region One where timber harvest activities on both corporate and NFS lands had fragmented and reduced the acres of existing fisher habitat. Hillis and Lockman (2003), however, point out that even during the 1970's and 1980's, when timber harvest was intensive, riparian zones were generally avoided, which could explain why habitat loss and fragmentation were not greater. More recently, Samson (2006) showed that on the Forests and the Region as a whole, forested ecosystems are more extensive now than in historic times. Research on fisher is on-going. Multiple agencies and organizations, including the Forest Service, are currently conducting surveys to detect fisher in the Rocky Mountains.

Alternatives B and C would not contribute significantly to cumulative effects on fisher or fisher habitat in the Porter Mount area because proposed treatments are in stands that do not presently provide high quality fisher habitat and there is no treatment proposed in riparian habitats or in old growth habitats; retaining these important habitats for fisher would help to mitigate any negative impacts from implementation of the Porter Mount Management Project. Design Criteria listed in Table 2-13 for the retention of large snags and coarse woody debris would help to mitigate negative effects to fisher. Road closures for big game security have also benefited the fisher.

Determination

In accordance with FSM 2673.42, a determination has been made as to the degree of impact the activities proposed may have on sensitive species. Based on available information on the fisher's distribution, and on project design, Alternative A would have "**no impact**" on fisher. The action alternatives "**may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species."**

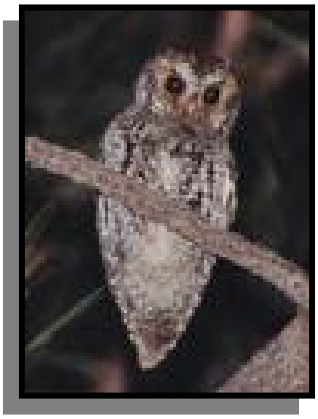
FLAMMULATED OWL

Affected Environment

Historical Condition

These small (6 to 7 inches) owls are found in older, more open, dry forests. The stands can be mixed conifer species, but there is usually a ponderosa pine component. The stands are typically open canopies (35 to 65 percent). Flammulated owl nests are generally located in mature to old growth stands, in live or dead trees from 12 to 25 inch DBH. The owl is a cavity nester, using either natural cavities or previously excavated woodpecker holes. The flammulated owl is insectivorous, and feeds in meadows or forests with an open understory in order to maneuver while catching moths, beetles, caterpillars, crickets, and other small insects.

Based on historical reference conditions, it is probable that mature, open grown, ponderosa pine stands were more abundant in the past than now. The ponderosa pine forest communities have probably experienced more disturbance than other forest communities due to the accessibility of the lower elevation dry forests and their dependence on relatively frequent, lower intensity fire to maintain their condition. Grazing, agricultural conversion, housing development, logging, and fire suppression are examples of human actions that have significantly affected ponderosa pine communities, and consequently flammulated owl habitat, throughout their range.



Flammulated owl

Existing Condition

Forest stands where ponderosa pine is the dominant species occur across a very small portion of the Island Unit, covering less than 10 percent of the total area. Stands with larger amounts of ponderosa pine are concentrated on the lower elevation slopes and limited to the drier south and west aspects.

Surveys for flammulated owl were conducted throughout the Island Unit (2005) in dry, mixed forest types with and without a ponderosa pine component. No flammulated owls were detected. It is unknown whether flammulated owls occur on the Island Unit.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

No commercial or non-commercial vegetative activities are proposed under Alternative A. Human activity and associated disturbance would be less under this alternative. As previously discussed, this alternative may increase the risk for a larger, more intensive wildfire in certain habitats in the Porter Mount Area. The effects this might have on the flammulated owl cannot be quantified, but they would probably not be significant due to the minimal amount of potential habitat in the Porter Mount Area and across the Island Unit as a whole.

Alternative B (Proposed Action) and Alternative C Direct and Indirect Effects

Commercial and Non-Commercial Vegetative Treatments

As described above, the Porter Mount Area, and the Island Unit as a whole, does not provide a large quantity of potential flammulated owl habitat; probably less than 10 percent of the total area. It is unknown if flammulated owls occur on the Island Unit. The forested stands where flammulated owls are most likely to occur would be open grown, large diameter, ponderosa pine forests (Holt et al, 1990) or old growth stands. Neither of these types of stands would be treated in either Alternative B or Alternative C.

Flammulated owls have been found to prefer forested stands with open canopies of 35 to 65 percent (McCallum et al. 1994). If stands that are proposed for Commercial Thin, Sanitation, or Salvage treatment presently provide unknown potential flammulated owl habitat, they would continue to provide habitat for flammulated owls following treatment because the prescribed treatments would retain greater than 50% canopy cover. In other words, even though flammulated owls may be disturbed during actual timber harvest activities, the stands would still provide adequate habitat after treatment and flammulated owls could return once the actual disturbance is past.

The proposed Clearcut with Reserve Trees and Seed Tree treatments would potentially decrease flammulated owl habitat across the Porter Mount Project Area. If the stands presently provide flammulated owl habitat, they would not continue to provide flammulated owl habitat following Clearcut or Seed Tree treatments.

The proposed Non-Commercial Thin-From-Below Units do not presently provide potential flammulated owl habitat. There would be no effect to flammulated owl as a result of proposed activities in these stands.

Temporary Roads

There is temporary road construction proposed in both Alternatives B and C. Temporary roads would be reclaimed once timber harvest activities are completed. Public use of temporary or closed roads would not be permitted, reducing the risk of losing high quality snags (nesting habitat) to firewood cutters.

Ecosystem Burning

There is no Ecosystem Burning proposed in old growth habitats or potential flammulated owl habitat. The potential for displacing flammulated owls as a result of Ecosystem Burning would be low.

Alternative B (Proposed Action) and Alternative C Cumulative Effects

The Cumulative Effects Worksheet for sensitive wildlife species (Project File Exhibit F-5) considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect sensitive species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to sensitive species or their habitat have not been included in this section.

Activities in the Porter Mount Area that would be most likely to cumulatively affect flammulated owl or flammulated owl habitat would be vegetation management on public, private, and state lands in potential flammulated owl habitat, recreational activities that affect habitat availability or use (e.g.

firewood cutting), and the overall high level of human activity in the area due to the proximity of a large population center.

As discussed above, the Porter Mount Area does not have many, if any, forest stands that would be considered typical flammulated owl habitat. Potential flammulated owl habitat is uncommon across the Island Unit. There is potential flammulated owl habitat on other ownership lands, and undoubtedly there has been a decrease in potential acreage on these other lands due to vegetation management and conversion of forest habitats. The proposed Porter Mount Project would not additionally decrease potential flammulated owl habitat because proposed treatments are not located in forest stands that provide typical high quality flammulated owl habitat.

Short-term viability of the flammulated owl in the Forest Service's Northern Region is not an issue (Samson 2005). There is no scientific evidence that the flammulated owl is decreasing in numbers and habitat estimates show that flammulated owl habitat is well distributed and abundant throughout the Region (Flathead National Forest Evaluation and Compliance with NFMA Requirements to Provide for Diversity of Animal Communities, November 2006). Survey work done in 2005 and 2006 detected flammulated owls on 9 out of the 12 forests around the Region. Native habitat on the Flathead National Forest is limited. Surveys on the Island Unit failed to detect flammulated owls. Potential habitat for flammulated owl exists elsewhere on the Forest and in the Region.

Determination

In accordance with FSM 2673.42, a determination has been made as to the degree of impact the activities proposed may have on sensitive species. Based on available information on the flammulated owl's distribution, presence/absence from the project area, habitat requirements, and project design and location, Alternative A would have "**no impact"** on flammulated owl. The action alternatives "**May impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species."**

NORTHERN GOSHAWK

Introduction

Northern goshawks nest in a variety of forest types throughout their range, with nest area vegetation described as mature forest with larger trees. The overstory canopy is usually a relatively closed canopy (50 to 90 percent), with a more open understory for foraging (Squires and Reynolds 1997, USFWS 1998, Samson 2005, Squires and Kennedy 2006, Beier and Drennan 1997). The average patch size of core nesting areas appears to be somewhat dependent on available habitat conditions; 30 acres recommended in the southwestern United States (Reynolds et al. 1992), 40 acres found by Clough (2000) in west central Montana, 148 acres found by McGrath et al. (2003) in Oregon and Washington, and approximately 80 acres found by Patla (1997) in Idaho. Live trees large enough to support a large platform nest are required. Hayward and Escano (1989) found that nest sites in northwest Montana were often located in older stands that support widely spaced large trees, and which had water and large forest openings within 0.3 miles of the nest.

Northern goshawk

Adjacent to the nest site, there is a post-fledging area (approximately 200 to 500 acres), which is, along with the nesting area, usually defended by an adult pair.

The post-fledging area (PFA) is defined as the area used by the family group from the time the young fledge until they are no longer dependent on the adults for food (Reynolds et al. 1992, Kenward et al. 1993). Although the exact purpose of the post-fledging area is unknown, it is thought to provide protection from predation and serve as an area where young birds can develop flying and hunting skills (Reynolds et al. 1992, Kennedy et al. 1994). The size, shape, and habitat composition of these areas varies with local conditions, but is generally in pole-sized or larger forests with closed (50 percent to greater than 70 percent) canopies.

Northern goshawk foraging areas are heterogeneous, with goshawks preying on a variety of medium-sized forest birds and mammals, and hunting forest edges and openings as well as forest cover.

Affected Environment

Historical Condition

Historically, the Island Unit may have provided more high quality potential nesting habitat for the goshawk. Mature forest stand conditions were not necessarily more abundant historically, but the pattern of older forest on the landscape was different. Wildfires periodically replaced mature forest, but burned in a mosaic pattern with larger patches of mature and older forest remaining across the landscape, interspersed with various successional stages. Periodic underburns would have occurred in some of the dry site forest stands, keeping the understories more open. Historically, the mosaic pattern of forest would have provided abundant fledging areas and forage habitat for the northern goshawk.

Existing Condition

Mature forest patch sizes on the Island Unit have decreased over time and there are more patches per unit area. In other words, the current landscape has a higher density of patches than historically. There are more patches of smaller size, closer together. This is probably due to the difference of effects between fire and other natural disturbances versus the effects of timber management, especially timber management in a mixed ownership environment. What this means for mature and old forest associated species, is that the “blocks” of mature forest are not as large and probably not as “secure” as in the past. Although there is potential nesting habitat for the northern goshawk on the Island Unit, the potential habitat is more fragmented than historically, with smaller patch sizes available for nesting habitat and a greater distance between blocks of potentially suitable nesting habitat. Forage habitat for the goshawk is not limiting in the Porter Mount Area or the Island Unit as a whole.

Based on the habitat characteristics described above for the northern goshawk, potential territory blocks were identified in the Porter Mount Project Area in order to help demonstrate potential effects to the northern goshawk. The blocks assume no overlap in home ranges, an average goshawk home range size of approximately 6,000 acres, and an even distribution across the landscape. The forest stands within the potential territory blocks were identified as potentially providing nesting, post-fledging, or forage habitat. Each territory block has several different “patches” that could function as a potential nesting and post-fledging area (PFA) site. Nesting habitat consists of mature forest stands with larger trees that have closed canopies (>50 percent) and make up a contiguous block of at least 40 acres. Post-fledging areas include pole-sized or larger forest stands with 50 percent or greater canopy cover. Potential nesting and post-fledging sites were only identified for NFS lands. Forage areas are heterogonous and include forest, forest edge, and openings. As described previously, forage habitat for the goshawk is not limiting in the Island Unit. Table 3-38 displays the amount of potential nesting and post-fledging habitat by territory block for the Porter Mount Project Area.

TABLE 3-38
POTENTIAL NESTING AND POST-FLEDGING HABITAT BY NORTHERN GOSHAWK TERRITORY BLOCK IN THE PORTER MOUNT PROJECT AREA

TERRITORY BLOCK	NESTING HABITAT	POST-FLEDGING HABITAT
Porter Creek	107 acres	392 acres
Mount Creek	86 acres	483 acres

Northern goshawks are known to occur in the Island Unit, and have been observed in the Porter Mount Project Area during the nesting season. There are no known or suspected nest sites in any of the proposed treatment units.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

No vegetative treatments would occur with Alternative A. There would be no direct or indirect effects on northern goshawk nesting, post-fledging, or forage habitat as a result of proposed activities under the No Action Alternative.

As discussed previously in other sections, current and future fuel loading and ladder fuel conditions in many stands would continue to be at levels higher than occurred historically. These conditions lead to an increased risk of more intense, potentially stand replacing fires than would have occurred under historic conditions with less fuel loading and ladder fuels. To the extent that there is increased risk of such fires under Alternative A, there is an increased potential to reduce the existing amount of mature or old growth forest in the project area. The specific effects of such events would depend on the location and extent of such fires, but under existing conditions there is a degree of increased risk, due to fire, of loss of mature or old growth habitat. Loss or reductions in these habitat components would reduce the amount of nesting, and post-fledging areas available to goshawks.

Alternative B (Proposed Action)
Direct and Indirect Effects

Alternative B proposes 323 acres of Clearcut with Reserve Trees, 410 acres of Seed Tree harvest, 546 acres of Commercial Thinning, 76 acres of sanitation cutting, 66 acres of Salvage harvest, 13 acres of Non-Commercial Thin From Below, 128 acres of Ecosystem Burning, and 4.74 miles of temporary road construction. During actual implementation of these treatments, there is the potential to directly affect northern goshawks by disturbing them and displacing them short-term; if habitats are not changed significantly they would return once activities cease. Disturbance during the nesting period would have the most potential direct impact. There is also the possibility of affecting the northern goshawk long-term, by altering nesting habitat or post-fledging habitat to the extent that it does not function as nesting/fledging habitat anymore. Direct and indirect effects to potential goshawk habitat include the following:

Nesting Sites

Treatments that open up or remove most of the overstory in a forested stand would reduce the amount of potential goshawk nesting habitat in an area. In addition, removing nest trees or altering the number of large trees in a stand, can alter the structure and functionality of potential goshawk nesting sites. For the purpose of this analysis, it was assumed that any of the proposed treatments in potential nesting habitat would render the habitat unsuitable for goshawk nesting. This may be a very

conservative assumption. Hayward and Escano (1989) found that nest sites in northwest Montana were often located in older stands that supported widely-spaced large trees. In this case, a light thin of the overstory would not necessarily render the treatment area unsuitable for goshawk nesting, and might even improve conditions. In addition, thinning the overstory in some stands may help increase the availability of future large tree habitat. Reynolds et al. (1992) and Graham et al. (1999) have also suggested that the use of thinning may improve habitat for goshawks by creating favorable habitat conditions (e.g., promoting diameter growth in overstory trees and/or creating open understories). Consequently, although the Clearcut with Reserve Trees and the Seed Tree treatments would undoubtedly render stands unsuitable for nesting, the Commercial Thinning, Sanitations, and Salvage treatments may not reduce potential nesting habitat. Although this inference can be made, based on current knowledge of goshawk habitat, empirical data is lacking.

The potential goshawk territory blocks described above in the Existing Condition portion of this Section, have the highest potential for providing high quality goshawk habitat in the Porter Mount Project Area, based on known goshawk habitat characteristics and patch size preferences. These blocks of habitat in the Porter Mount area have been identified to help demonstrate whether long-term habitat loss from project implementation would be likely to occur. In Alternative B, there would be no reduction in potential goshawk nesting habitat in either the Porter Creek or Mount Creek territory blocks. The potential nesting stands in both the Porter and Mount Creek blocks are old growth stands. There is no treatment proposed in old growth habitat in Alternative B.

Under Alternative B, 7 units are adjacent to potential patches of nesting habitat identified in the territory blocks. There are 4 units adjacent to potential nesting habitat in the Porter Creek block (Units 7, 8, 27, 28) and 3 units adjacent to potential nesting habitat in the Mount Creek block (Units 42, 43, 46). Management activity in forest stands adjacent to nesting habitat has the potential to displace nesting goshawks and cause nest failure, unless the activity occurs outside of the goshawk nesting period. Under Alternative B, there is Design Criteria to restrict logging activity timing in Units 40, 41, 42, 43, 44, 45, 46, 49, and 50. These units are adjacent to an area where goshawk nesting is suspected. Proposed activities in these cutting units would occur between July 15 and April 15, which would make it unlikely that management activities would disturb a nesting pair of birds and cause them to abandon their nest site.

Post-Fledging Areas

Treatments that remove most of the overstory in a forested stand, or treatments that open up the overstory so that the canopy closure is less than 50 percent, would reduce the amount of potential goshawk PFA habitat in an area. For the purpose of this analysis, it was assumed that the proposed Clearcut with Reserve Trees and Seed Tree treatments in potential post-fledging habitat would render the habitat unsuitable for goshawk nesting. Since the prescriptions for Commercial Thinning, Sanitations, and Salvage cutting describe a remaining canopy cover of 50 percent or greater, it was assumed that these stands would still provide potential post-fledging habitat, although they may be lesser in quality.

Under Alternative B, there are 19 acres of proposed Commercial Thinning in the Porter Creek block (Unit 7). In the Mount Creek block, there are 74 acres of proposed Sanitation and Commercial Thinning treatment (Units 43, 45, 46), and 14 acres of Clearcut with Reserve Tree treatments (Unit 44). So, there would be a reduction of 14 acres of potential PFA habitat in the Mount Creek block and no reduction of potential PFA habitat in the Porter Creek block. The current acreage of forest that could provide potential post-fledging areas adjacent to potential nesting sites would be decreased. This reduction would not limit the number of available nest/PFA patches in each territory block; just decrease their size. The territory blocks would remain intact but may be perceived as being lesser quality by the goshawk.

Outside of the identified blocks of northern goshawk habitat, if stands proposed for treatment under Alternative B currently provide post-fledging habitat, then there is the potential that 733 acres

(Clearcut/Seed Tree Treatments) of PFA habitat could become unsuitable. However, that would be very unlikely due to the stand characteristics and patch configuration of proposed treatment units; most of them lack the characteristics, juxtaposition to potential nesting habitat, and patch size to be goshawk post-fledging habitat.

Foraging Habitat

Proposed vegetative treatments would not significantly affect potential foraging habitat in the Porter Mount Area. Goshawks hunt openings, forest edges, open forest, and closed forest with open understories. Treated forest stands would continue to provide potential foraging habitat following the proposed activities. Proposed Ecosystem Burning would be in stands that may currently provide foraging habitat; there would be no significant negative effects to these stands from prescribed fire; they would continue to provide forage habitat post-treatment.

Alternative C
Direct and Indirect Effects

The main difference between Alternative C and Alternative B is that there is less proposed Clearcut with Reserve Tree and Seed Tree harvest (regenerating cutting); 626 acres in Alternative C and 733 acres in Alternative B. There are also less overall acres of treatment in Alternative C; 1,465 acres compared to 1,562 acres.

As described in Alternative B, during actual implementation of proposed vegetative treatments, there is the potential to directly affect northern goshawks by disturbing them and displacing them short-term (habitat would remain post-treatment) or long-term (loss of nesting/PFA habitat). Disturbance during the nesting period would have the most potential direct impact.

Direct and indirect effects to potential goshawk habitat in Alternative C are similar to those described for Alternative B:

Nesting Sites

In Alternative C, there would be no reduction in potential goshawk nesting habitat in either the Porter Creek or Mount Creek territory blocks. The potential nesting habitat in both the Porter and Mount Creek territory blocks are old growth stands. There is no treatment proposed in old growth habitat in Alternative C.

Similarly to Alternative B, under Alternative C, 7 units are adjacent to potential patches of nesting habitat identified in the territory blocks. There are 4 units adjacent to potential nesting habitat in the Porter Creek block (Units 7, 8, 27, 28) and 3 units adjacent to potential nesting habitat in the Mount Creek block (Units 42, 43, 46). Activity in forest stands adjacent to nesting habitat has the potential to displace nesting goshawks and cause nest failure, unless the activity occurs outside of the goshawk nesting period. Under Alternative C, Design Criteria to restrict logging activity timing in units that are adjacent to an area where goshawk nesting is suspected would be implemented. Proposed activities in these cutting units would occur between July 15 and April 15, which would make it unlikely that management activities would disturb a nesting pair of birds and cause them to abandon their nest site.

Post-Fledging Areas

Similar to Alternative B, under Alternative C there are 19 acres of proposed Commercial Thinning in the Porter Creek block (Unit 7). In the Mount Creek block, there are 74 acres of proposed Sanitation and Commercial Thinning treatments (Units 43, 45, 46) and 14 acres of Clearcut with Reserve Tree treatment (Unit 44). So, there would be a reduction of 14 acres of potential PFA habitat in the Mount

Creek block and no reduction of potential PFA habitat in the Porter Creek block under Alternative C. The current acreage of forest that could provide potential post-fledging areas adjacent to potential nesting sites would be decreased. This reduction would not limit the number of available nest/PFA patches in each territory block; just decrease their size. The territory blocks would remain intact.

Outside of the identified blocks of northern goshawk habitat, if stands proposed for treatment under Alternative C currently provide post-fledging habitat, then there is the potential that 626 acres (Clearcut/Seed Tree Treatments) of PFA habitat could become unsuitable. However, that would be very unlikely due to the stand characteristics and patch configuration of proposed treatment units; most of them lack the characteristics, juxtaposition to potential nesting habitat, and patch size to be goshawk post-fledging habitat.

Foraging Habitat

Proposed vegetative treatments would not significantly affect potential foraging habitat in the Porter Mount Area. Goshawks hunt openings, forest edges, open forest, and closed forest with open understories. Treated forest stands would continue to provide potential foraging habitat following the proposed activities. The proposed prescribed burning would be in stands that may currently provide foraging habitat; there would be no significant negative effects to these stands from prescribed fire. Table 3-39 displays the existing condition and the effects by action alternative on the potential goshawk territory blocks resulting from the Porter Mount Project.

TABLE 3-39
COMPARISON OF EFFECTS ON POTENTIAL NORTHERN GOSHAWK BLOCKS FROM THE PORTER MOUNT PROJECT

	EXISTING	ALT. A	ALT. B	ALT. C
Territory Blocks in Porter Mount Project Area	2	2	2	2
Potential Nest/PFA Patches in Territory Blocks	Porter – 2 patches Mount – 2 patches	2 2	2 2	2 2
Temporary Road Construction in Potential Goshawk Territory Blocks	--------	None	None	None
Prescribed Fire in Potential Goshawk Territory Blocks	--------	None	None	None
Loss of Potential Nesting Habitat (Acres)	--------	0	0	0
Loss of Potential PFA Habitat (Acres)	--------	0	14	14

Alternative B (Proposed Action) and Alternative C Cumulative Effects

The Cumulative Effects Worksheet for sensitive wildlife species (Project File Exhibit F-5) considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect sensitive species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to sensitive species or their habitat have not been included in this section.

Activities in the Porter Mount area that have the most potential for cumulatively affecting the northern goshawk or goshawk habitat include vegetation management on public, private, and state lands, and activities in goshawk habitat which may cause nest abandonment during the nesting season.

The cumulative effect of vegetation management across the many different land ownerships, as well as the conversion of forest lands to private residences and to agriculture/range lands, has meant a decrease in the amount of forested stands that provide the habitat characteristics necessary for goshawk nesting and post-fledging. The potential habitat is more fragmented, with smaller patch

sizes available for nesting habitat and a greater distance between blocks of potentially suitable nesting habitat. This has probably limited the amount of nesting goshawk pairs in some drainages.

The existing levels of recreational activity across the Island Unit increase the chance that nesting birds may be disturbed during nesting season and nest abandonment may occur. Additionally, the potential for removal of nesting trees during firewood gathering is increased.

The cumulative effect of past, present, and foreseeable activities, including the proposed activities in Alternatives B and C, would not result in significant impacts to northern goshawk because there would be sufficient nesting habitat available post-treatment for nesting pairs in the Porter and Mount Creek drainages, the amount of potential PFA habitat adjacent to nesting habitat that would be decreased is very small (14 acres) and would not cause a loss of a potential nesting territory, potential foraging habitat for goshawk would be largely unaffected, and because the risk of disturbance by other human activity has been mitigated by existing road closures.

In addition, during the spring and summer of 2005, the Forest Service's Region One conducted field surveys of goshawks across the accessible portions of the Region (Kowalski 2006). The results of the 1-year estimate suggest that during the nesting period goshawks were fairly common and well distributed in the roaded (more managed) portions of NFS lands in Region One. This conclusion is based not only on the number of detections made in 2005, but also on the distribution of these detections supplemented with goshawk nest information that has been accumulated over the past 5 years (Kowalski 2006).

No demographic information exists to suggest a decline in goshawk numbers (USFWS 1998, Anderson et al. 2004, Squires and Kennedy 2006). Goshawk habitat in Region One is abundant and well distributed where it occurs naturally, and more forest, and therefore potential nesting habitat, exists on today's landscape than what occurred historically (Samson 2005).

Determination

In accordance with FSM 2673.42, a determination has been made as to the degree of impact the activities proposed might have on sensitive species. Based on available information on the northern goshawk's distribution, presence/absence from the project area, habitat requirements, and management strategies, as well as project design and location, Alternative A would have **"no impact**" on the goshawk. Alternatives B and C, **"may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species."**

WESTERN (TOWNSEND'S) BIG-EARED BAT

Affected Environment

Historical Condition

Western big-eared bats may be found in a variety of habitats and have a wide distribution, but they are uncommon or rare. The current range extends throughout western North America with isolated populations further east. A notable decline has been reported in the western United States (Dobkin et al. 1995). Western big-eared bats are very sensitive to human disturbance, with probably the most serious factor leading to population decline being the loss and disturbance of suitable roosting habitat (Genter and Jurist 1995).

This species uses a variety of roosts for different purposes. They spend winters roosting communally (hibernacula) in caves, abandoned mine tunnels, rock outcrops, lava tubes, bridges, and abandoned buildings. In the summer the female bats roost with their young in nursery colonies, using the roosts for whelping and raising the young. During the summer period, the males and non-reproductive females roost alone. There are smaller roosts used during the day by individuals for sleeping and resting that provide security from predators and prevent exposure to sunlight. Smaller roosts are also used at night when resting from hunting and for feeding on captured prey. Nursery colonies disband in August (USDA 1989).

Western big-eared bats do not migrate long distances, but may move from roost site to roost site. They are insectivores, foraging after dark, and capturing insects in flight. Occasionally they glean insects from leaves. They feed almost exclusively on small moths (Dobkin et al. 1995). Foraging habitat is typically level riparian sites.

The relatively large maternity roosts and hibernacula are the habitats of primary importance.

Townsend's big-eared bat

The amount of natural potential big-eared bat maternity roost and hibernacula habitat on the Flathead National Forest and throughout northwest Montana has probably not changed significantly over time since they tend to be geologic features (e.g. cave habitats). However, many cave habitats which once provided suitable bat habitat now have high levels of human activity and do not provide secure bat habitat. The loss of cave habitat may have been compensated for by the increase in artificial maternity roost and hibernacula habitat, including mine tunnels and buildings. However, artificial roost/hibernacula habitat is often not secure from human activity.

Existing Condition

There are no known natural sites for big-eared bat maternity or over-wintering roosts (caves, rock outcrops, lava tubes) in the Porter Mount Area. There are also no known suitable artificial sites for large maternity roosts or hibernacula (e.g. mine tunnels, large bridges) in the Porter Mount Area. There are mining sites in other portions of the Island Unit, but these have been surveyed for big-eared bats and none were detected. There are probably abandoned buildings on private property on and adjacent to the Island Unit that may be suitable, but these would not be considered secure maternity or over-wintering habitat due to their location on private lands. There are potential individual day/night roost sites (snag habitat) in the Porter Mount Area and throughout the Island Unit.

Surveys for the western big-eared bat are on-going on NFS lands in Montana and Idaho. There have been no reports of western big-eared bats in the Porter Mount Project Area, and surveys for these bats (2005-2007) did not detect any on the Island Unit or anywhere on the Flathead National Forest.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

Under this alternative there would be no project implementation. There would be no direct, indirect, or cumulative effects to the western big-eared bat or to important big-eared bat habitat. Due to the low potential for negative direct or indirect effects to the big-eared bat, adverse cumulative effects as a result of project implementation are not expected.

Alternative B (Proposed Action) and Alternative C
Direct, Indirect, and Cumulative Effects

The Cumulative Effects Worksheet for sensitive wildlife species (Project File Exhibit F-5) considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect sensitive species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to sensitive species or their habitat have not been included in this section.

There would be no potential direct, indirect, or cumulative effects to important big-eared bat maternity roost or hibernacula habitat due to the lack of suitable habitat in the proposed project area. Although it is unlikely that big-eared bats occur in the Porter Mount Area, the possibility exists that individual roosting bats could be disturbed from day/night roost sites due to activities associated with the proposed project. Disturbance of individual roost sites would only minimally affect big-eared bats because the bats commonly change day/roost sites. There is no proposed treatment in old growth habitats under Alternative B or C. Old growth habitats have the highest potential for providing day or night roosting habitat (e.g. snag habitat). Foraging sites for the western big-eared bat area usually associated with riparian features. There is no treatment proposed, under either of the action alternatives, in riparian areas.

Due to the low potential for negative direct or indirect effects to the big-eared bat, adverse cumulative effects as a result of project implementation are not expected.

Determination

In accordance with FSM 2673.42, a determination has been made as to the degree of impact the activities proposed may have on the western big-eared bat. The determination is “**no impact**” for Alternative A and **“may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species”** for Alternatives B and C.

WESTERN (BOREAL) TOAD

Affected Environment

Historical Condition

Adult western toads are largely terrestrial, will travel considerable distances from water, and are found in a variety of habitats from valley bottoms to high elevations. They breed in lakes, ponds, slow streams, and roadside ditches, where they prefer shallow areas with mud bottoms.

Historical data indicates that boreal toads were widely distributed and very common in Montana and other western states, but the species has apparently undergone severe population declines in the past 25 years (Currim 1996). Surveys in the late 1990's indicate that they are absent from many historic locations and that they now occupy less than 10 percent of suitable habitat (Maxell 2000). Factors associated with population declines range from natural population fluctuations to the effects of human-induced factors such as pollution, pesticides, habitat destruction/alteration, increases in UV radiation, and the introduction of predators or competitors.

Historically, the abundance of potential breeding habitat across the Island Unit was similar to the existing condition, but the overall riparian habitats (vegetation adjacent to lakes, ponds, and streams) were more secure.

Existing Condition

The Island Unit has a relatively dry site character based on its low amount of precipitation, the high rate of surface water percolation on the fractured rock complex, and the low moisture holding capacity of the soils. This condition has not changed over time. The availability of breeding lakes, ponds, and streams has remained constant. However, disturbance of these wet areas that are important to the western toad, and lands adjacent to the wet areas, has increased. Timber management, road building, livestock grazing, residential development, agricultural conversion, and recreational activities have decreased the amount of functional breeding habitat for the western toad across the Island Unit. There are documented sightings of western toads on the Island Unit.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

Under Alternative A, there would be no forest health or fuel reduction treatments implemented and less overall human disturbance in the Porter Mount Area.

Under Alternative A, there may be an increased risk (compared to historic conditions) of more stand replacement fires in portions of the project area. Depending on the specific location and extent of such fires, there is the possibility that such fires could change vegetation enough to trigger hydrologic effects that may affect boreal toad habitat. Specific effects would not be possible to predict.

Alternative B (Proposed Action) and Alternative C
Direct and Indirect Effects

There are no vegetative treatments, or associated activities, proposed in riparian areas under either of the action alternatives. There would be no direct or indirect effects to important toad breeding habitat associated with streams, ponds, or other natural wetland areas. Protection of breeding and nursery habitat would occur through a combination of protective measures in the Montana Streamside Management Zone Law, Montana Water Quality Act, and INFISH standards. Roadside ditches that hold water long enough into the summer to provide breeding sites would not be protected unless they were associated with streams or other protected sites.

The proposed commercial and non-commercial treatments, the ecosystem burning, and the associated temporary road construction, are likely to alter existing non-breeding habitat for the western toad. Based on this species' ability to occupy a wide variety of habitats, western toad use would probably still occur in the treatment areas, although at lower population levels until vegetation recovers. If adult western toads are present during actual logging or temporary road construction, individual mortality could occur.

Alternative B (Proposed Action) and Alternative C
Cumulative Effects

The Cumulative Effects Worksheet for sensitive wildlife species (Project File Exhibit F-5) considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect sensitive species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to sensitive species or their habitat have not been included in this section.

Activities in the Porter Mount Area that have the greatest potential to cumulatively affect the western toad or western toad habitat include vegetation management on public, private, and state lands, conversion of forested lands and wet areas for residential or agricultural use, recreational activities (e.g. hunting, OHV use), and an overall high level of human activity due to the proximity of this area to a large population center.

The cumulative effect of vegetation management across the many different land ownerships, as well as the conversion of forest lands to private residences and to agriculture/range lands, has been a decrease in potential breeding habitat for the western toad and an increase in incidental mortality as western toads come into contact with vehicles, machinery, etc. The high level of human activity in the Porter Mount Area, including yearlong residences and conversion of forest land, is unlikely to decrease and contributes to a decrease in wetland and forest connectivity, affecting the ability of western toads to move safely across the landscape between breeding and non-breeding habitats. The existing level of recreational activity (ORV use, horseback riding, firewood cutting, pleasure driving) increases the likelihood that the western toad population will experience incidental mortality.

The cumulative effect of past, present, and foreseeable activities, including the proposed activities in Alternatives B and C, would not result in significant impacts to the western toad population as a whole because there would be no treatment in riparian areas, which provide important breeding habitat, the Porter Mount Project would not increase long-term human access into breeding or non-breeding toad habitat, and individual western toad mortality would be infrequent; not affecting the species at the population level.

Determination

In accordance with FSM 2673.42, a determination has been made as to the degree of impact the activities proposed might have on sensitive species. Based on available information on the western

toad's distribution, habitat requirements, and project design and location, Alternative A would have **"no impact"** on the western toad. Alternatives B and C "**may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species."**

Regulatory Framework and Consistency

The USDA Forest Service is bound by Federal statutes (ESA, NFMA), regulation (USDA 9500-4), and agency policy (FSM 2670) to conserve biological diversity on NFS lands. Federal laws and direction applicable to sensitive species include the NFMA and FSM direction 2670. Amendment 21 to the Flathead's Forest Plan has standards to conduct analyses to review programs and activities, to determine their potential effect on sensitive species, and to prepare a BE. The Flathead Forest Plan also states that "adverse impacts to sensitive species or their habitats should be avoided." A goal in Forest Plan Amendment 21 is to "ensure that Forest Service actions do not contribute to the loss of viability of native species."

In accordance with FSM 2673.42, determinations have been made as to the degree of impact the proposed activities may have on sensitive species.

Snag and Down Woody Dependent Species

Introduction

Snags, broken-topped live trees, downed logs, and other woody material are required by a wide variety of species for nesting, denning, roosting, perching, feeding, and cover (Bull et al. 1997). Snags and down, dead, material are also used for communication purposes: singing, (songbirds), drumming (grouse and woodpeckers), calling (squirrels, jays, birds of prey), and sight recognition posts. Small mammals and birds use standing and down dead material for food storage and for hunting. Downed logs and stumps are important for travel, both below the snow in the winter, and as travel cover throughout the year. It is estimated that about one-third of the bird and one-third of the mammal species that live in the forests of the Rocky Mountains use snags for nesting or denning, foraging, roosting, cover, communication, or perching. On the Flathead National Forest, at least 42 species of birds and 10 species of mammals are dependent on dead wood habitat for nesting, feeding, or shelter (USDA 1999). The more mobile species that depend on dead wood habitat include black bears, Canada lynx, wolverines, marten, fisher, bats, woodpeckers, and small owls. Less mobile species that depend on dead wood include snowshoe hares (the primary prey of Canada lynx), red-backed voles (the primary prey of marten, fisher, boreal owl, and several other species), shrews, bryophytes, lichen, fungi, and protozoa. As down woody material further decays, it plays an important role in nutrient cycling, soil fertility, and erosion control.

Snags and their management have become a major conservation issue in managed forests across the western United States. Biologists have recognized for a long time that snags and down woody material provide important wildlife habitat, but only in the last decade or so have managers begun to understand that not only is tree decay an important ecological process that affects wildlife habitat (Bull et al. 1997), but snags and dead wood are an essential, important part of the larger ecosystem. An insufficient number of suitable snags may limit or eliminate populations of cavity-using species (Thomas et al. 1979, Saab 1998).

Although various sizes of snags and down woody are used, larger birds and mammals require larger dead trees. The larger-diameter downed trees provide stable and lasting structure and offer better protection from weather extremes (Bull 2002). Longer down woody pieces provide better runways, shelter, and under-snow access.

Analysis Area

Spatial Bounds

The Porter Mount Project Area was considered for the evaluation of direct and indirect effects on snag and down woody associated species. This approximately 11,431-acre area is large enough to include the home ranges of several individuals or pairs of a species, and is representative of the effects of fire, natural tree mortality, timber harvest, and road management across the landscape. The actions proposed in the alternatives that could directly or indirectly affect snag or down woody associated wildlife species are contained within this area. Cumulative effects were considered across the Island Unit Geographic Area. A multi-scale assessment was also conducted to address population viability concerns for dead tree dependent species.

Temporal Bounds

The length of time for effects analysis is approximately 5 years for the roads and fuel reduction portions of this project. This is based on the probable contract length for the proposed project, the timeframes for related activities, and the reasonably foreseeable actions identified. Ecosystem Burning proposed in this project may begin in 2008 and be completed by 2019, depending on the availability of burning windows, funding, and equipment needed to achieve the desired results. When conditions are favorable, the actual burning would only take a day or less for each project, but this time frame provides a conservative margin for all these elements to come together.

Affected Environment

Historic Condition

Forest ecosystems in the western United States have adapted in response to disturbances such as wildfire, insects, disease, and windstorms. Snags and down woody material have always occurred on the landscape, a direct result of these disturbance factors, either on a large scale, or on a very small scale, as individual trees grow old and die. Ritter and others have described snag populations as occurring in either “pulses” of snags following a large disturbance event, or as “continuous” populations of scattered individuals (Ritter et al. 2000).

On the Island Unit, historically, snag habitat and down woody material, though always present in varying amounts, experienced greater ”pulses” across the landscape and in localized areas as a result of natural disturbances. Warmer and drier areas historically underwent more frequent, lower-intensity fires, and typically supported fewer snags and large downed logs than cooler and moister environments, where the stands reached climax conditions before experiencing stand-replacing fire. Wildlife populations have historically adapted to these natural fluctuations in the availability of snag and down woody habitat.

Existing Condition

Hillis, Pengeroth, and Leach (2003) assessed the status of snag habitat and snag-dependent species across the Forest Service’s Region One. West of the continental divide, the analysis was designed to address the habitat needs of the pileated woodpecker, a keystone species, whose needs meet or exceed those of other cavity nesters, with very few exceptions. Hillis, Pengeroth, and Leach (2003) concluded that:

1. The distribution of mature/old forest that provides nesting habitat for pileated woodpeckers has not changed substantially since pre-fire-suppression/pre-logging periods;

2. The ratio of mature to old forest has changed substantially on low elevation forests west of the continental divide;
3. Partial removal timber harvest and woodcutting (as facilitated by road access) accounted for an additional loss of 28 percent of the snags across Region One lands; and
4. Fire exclusion, particularly as it affects the occurrence of low-to-moderate severity fires, has severely threatened the recruitment and durability of snags.

Table 3-40 compares the status of snags at both the Forest and Regional scales.

TABLE 3-40
LEVELS OF MATURE AND OLD FOREST AT THE FOREST AND REGIONAL (WEST OF THE CONTINENTAL DIVIDE) SCALES RELATIVE TO THE HISTORIC RANGE OF VARIABILITY

	Flathead NF	Region One
Acres of potential habitat	1,455,982 acres	10,520,384 acres
Acres of existing habitat	720,062 acres	5,128,766 acres
Existing – potential	49.5%	48.8%
Historic Range of Variability	24.7 to 72.1%	24.7 to 72.1%

Table 3-40 suggests that there has been no substantial departure in snag densities from historic levels at either the Forest or Regional scale.

Recently, large fires in Montana (1988, 2000, 2001, 2002, and 2003) have created a “pulse” of snag habitat across the landscape.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

Under this alternative, there would be no reduction of snags as a result of management activities proposed in this analysis. Snags would eventually fall over and add to the down woody material in the Porter Mount Area. There would be less potential displacement of wildlife species from snag/down woody habitat under this alternative.

No significant direct or indirect effects to wildlife that depend on snag or down woody material for all or part of their habitat needs are anticipated as a result of implementing Alternative A. In terms of cumulative effects, there may be an increased risk (compared to historic conditions) of more intense, stand replacing fires in some habitats within the project area as a result of higher fuel loading due to years of fire suppression management. Such fires would have the effect of increasing the amount of snag habitat and reducing the amount of down woody debris, compared to current conditions.

The addition or loss of snags would also be dependent upon factors such as firewood gathering, wind events, and natural attrition.

Alternative B (Proposed Action) and Alternative C
Direct and Indirect Effects

These alternatives are discussed together due to the similarity of their effects on snag and down woody dependent wildlife species. For each of the action alternatives, it is possible that project implementation would directly affect snag or down woody habitat or associated wildlife species through disturbance or incidental mortality.

Commercial and Non-Commercial Vegetative Treatments

In Alternative B, there are 12 Clearcut with Reserve Tree Units (323 acres), 15 units (410 acres) of proposed Seed Tree harvest, 16 units (546 acres) of proposed Commercial Thinning, 4 Salvage Units (66 acres), one Sanitation Unit (63 acres), one unit (13 acres) proposed for a Sanitation harvest with Pre-Commercial Thinning, and 2 Non-Commercial Units where the prescription is a Thin From Below (13 acres). Alternative C is similar to Alternative B in that there are 4 Salvage Units (66 acres), one Sanitation Unit (63 acres), one unit (13 acres) proposed for a Sanitation harvest with Pre-Commercial Thinning, and 2 Non-Commercial units where the prescription is a Thin From Below (8 acres). The main difference in Alternative C is that there is less regeneration cutting (Clearcut/Seed Tree Treatments). In Alternative C there are 12 Clearcut with Reserve Tree Units (277 acres), 16 Seed Tree Units (349 acres), and 17 Commercial Thin Units (561 acres). There is no proposed treatment in existing old growth forest or in riparian areas under either Alternative B or Alternative C. Under both action alternatives, snag recruitment and down woody debris guidelines established in Amendment 21 of the Flathead Forest Plan would be followed. Please refer to Table 2-13 for a list of specific Design Criteria that would be implemented for maintaining snags and down woody debris.

Harvest activities proposed under the action alternatives would reduce the amount of snags and down woody material in the proposed treatment units. Although snags are not usually targeted for removal, they are sometimes removed inadvertently to increase logging efficiency, or if they are deemed a hazard to the woods workers, they are removed for safety reasons. If snags are recently dead, they may be removed for commercial reasons. Down woody material suitable for wildlife use is usually reduced during logging activity as a result of heavy equipment use, removed to reduce fuels, or removed to facilitate reforestation. Effects to snag and down woody associated species would be the least in the Salvage, Sanitations, and Commercial Thin units. The proposed Clearcut with Reserve Trees and Seed Tree units would have the greatest effect on snag/down woody associated species. Alternative C has less regeneration treatment proposed (Clearcut/Seed Tree) and would be the least impactive alternative relative to snag/down woody related wildlife species. Alternative B would be the most impactive alternative.

Design Criteria would be implemented to for maintaining snags and is displayed in Table 2-13. At a minimum, in the Clearcut with Reserve Trees, Seed Tree, Commercial Thin, Sanitations, and Salvage Units, 6 snags average per acre that are 12 to 20 inches DBH would be left. If existing snag densities are below these densities, substitute live trees would be left. All snags greater than 20 inches DBH would be left, where available. All standing dead cull western larch, ponderosa pine, and Douglas-fir trees 16 inches DBH or greater would be retained and all hardwood trees would be designated to be left and protected. Generally, the snags to be left would be further than 150 feet from open roads and private land boundaries. Snags that pose a safety hazard would be removed.

In the Clearcut with Reserve Trees, Seed Tree, Commercial Thin, Sanitations, and Salvage Units, the minimum retention for down woody material would be, where available, 15 pieces average per acre 9 to 20 inches diameter and 10 pieces average per acre greater than 20 inches diameter. This amount of down woody material equates to 5 to 10 tons per acre. Generally, down woody material to be left would be further than 150 feet from private land boundaries (See Table 2-13).

Old growth habitats and riparian habitats are very important to snag and down woody associated wildlife species. These habitats frequently have abundant large snags and down woody material. There would be no vegetative treatments in old growth or riparian habitats with either of the action alternatives.

Direct and indirect effects from the proposed Non-Commercial Thin From Below treatment would be minimal. The trees in these stands, and the available down woody material, are small and do not currently provide quality snag/down woody habitat. In the long-term, the effects of the proposed treatment would be beneficial to wildlife species associated with snag and down woody habitats

because the removal of excess trees at this stage in forest stand development reduces growth stagnation and enables the retained trees to grow more vigorously.

Temporary Road Construction

There would be no permanent road construction under either action alternative. In Alternative B approximately 4.74 miles of temporary road would be needed to access treatment units. Less temporary road would be required under Alternative C; approximately 0.86 miles. Proposed temporary roads would be reclaimed once harvest activities have been completed.

Some snags may be cut down during the temporary road construction. They would be left on the ground as down woody. The roads would be reclaimed once harvest activities are completed. Public use of closed roads would not be permitted, reducing the risk of losing potential snag tree habitat to firewood cutters.

Ecosystem Burning

Under both Alternatives B and C, there is 128 acres of Ecosystem Burning proposed. The areas proposed for this burning are open-grown dry sites, with scattered conifers and grassland/brush. The grass and shrubs would grow back quickly; within one year for grasses/forbs and approximately 1 to 5 years for the shrubs. Mortality in scattered overstory trees would be approximately 20 percent or less; mid-story mortality would be between 30 to 50 percent.

There would be no removal of fire-killed trees. The proposed Ecosystem Burning would increase snag habitat. Down woody habitat would be decreased short-term by ground fire. As fire-killed trees fall over, down woody material would increase over time.

Alternative B (Proposed Action) and Alternative C Cumulative Effects

The Cumulative Effects Worksheet for snag and down woody dependent wildlife species (Project File Exhibit F-6), considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect snag and down woody dependent species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects to snag and down woody dependent species or their habitat have not been included in this section.

Human caused threats to snag and down woody dependent species include activities that reduce the availability or use of snag/down woody habitat. Activities that have reduced dead tree habitat in the Porter Mount Area, and throughout the Island Unit, are timber management, road building, agricultural conversion, residential development, firewood cutting, fire suppression, and disease control.

On many of the roads in the Porter Mount Area, public access has been restricted through seasonal or yearlong road closures. This has helped to reduce the loss of important snag habitat to firewood cutters.

When the emphasis on managing old growth forests (USDA 1999) is considered, and the large number, acreage, and distribution of recent fires on the Flathead National Forest in 1988, 1994, 2000, 2001, and 2003 that recruited large numbers of snags, it can be concluded that at the Flathead NF scale, snag habitat is being both recruited and retained. At the Flathead National Forest scale, fires within the last 6 years within stands greater than 9 inches (trees large enough to provide a potentially

suitable snag) occurred at 125.5 percent of the average historic conditions (Hillis, Pengeroth, and Leach 2003).

As a result of the implementation of either Alternative B or Alternative C, there may be a reduced risk (compared to historic conditions) of more intense, stand replacing fires in some habitats within the project area. This could be both positive (retention of existing snags and down woody material) or negative (no recruitment of large amounts of snags or future down woody).

Unharvested, live trees would be available to provide fairly uniformly distributed future snags and would provide recruitment of future down wood habitat. Site preparation prescriptions would be designed to maintain as much of the larger down material as possible and practicable, given other resource objectives such as fire hazard reduction and reforestation.

Alternatives B and C would not contribute significantly to negative cumulative effects on snag or down woody habitats, or associated wildlife species, in the Porter Mount Area or across the Island Unit. Adverse cumulative effects are not expected.

Regulatory Framework and Consistency

The Forest Service is required by the NFMA, to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives.” A wide variety of wildlife species are dependent on the existence of standing snags and downed woody material. The Forest Plan’s Amendment 21 (USDA 1999) provides the current direction for snags and down woody material. Sufficient vegetative structure is to be retained, including large diameter trees, in timber harvest areas. To comply with Amendment 21, the retention amount must be consistent with native disturbance and succession regimes and provide for long-term snag and coarse woody debris recruitment, essential soil processes, species habitat (including feeding and dispersal habitat for small mammals and birds), and long-term structural diversity of forest stands. In the absence of a site-specific landscape analysis to derive snag retention levels, minimum retention levels have been established as the standard.

All of the Porter Mount alternatives would comply with standards in the Forest Plan for wildlife snag and down woody habitat; NFMA requirements would be met.

Management Indicator Species
Commonly Hunted Big Game

Introduction

White-tailed deer, mule deer, and elk are Management Indicator Species (MIS) for commonly hunted big game species on the Flathead National Forest (USDA 1985). Meeting the habitat needs for white-tailed deer, mule deer, and elk would indicate that the habitat needs for other commonly hunted big game species, such as black bear, mountain lion, and moose, would also be met. Habitat needs that each of these species has in common would include cover (hiding and thermal), forage, and security (Witmer et al. 1998).

Natural disturbances such as fire or major insect infestations, and man-caused disturbances, including timber harvest, road construction, agricultural conversion, or residential development, alter the landscape, changing the amount and juxtaposition of cover and forage. These changes affect big game use patterns as they search out forage and cover, and can also affect habitat security.

Analysis Area

Spatial Bounds

The effects analysis area for direct and indirect effects is the Porter Mount Project Area (11,431 acres). The cumulative effects area for white-tailed deer, elk, and mule deer is the Island Unit Geographic Area of the Swan Lake Ranger District. The actions proposed that could affect white-tailed deer, mule deer, or elk, are contained within this area. In addition, the area is sufficiently large enough to evaluate the ability of the habitat to support other big game species considered under the MIS umbrella.

Temporal Bounds

The length of time for effects analysis is approximately 5 years for the roads and fuel reduction portions of this project. This is based on the probable contract length for the proposed project, the timeframes for related activities, and the reasonably foreseeable actions identified. Ecosystem Burning proposed in this project may begin in 2008 and be completed by 2019, depending on the availability of burning windows, funding, and equipment needed to achieve the desired results. When conditions are favorable, the actual burning would only take a day or less for each project, but this time frame provides a conservative margin for all these elements to come together.

Affected Environment

Historic Condition

The Porter Mount Area, and the Island Unit as a whole, has historically provided year-round habitat for deer and elk, as well as for other big game species covered under the MIS “umbrella.” White-tailed deer habitat consists of a mixture of various forested communities that provide cover, foraging habitat, and water within a reasonable distance. While elk and mule deer use similar habitats, white-tailed deer are more closely associated with riparian features than elk or mule deer. White-tailed deer exhibit a broad range of summer and fall habitat use but are commonly associated with warm and moist mixed-species coniferous forest and lowlands interspersed with aquatic wetlands, meadows, and stream bottoms. Habitats favored by elk during the summer months include moist parks, meadows, and riparian areas, offering succulent forage and bedding sites. Elk remain on higher elevation summer ranges until forced down to lower elevations by snow and severe weather. Both elk and mule deer are also commonly associated with shrub, seedling, and sapling habitats. Mule deer have similar seasonal habitat and elevational range preference as elk. Like elk, mule deer elevational range is dictated by food availability and weather conditions.

Elk

In the past, ungulate populations undoubtedly fluctuated between mild winter years and hard winter years. The use patterns of deer and elk have also undoubtedly shifted as a result of natural disturbances such as wildfire, windfall, and insect infestations, which typically remove or alter hiding cover, thermal cover, and forage. Thermal cover is described as the ability of a forested stand to intercept snow and provide winter protection for deer or elk (e.g., shallow snow depths, warmth). Winter thermal cover is very important to white-tailed deer populations. Hiding cover for both deer and

elk refers to trees of sufficient size and density to conceal an animal from view at approximately 200 feet. Forage areas, as the name implies, are habitats that provide food for deer and elk.

Historically, there were large patch sizes of thermal and hiding cover, interspersed with patches of forage. As mentioned previously, the pattern across the landscape of cover and forage naturally fluctuated in response to winter severity, wildfire, insect and disease, and windstorms. The character of forage habitat was probably different historically. In the absence of fire suppression, many stands experienced frequent underburns, and shrubs and grass grew up under more open canopies. Where wildfire was stand replacing, the disturbance created temporary foraging areas.

Security for deer and elk was higher in the absence of extensive road building and recreational hunting.

Existing Condition

The greatest change from historic to current conditions for deer and elk, throughout the Island Unit, has been the change in human activity. The level of human activity has obviously increased over early settlement and pre-settlement conditions. The result of increased human activity has been an increase in the amount of timber harvest, road construction, recreational use, residential development, grazing, and agriculture developments. Residential and agricultural developments have permanently altered potential deer and elk habitats. Timber harvest across the Island Unit has altered the amount and juxtaposition of thermal cover, hiding cover, and forage. Timber harvest typically removes big game cover and creates foraging areas by reverting forest succession to its earliest stage. As these foraging areas go through succession and become reforested, they again begin to provide cover; first hiding and then thermal cover. Where cover exceeds forage by a wide margin, removal of cover may enhance deer and elk habitat by increasing edge, increasing diversity, and increasing forage. In contrast, when an adequate distribution of cover is not present, additional removal of cover can reduce habitat values for deer and elk.

The increase in miles of road, largely a result of land management activities, has resulted in a decrease in security for deer and elk, especially during hunting season. In recent years, road closures in the Island Unit have been implemented in order to provide increased security for deer and elk.

In 1986, the Flathead Forest Plan allocated approximately 12,000 acres of NFS land on the Island Unit as white-tailed deer winter range (MA 9). These lands are to be managed with an emphasis on providing cover and forage areas suitable for white-tailed deer winter habitat. The management standard for winter range areas (MA 9) is to maintain thermal cover on at least 50 percent of the designated winter range area. Approximately 8 percent of the Island Unit is designated as winter range. There are seven mapped white-tailed deer winter ranges across the Island Unit. In the Porter Mount Project Area there are four winter range areas: Rogers (194 acres), Porter (434 acres), Haskill (1,063 acres), and Wild Bill (1,292 acres). The existing amount of thermal cover on each of these winter range areas is 50 percent or greater.

The Forest Plan has also allocated lands on the Island Unit as elk and mule deer winter range areas (MA 13). Approximately 5 percent of the Island Unit is designated as winter range for elk. There is no designated elk/mule deer winter range in the Porter Mount Project Area. Please refer to Map 3-5 for a display of deer and elk winter range analysis areas.

Summer range for white-tailed deer occurs throughout the Island Unit. There are no minimum requirements in the Forest Plan for thermal cover or hiding cover on white-tailed deer summer range. Across the Island Unit, in the different sub-drainages, the average range for thermal cover is approximately 45 to 65 percent. Hiding cover ranges from approximately 45 to 70 percent. Forage conditions for white-tailed deer range from approximately 20 to 50 percent. Each of these habitat components appears to be within the historical range, however, thermal and hiding cover are at the low end of the range (less abundant), and foraging habitat appears to be on the high end (more

abundant) of the historical range (Project File Exhibit Q-4). As mentioned previously, the patches of cover are more fragmented at present than historically. Riparian habitats, important to deer on their summer ranges, are also more fragmented than historically.

The current condition of elk summer range is measured using a summer range habitat effectiveness model developed by Leege (1984) and modified for local conditions through the cooperation of Flathead National Forest and MDFW&P. The model considers the amount and spatial arrangement of cover and forage, and addresses the effects of open roads and livestock grazing on the effectiveness of habitats to support elk during the summer months. Habitat effectiveness of summer range is considered on units designated as Elk Habitat Analysis Units (HAU's). These units average 3,000 to 6,000 acres and represent typical elk herd home ranges. There are 20 elk HAU's delineated across the Island Unit (including private, State, and NFS lands). The State Elk Plan labeled areas of the State as low, moderate, or high elk potential. Most of the Island Unit was labeled as moderate. In order to meet the moderate category, an elk habitat effectiveness of 40 to 50 percent is required. Habitat effectiveness across the Island Unit averages 41 percent, ranging from 25 percent in the Wild Bill area to 57 percent in the Browns Meadow Area. The proposed Porter Mount Project is included in five Elk HAU's. The following table illustrates the current situation on these HAU's.

TABLE 3-41
HABITAT EFFECTIVENESS BY HAU IN THE PORTER MOUNT PROJECT AREA

Elk HAU	Acres	Open Road Density	Overall Habitat Effectiveness
Rogers Lake	4,263	3.0	31%
Porter Haskill	5,807	1.9	50%
Lower Mount Creek	4,881	1.7	50%
Middle Mount Creek	5,662	1.9	50%
Upper Mount Creek	6,534	1.6	51%

An important aspect of elk security is the availability of elk security habitat. These areas provide security during hunting season and other stressful land management activities. They are important in providing a reasonable level of bull survival. It is recommended that these secure areas be in "blocks" of hiding cover at least 250 acres in size and at least 0.5 mile from any open road. Collectively, these blocks should make up approximately 30 percent of an analysis unit (Hillis et al. 1991). Timber harvest, road construction, and residential development have fragmented and reduced security areas across the Island Unit. Presently, only about 6 to 7 percent of the area provides security habitat for elk.

Exact numbers of deer and elk using the Porter Mount Area, or the Island Unit, are not known. White-tailed deer sightings are common and their numbers are thought to be stable. Elk and mule deer numbers are lower but also stable. MDFWP has computed population size estimates based on hunting season harvests. A reconstruction model that works with bucks harvested, estimates the number of bucks, does, and fawns. The figures are based on hunting districts; the Island Unit is in Hunting District 120. The estimate for white-tailed deer in HD120 is approximately 4,000 animals; mule deer approximately 250. Elk population numbers are based on survey information, hunter and landowner reports, and best professional judgement. The estimate for number of elk in HD120 is approximately 250. Estimates for all of Region One (northwestern Montana) were 8,500 to 12,500 mule deer and approximately 48,000 to 72,000 white-tailed deer. The elk estimate for Region One was approximately 10,000 to 12,400.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

There would be no proposed treatment with this alternative. There would be no direct effects to white-tailed deer summer or winter range; no direct effects to forage, hiding cover, or thermal cover on NFS lands. Security for deer and elk would remain the same. Natural vegetative processes would continue; forage would grow into open areas and seedling/sapling stands would grow into hiding cover and eventually into thermal cover. There would be no changes in the level of general motorized access, or hunting access. However, continued likely increases in human occupancy of private lands adjacent to the Island Unit are likely to lead to more human use and possible associated disturbance of elk and deer even under Alternative A.

Alternative A would not contribute any adverse cumulative effects to the current situation; neither would it improve the situation for deer or elk. There may be an increased risk of stand replacement fire under Alternative A, but this would be hard to measure. The existing winter range areas for white-tailed deer are located adjacent to private and State lands. These lands have been heavily managed and do not currently carry heavy fuel loading. Past treatment in the Porter Mount area on NFS lands has also contributed to fuel reduction.

Alternative B (Proposed) and Alternative C
Direct and Indirect Effects

Winter Range Thermal Cover

Under both Alternative B and Alternative C there are proposed treatments in white-tailed deer winter range. In Alternatives B and C, there are 294 acres of Commercial Thinning, 63 acres of Sanitation harvest, and an Ecosystem Burn (128 acres) proposed in lands designated in the Forest Plan as white-tailed deer winter range. In the Commercial Thin and Sanitation units, the tree canopy closure following treatment would be at least 50 percent in winter range areas (Units 2, 15, 32, 36, and 52). If the forest stands currently provide thermal cover, they would continue to do so. In the proposed Ecosystem Burn (Unit 1), the objective is to underburn and maintain thermal cover in the stands. There is no regeneration harvest (Seed Tree or Clearcut with Reserve Trees) proposed in white-tailed deer winter range.

There is no designated elk or mule deer winter range within the Porter Mount Project Area. There would be no direct effects to elk/mule deer winter range from activities associated with the proposed treatments.

Summer Range

Key use zones for white-tailed deer, especially on summer range, are riparian habitats. There is no proposed treatment in riparian areas under Alternative B or Alternative C.

White-tailed Deer

The summer months are particularly important for elk to build body condition and accumulate fat as an energy store for the winter. Habitats favored by elk during the summer months include moist parks, meadows, and riparian areas, offering succulent

forage and bedding sites. These areas would not be directly affected by proposed treatments.

Summer elk habitat effectiveness in the five HAU's described above, would not change significantly. The elk habitat model responds strongly to changes in miles of open road and grazing; and to a lesser extent, to large vegetation changes affecting cover or forage.

Hiding Cover

Hiding cover for deer and elk would be retained in the Commercial Thin, Salvage, Sanitation, and the Non-Commercial Thin From Below treatment areas. Hiding cover would not be retained in the Seed Tree or Clearcut with Reserve Tree treatments. There would be a decrease in hiding cover of 733 acres in the Porter Mount Project Area under Alternative B and a decrease in hiding cover of 626 acres under Alternative C. Hiding cover would take approximately 10 to 15 years to recover, depending on stand conditions.

Forage

Although proposed vegetative treatments would initially decrease the amount of available forage due to ground disturbance, forage opportunities would increase over existing conditions within 1 to 5 years as a greater amount of sunlight and moisture reach the forest floor. Forage is not a limiting factor in the Island Unit.

Road Construction

There is no proposed permanent road construction under Alternatives B or C. Under Alternative B there is 4.74 miles of temporary road proposed. Under Alternative C there is only 0.86 miles of temporary road proposed. Temporary roads would be reclaimed once harvest activities are completed. There would be no driving on temporary roads, but until the roads grow in naturally, security for deer and elk during hunting season may be reduced in the areas of temporary road because walking access would be easier.

Habitat Security

There is a potential for short-term displacement of deer and elk from the immediate area during the proposed activities. It is expected that deer and elk use patterns would change slightly as the animals avoid areas of high human activity. White-tailed deer are highly adaptive animals and would continue to use lands adjacent to the proposed treatment units. Other stands in the vicinity of the Porter Mount Project Area would also continue to provide a mosaic of cover and forage.

Alternatives B and Alternative C
Cumulative Effects

The Cumulative Effects Worksheet for commonly hunted species, including deer and elk (Project File Exhibit F-7) considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect commonly hunted species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects have not been included in this section.

There is a history of timber harvest and road building on all ownerships of land in the Island Unit and the other lands west of Kalispell; it is anticipated that this would continue into the future. Tables 3-1 and 3-2 at the beginning of this chapter displays a detailed list of past activities and known future activities, including timber harvest, road building, road maintenance, prescribed fire, special use

permits, noxious weed spraying, and dispersed recreation. The Island Unit has high human use levels; human occurrence is common in the project area and wildlife disturbance is expected.

Alternatives B and C would reduce the risk of higher intensity, stand replacement fires in the stands proposed for treatment. To the extent that the proposed treatments reduce such fires, this may reduce the risk of loss of hiding and thermal cover in the project area.

Big game habitat is quite diverse and widespread across the Flathead National Forest. It is conserved by the Forest through various forest management standards, including access management, riparian guidelines, and forest management practices. The cumulative effect of past activities, the proposed activities of the Porter Mount Project, and future activities, would not preclude deer or elk use of habitats in the area. The risk of population loss appears low, and species viability would be maintained. For additional information on the status of deer and elk on the Flathead NF, and the status at broader scales, reference the document Flathead National Forest Evaluation and Compliance with NFMA Requirements to Provide for Diversity of Animal Communities, November 2006 (Project File Exhibit F-1).

Regulatory Framework and Consistency

The NFMA requires that Forest plans “preserve and enhance the diversity of plant and animal communities” and that Forests manage for maintenance of “viable populations of existing native and desired non-native vertebrate species.”

Amendment 21 to the LRMP establishes a Forest-wide goal to “provide appropriate habitat and access to maintain desired hunting, fishing, and viewing opportunities, in coordination with the Montana Department of Fish, Wildlife and Parks.” The Forest Plan has identified white-tailed deer, elk, and mule deer as Commonly Hunted Big Game Management Indicator Species (MIS) that use general forest habitat. Conditions favorable to these species would generally also benefit other big game species found within the project area, such as moose, black bear, and mountain lion, which are considered under the umbrella of MIS evaluation. Goals, objectives, and standards in the Forest Plan, specific to managing white-tailed deer, elk, and mule deer have been followed in the preparation and analysis of the Porter Mount Project.

Migratory Birds

Introduction

Neo-tropical migratory birds (NTMB) are defined as those birds that regularly winter south of the Tropic of Cancer and summer in North America. In 1988, an amendment to the Fish and Wildlife Conservation Act mandated the USFWS to “identify species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973.” The report, “Birds of Conservation Concern 2002,” identified the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the highest conservation priority. In the report, the United States is broken down into Bird Conservation Regions (BCR’s), with bird species of conservation concern identified for each region. The Porter Mount Project Area is located in BCR 10. The bird species of conservation concern for the Porter Mount Project Area are listed in Table 3-42. Table 3-43 lists other neo-tropical migrant birds with declining population trends. The bird species listed are associated with forest habitats.

TABLE 3-42
NORTHERN ROCKIES "BIRDS OF CONSERVATION CONCERN"

Bird Name	General Habitat Summary	Relative Abundance on FNF
Swainson's Hawk	Plains, prairies; open pine-oak woodlands; cultivated lands.	Rare
Ferruginous Hawk	Semi-arid plains and arid intermountain regions; tall trees along creek bottoms.	Rare
Golden Eagle	Open country; open coniferous forests.	Uncommon
Peregrine Falcon[+]	Open country with rocky cliffs and ledges near water.	Rare
Prairie Falcon	Open country with canyons, cliffs; foothills.	Rare
Yellow Rail	Marshes, wet meadows; highly secretive.	Rare
Lesser (American) Golden-Plover	Dry, grassy tundra above tree line.	Rare
Snowy Plover	Sandy, coastal beaches; alkali ponds.	N/A
Mountain Plover	Short grass prairie / sagebrush; high plains and arid areas.	N/A
Solitary Sandpiper	Muskegs in coniferous forest belt of boreal and sub-arctic.	Rare
Upland Sandpiper	Open grasslands.	Rare
Whimbrel	Marshes, mudflats, shores, and prairies.	N/A
Long-billed Curlew	Moist to dry grasslands and meadows.	Uncommon
Marbled Godwit	Prairies, meadows, and pastures.	Rare
Sanderling	High arctic tundra.	N/A
Wilson's Phalarope	Sloughs and ponds; prairies with small glacial potholes.	Uncommon
Yellow-billed Cuckoo	Woods and brush.	N/A
Flammulated Owl	Open ponderosa pine; mixed forest.	Occasional
Black Swift	Crevices or ledges on rocky cliffs; near waterfalls.	Rare
Lewis's Woodpecker	Open or park-like ponderosa pine; areas w/ scattered trees.	Occasional
Williamson's Sapsucker	Pine forests; higher elevations.	Uncommon
Red-naped (Yellow-bellied) Sapsucker	Coniferous forests; usually where aspen is present.	Common
White-headed Woodpecker	Pines and firs; open ponderosa pine forest; large trees with 40-70% canopy.	Rare
Loggerhead Shrike	Open country with scattered shrubs or small trees.	Occasional
Pygmy Nuthatch	Pine forests; open park-like conditions; ponderosa pine.	Common
Virginia's Warbler	Arid, montane, woodlands; 6,000-9,000 feet;	N/A
Brewer's Sparrow	Open, shrub-dominated habitats.	Uncommon
McCown's Longspur	Dry, short grass prairie.	N/A

[+] Flathead NF Sensitive Species

TABLE 3-43
NEOTROPICAL MIGRATORY BIRDS WITH DECLINING POPULATION TRENDS ASSOCIATED WITH FOREST HABITATS

Bird Name	General Habitat Summary	Old-Growth Associate	Snag Nester	Riparian Associate
Mourning Dove	Cottonwoods, edges, farmland			
Sharp-shinned Hawk	Dense forests			
Cooper's Hawk	Mature conifers/deciduous			
American Kestrel	Open ponderosa pine/cottonwood		X	
Flammulated Owl +	Open ponderosa pine/mixed forest	X	X	
Common Nighthawk	Open forests, grasslands			
Vaux's Swift	Forests of large trees with openings	X	X	
Eastern Kingbird	Farmland, riparian bottomlands			X
Olive-sided Flycatcher	Logged or burned forests		X	
Western Wood-pewee	Open conifer forests			
Hammond's Flycatcher	Tall trees with closed canopies	X		
Cordilleran Flycatcher	Conifers/deciduous			
Northern Oriole	Tall shrubs and trees near streams			X
Cassin's Finch	Conifer forests/early post-fire forest			
Chipping Sparrow	Open dry forests, edges			
Black-headed Grosbeak	Cut-over forests, riparian thickets/forests			X
Western Tanager	Dry, open mature conifers		X	
Red-eyed Vireo	Aspen, cottonwood, riparian habitat			X
Solitary Vireo	Young conifer forests, logged areas			
MacGillivray's Warbler	Moist conifer forests, dense shrubs			X
American Redstart	Riparian shrubs, aspen, cottonwood			X
Yellow-rumped Warbler	Young to mature open forest, edges			
Wilson's Warbler	Riparian thickets, willow			X
Gray Catbird	Dense riparian shrubs			X
Ruby-crowned Kinglet	Tall conifers with dense canopy			
Veery	Deciduous riparian forest			X
Swainson's Thrush	Conifer forests with dense shrubs	X		X
Western Bluebird	Open forests, edges, roadsides		X	

+ Flathead NF Sensitive Species

Two habitats are especially important to bird species:

1. Riparian habitat, because of the availability of water and variety of plant communities, and
2. Old growth habitat, which has the highest density and diversity of birds nesting in tree cavities (McClelland and Schmidt 1995).

In addition, snags, broken-topped live trees, downed logs, and other woody material are required by a wide variety of these species for nesting, roosting, perching, feeding, and cover.

Analysis Area

Spatial Bounds

All lands in the Porter Mount Project Area were considered for the evaluation of direct and indirect effects on neo-tropical migratory birds (NTMB). This project area (11,431 acres) is large enough to include the spring, summer, and fall home ranges of several individuals or pairs of a species, and is representative of the effects of fire, natural tree mortality, timber harvest, and road management across the landscape. The actions proposed in the alternatives that could directly or indirectly affect these species are contained within this area. The Island Unit as a whole was considered in the cumulative effects analysis.

Temporal Bounds

The length of time for effects analysis is approximately 5 years for the roads and fuel reduction portions of this project. This is based on the probable contract length for the proposed project, the timeframes for related activities, and the reasonably foreseeable actions identified. Ecosystem Burning proposed in this project may begin in 2008 and be completed by 2019, depending on the availability of burning windows, funding, and equipment needed to achieve the desired results. When conditions are favorable, the actual burning would only take a day or less for each project, but this time frame provides a conservative margin for all these elements to come together.

Affected Environment

Historic Condition

Red-naped (Yellow-bellied) Sapsucker

Forest ecosystems in the western United States have adapted in response to disturbances such as wildfire, insects, disease, and windstorms. A wide diversity of habitats existed across the landscape, providing habitat for a diverse suite of NTMB.

Historically, some habitats may have occurred in greater abundance on the landscape than now (e.g., snag and down woody habitat and old growth habitat). Population trends for different bird species have generally followed the distribution and amounts of the different preferred habitats. For example, the olive-sided flycatcher and Cassin's finch are associated with post-fire habitats and would have been abundant in areas where there was a large, stand replacing fire event. Species associated with open forests, such as the western tanager, Vaux's swift, chipping sparrow, yellow-rumped warbler and western wood pewee, would have been found more in areas that experienced frequent, low-intensity fires that re-initiated the understory but did not consume all of the large trees. Birds associated with dense forests, such as the sharp-shinned hawk, Cooper's hawk, or ruby-crowned kinglet, would have preferred older, closed canopy forest habitats.

Existing Condition

Generally, bird populations that breed in the western United States appear to be suffering from forest fragmentation in breeding habitat (Hejl et al. 1995). Timber harvest and excessive tree mortality may contribute to short-term fragmentation (Rotenberry et al. 1995, Hejl et al. 2002). Problems associated with forest fragmentation include overall habitat loss, an increase in edge habitat and edge effects, isolation effects, and increased vulnerability to predators (Finch 1991).

The Island Unit provides a diversity of habitats for NTMB, including riparian areas, old growth habitat, and snag habitat. Habitats on the Island Unit, however, occur in smaller patch sizes than historically and are more fragmented due to high levels of human activity in the area, including logging, road buildling, grazing, agricultural and residential development, and numerous recreational activities.

Environmental Consequences

Alternative A - No Action
Direct, Indirect, and Cumulative Effects

Under this alternative there would be no vegetative treatments in the Porter Mount Project Area on NFS lands. Current forest successional processes would continue. There may be an increased risk of more intense, stand replacing fires compared to historic conditions. These conditions may lead to a greater potential for snag creation (which is important for some bird species) through wildfire. In contrast, Alternative A may increase the potential for the loss of old growth and mature forest stands (also important to some bird species) as a result of wildfire, in comparison to the action alternatives. The direct effects of Alternative A would be limited and riparian areas and older forest stands would continue to provide important habitat for migratory birds; there would be no direct reduction in the amount of snags as a result of management activities. A wide variety of habitats would be available across the Island Unit to support multiple species of NTMB. Fragmentation of forested habitats on private lands in the area would probably continue.

Alternative B (Proposed Action) and Alternative C
Direct and Indirect Effects

These alternatives are discussed together due to the similarity of their effects on migratory bird species.

Commercial and Non-commercial Vegetative Treatments

Yellow-rumped Warbler

In Alternative B, there are 12 Clearcut with Reserve Tree Units (323 acres), 15 units (410 acres) of proposed Seed Tree harvest, 16 units (546 acres) of proposed Commercial Thinning, 4 Salvage Units (66 acres), one Sanitation Unit (63 acres), one unit (13 acres) proposed for a Sanitation harvest with Pre-Commercial Thinning, and 2 Non-Commercial Units where the prescription is a Thin From Below (13 acres). Alternative C is similar to Alternative B in that there are 4 Salvage Units (66 acres), one Sanitation Unit (63 acres), one unit (13 acres) proposed for a Sanitation harvest with Pre-Commercial Thinning, and 2 Non-Commercial units where the prescription is a Thin From Below (8 acres). The main difference in Alternative C is that there is less regeneration cutting (Clearcut/Seed Tree Treatments). In Alternative C there are 12 Clearcut with Reserve Tree Units (277 acres), 16 Seed Tree Units (349 acres), and 17 Commercial Thin Units (561 acres). There is no proposed treatment in existing old growth forest or in riparian areas under either Alternative B or Alternative C. Under both action alternatives, snag recruitment and down woody debris guidelines established in Amendment 21 of the Flathead Forest Plan would be followed. Please refer to Table 2-13 for a list of specific Design Criteria that would be implemented for maintaining snags and down woody debris.

Thinning or removing the overstory, understory, or both, in forested stands, would have a negative effect on some bird species and a positive effect on other bird species. As an example, there would be long-term negative effects to the ruby-crowned kinglet, which prefers closed canopy conditions, as a result of implementing the Seed Tree or Clearcut with Reserve Trees treatments. The Commercial Thinning would produce at least short-term negative effects for bird species that prefer closed canopy conditions, but would produce positive effects for the yellow-rumped warbler and the western tanager, which prefer more open overstory canopies. Habitats shift over time with dynamics in age class, composition, and structure changing naturally. Bird populations across the Island Unit have adapted to this change with numbers of different species increasing or decreasing, depending on the availability of open forest, dense cover, old growth, snags, and riparian habitats. If a variety of habitat conditions are maintained across the landscape, including old growth forest, riparian habitats, sufficient downed wood, understory trees, and windfirm live trees and snags, adequate habitat can be maintained with timber management. The proposed Porter Mount Project would not significantly change the amount or juxtaposition of open forest/dense forest across the Island Unit. There would be no treatments in old growth or riparian habitats. These important habitats would remain in their current condition. Additional old growth and riparian habitat exists outside of the project area and across the Island Unit.

Reducing the amount of snags or down woody material can remove habitat features that are essential or very important to many bird species (Bull et al. 2005). Research suggests that retaining the bulk of the largest material may decrease these effects (Bull and Blumton 1999, Porter et al. 2005). A proportion of snags would be retained in all of the proposed cutting units, with the number and size of the snags retained being dependent on the habitat type of the various stands.

Temporary Road Construction

There would be no permanent road construction under either action alternative. In Alternative B approximately 4.74 miles of temporary road would be needed to access treatment units. Less temporary road would be required under Alternative C; approximately 0.86 miles. Proposed temporary roads would be reclaimed once harvest activities have been completed.

Some snags may be cut down to put in the temporary roads. They would be left on the ground as down woody. The roads would be reclaimed once harvest activities are completed. Public use of closed roads would not be permitted, reducing the risk of losing potential snag tree habitat to firewood cutters.

Ecosystem Burning

Under both Alternatives B and C, there is 128 acres of Ecosystem Burning proposed. The areas proposed for this burning are open-grown dry sites, with scattered conifers and grassland/brush. The grass and shrubs would grow back quickly; within one year for grasses/forbs and approximately 1 to 5 years for the shrubs. Mortality in scattered overstory trees would be approximately 20 percent or less; mid-story mortality would be between 30 to 50 percent. There would be no removal of fire-killed trees. The proposed Ecosystem Burning would increase snag habitat.

For both Alternative B and Alternative C, it is possible that project implementation would directly affect neo-tropical migratory birds through disturbance and/or occasional mortality associated with project activities. There is the potential that timber harvest and prescribed fire activities occurring during the nesting period may disrupt nesting activity and foraging activity, or that proposed activities would directly contribute to nest failure.

Alternative B (Proposed Action) and Alternative C Cumulative Effects

The Cumulative Effects Worksheet for neotropical migratory bird species (Project File Exhibit F-8), considers and describes past, current, and reasonably foreseeable activities that may cumulatively affect migratory bird species or their habitat. These activities are also listed in Tables 3-1 and 3-2 of this document. Those activities that would cumulatively contribute indiscernible effects migratory bird species or their habitat have not been included in this section.

As described above, the Island Unit has high levels of human activity including permanent and part-year residences, agricultural development, grazing, many years of forest management (logging) and road building, as well as diverse recreational opportunities. These activities have contributed to habitat fragmentation across the Island Unit. As conditions have changed across the Island Unit, some bird populations have undoubtedly increased as others have decreased. Over the long-term, natural forest succession processes would continue to create a variety of habitat types for the suite of migratory birds found in this area.

Alternatives B and C would reduce the risk of a more intense wildfire occurring in the forest stands where vegetative treatment is proposed. This would be beneficial to bird species that are associated with closed canopy conditions; it would not necessarily be beneficial for bird species that are snag dependent or associated with post-fire habitats.

While factors outside of the Forest Service's control (e.g., deforestation of tropical wintering grounds, drought, exotic species, and parasitic species) may have negative effects on neo-tropical migrants, the actions taken in the Porter Mount Project are not expected to contribute significantly to negative effects on migratory birds. Sufficient habitat for a broad suite of NTMB's would be maintained. For more information about wildlife habitat conditions across the Flathead NF, relevant to neo-tropical migrant birds, reference the FEIS for Forest Plan Amendment 21 (USFS 1999), and the Flathead National Forest Evaluation and Compliance With NFMA Requirements/Diversity document (Project File Exhibit F-9).

Regulatory Framework and Consistency

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS to "identify species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973."
The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the US, Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds, including nests and eggs, is unlawful. A list of NTMB protected by the MBTA is provided in 50 CFR 10.13.

In January 2001, an executive order (EO) was signed outlining responsibilities of Federal agencies to protect migratory birds under the MBTA (EO 13186). The report, "Birds of Conservation Concern 2002," is the USFWS's most recent effort to carry out this mandate and to meet their responsibilities under the 1988 amendment. The overall goal of this report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as Federally threatened or endangered) that represent the highest conservation priority. In the report, the United States is broken down into Bird Conservation Regions (BCR's), with bird species of conservation concern identified for each region. The Flathead NF is located in BCR 10. It is recommended that the Bird Conservation Regional lists, with bird species of conservation concern, be consulted in accordance with EO 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds."

As a complimentary measure to EO 13186, the Forest Service and the USFWS entered into a Memorandum of Understanding (MOU). The purpose of this MOU is to strengthen migratory bird conservation through enhanced collaboration between the agencies, in coordination with state, tribal, and local governments.

Some migratory birds are covered by state hunting regulations; others are protected by non-game status with the MDFWP. There are currently no Flathead Forest Plan Standards specific to migratory birds. The flammulated owl and the peregrine falcon are Forest sensitive species, and are discussed in the Biological Evaluation for the Porter Mount Project.

No substantial loss of migratory bird habitat is expected by implementing this project. The intent of the MBTA, the 2001 EO, and the MOU to conserve and protect NTMB, would be met under any of the Porter Mount Project alternatives.