Appendix B – Biological Evaluation

Proposed treatments shown as "HCR" or "clearcut with reserves" in Specialist Reports are referred to as "Seed tree harvest" in the Environmental Assessment and Appendices.

Under the discussion of Alternative C, proposed treatments referred to as "commercial" are treatments of "commercial size timber" and would not be done under a commercial timber sale contract.

Appendix B – Biological Evaluation

BIOLOGICAL EVALUATION OF EFFECTS TO THREATENED, ENDANGERED, AND FOREST SERVICE SENSITIVE LISTED WILDLIFE SPECIES FOR THE CONGER TIMBER AND FUELS MANAGEMENT PROJECT

Prepared for

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Newport-Sullivan Lake Range Districts
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Date: 15 December 2005

Subject: **Conger Timber and Fuels Management Project Biological Evaluation of Effects to Threatened, Endangered, and Sensitive Wildlife Species**

To: District Ranger, Newport-Sullivan Ranger District

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I. INTRODUCTION

This Biological Evaluation (BE) is prepared in support of the Conger Timber and Fuels Management Project Environmental Assessment (EA), as part of the National Environmental Policy Act (NEPA) decision making process. If a proposed project is a "major construction project," defined as a major federal action significantly affecting the quality of the human environment as referred to in the NEPA (50 CFR 402.02) that requires an environmental impacts statement, then a biological assessment (BA) is prepared (FSM 2670.5). If the proposed project does not significantly affect the quality of the human environment a biological evaluation (BE) is the primary means of conducting the review, documenting the findings, and determining whether the action adversely affects species or their habitats (FSM 2672.4). This BE addresses the direct, indirect, and cumulative effects of the project on threatened, endangered species and their critical habitats (50 CFR 402.02), and Forest Service Sensitive listed species and their habitats (FSM 2672.42). Endangered species are in danger of extinction throughout all or a significant portion of its range. Threatened species are likely to become endangered within a foreseeable future throughout all or a significant portion of their range (USFWS, 2005). This BE is also in compliance with Section 7 of the Endangered Species Act (ESA) that requires all federal agencies, in consultation with the U. S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), to insure that their actions are not likely to jeopardize the continued existence of threatened or endangered species or adversely modify their habitats.

As of 2005, the USFWS listed six animals (four mammals, one bird, one fish) that might occur on the Colville National Forest as threatened or endangered under the Endangered Species Act (ESA) of 1973. These species include Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), grizzly bear (*Ursus arctos*), woodland caribou (*Rangifer tarandus*), the bald eagle (*Haliaeetus leucocephalus*), and bull trout (*Salvelinus confluentus*).

Within the vicinity of the project planning area, there is suitable habitat for bald eagles, gray wolves, grizzly bears, and Canada lynx. The District has no records of other threatened or endangered species occurring in the areas and suitable habitat for such species is not present (see Appendix A). Listed fish and plant species will be addressed in a separate report.

USDA Forest Service Region 6 sensitive listed terrestrial species that have the potential to occur in the planning area include the fisher (*Martes penanti*), wolverine (*Gulo gulo*), Townsend's big-eared bat (*Corynorhinus townsendii*), northern leopard frog (*Rana pipiens*), great gray owl (*Strix nebulosa*), and peregrine falcon *(falco peregrinus anatum)*.

Suitable habitat for one ESA-listed species (woodland caribou *(Rangifer tarandus)* and 3 USDA Forest Service (Region 6) sensitive-listed species (common loon *(gavia immer)*, eared grebe *(Podiceps nigricollis)*, and sandhill crane (*Grus canadensis*)), is not present within the project area and will not be discussed further. Three species of sensitive fish will be addressed in a separate report. Sensitive plant species will also be addressed separately.

II. PROJECT AREA DESCRIPTION

The Colville National Forest consists of over one million acres located in the far northeast corner of Washington State bordered by Canada on the north, Okanogan National Forest on the west, Idaho and the Idaho Panhandle National Forest to the east, and the Colville Confederated Tribes Indian Reservation to the south. The Conger project area encompasses approximately 5,722 acres of the Colville National Forest within the Newport-Sullivan Lake Ranger Districts. The project area is located west of the Pend Oreille River approximately 20 miles northwest of Newport, Washington (Figure 1). Terrain within the project area is characterized by gentle rolling ridgetops with some steep slopes adjacent to East Fork Smalle Creek scattered elsewhere throughout the project area.

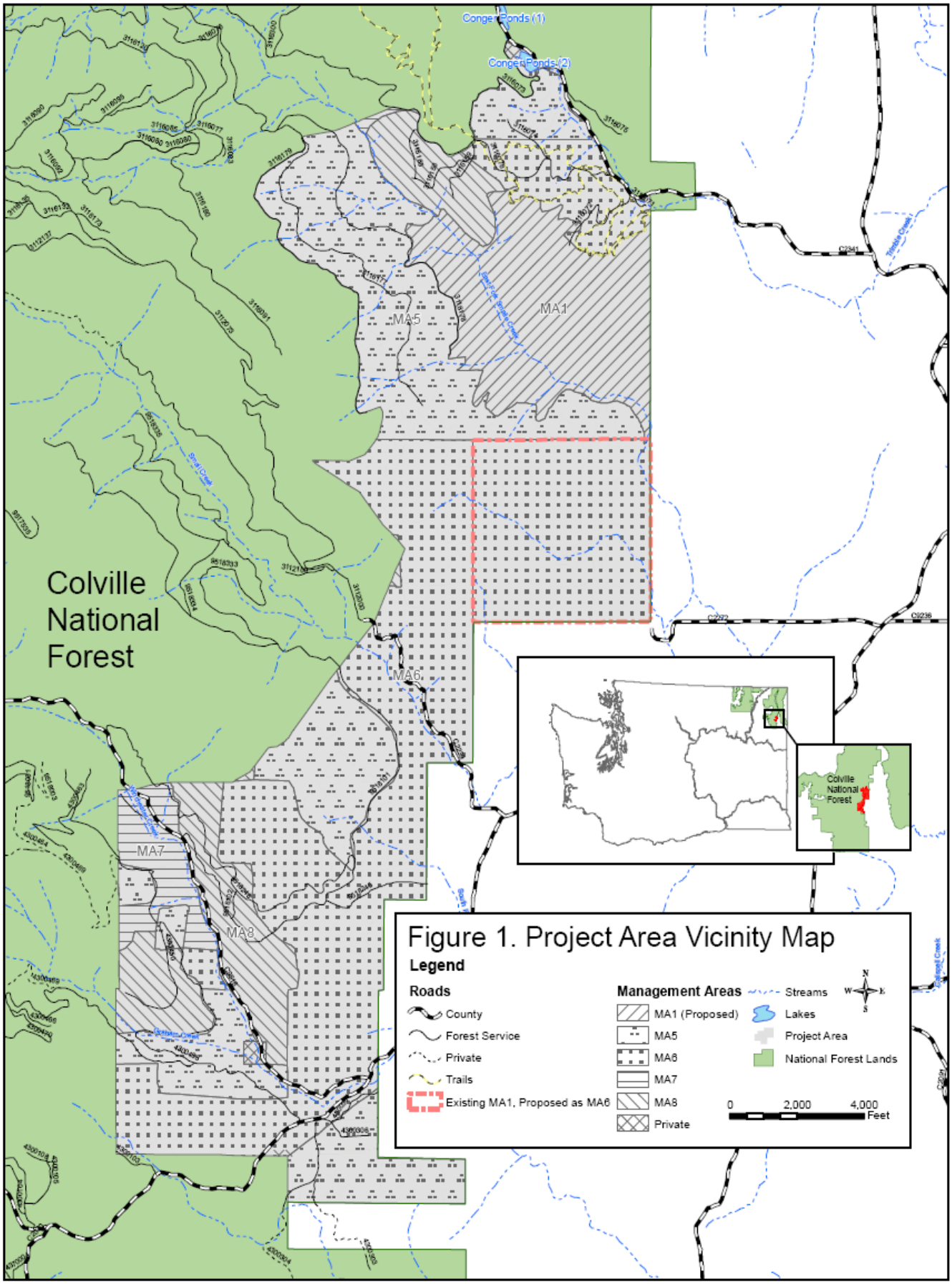
The Colville National Forest Land and Resource Management Plan (USDA Forest Service, 1988), hereinafter referred to as the Forest Plan, divided the forest into several different "Management Areas" (MAs), each with its own management emphasis. Table 1 lists the MAs within the project area.

A majority of the project area (44.7 percent) is allocated to MA 6, which is managed with the objective of maintaining a natural looking landscape along travel routes, while providing for winter range management. Approximately 28.5 percent of the project area is allocated to MA 5, which is managed with the objective of creating natural looking landscapes along travel routes while providing wood products, including timber, salvage, and firewood harvest. Another 10.5 percent of the project area is allocated to MA 8, which is managed with an emphasis on big game winter range, the primary limiting factor for the deer and elk, populations on the Forest. Management Areas 1 and 7 comprise 12.8 and 3.2 percent of the project area, respectively. Management Area 1 is managed with the objective of protecting the habitat requirements of old growth dependent species. No timber harvest is allowed in MA 1, and salvage of blow down or trees killed by fire, disease, or insects is not permitted unless mortality precludes the use of the area as old growth habitat. However, prescribed fire may be used to achieve old growth habitat objectives. The management objective in MA 7 is to providing maximum timber harvest opportunities. The remainder of the project area (<1 percent) is private land, water, or other uses. Figure 1 displays the designated MAs in the Conger project area.

Table 1. Composition of the project area and Colville National Forest by Management Area.

Management Area	Project Area (acres)	Percent of Project Area	Percent of Colville National Forest[1/]	Management Emphasis
1	730	12.8	4.2	Old growth dependent species habitat
5	1,629	28.5	27.9	Scenic values/timber
6	2,558	44.7	9.8	Scenic values/winter range
7	186	3.2	5.4	Wood products/forage
8	599	10.5	16.2	Winter range
Not allocated to MA	21	0.4	7.6	Private land, water, null

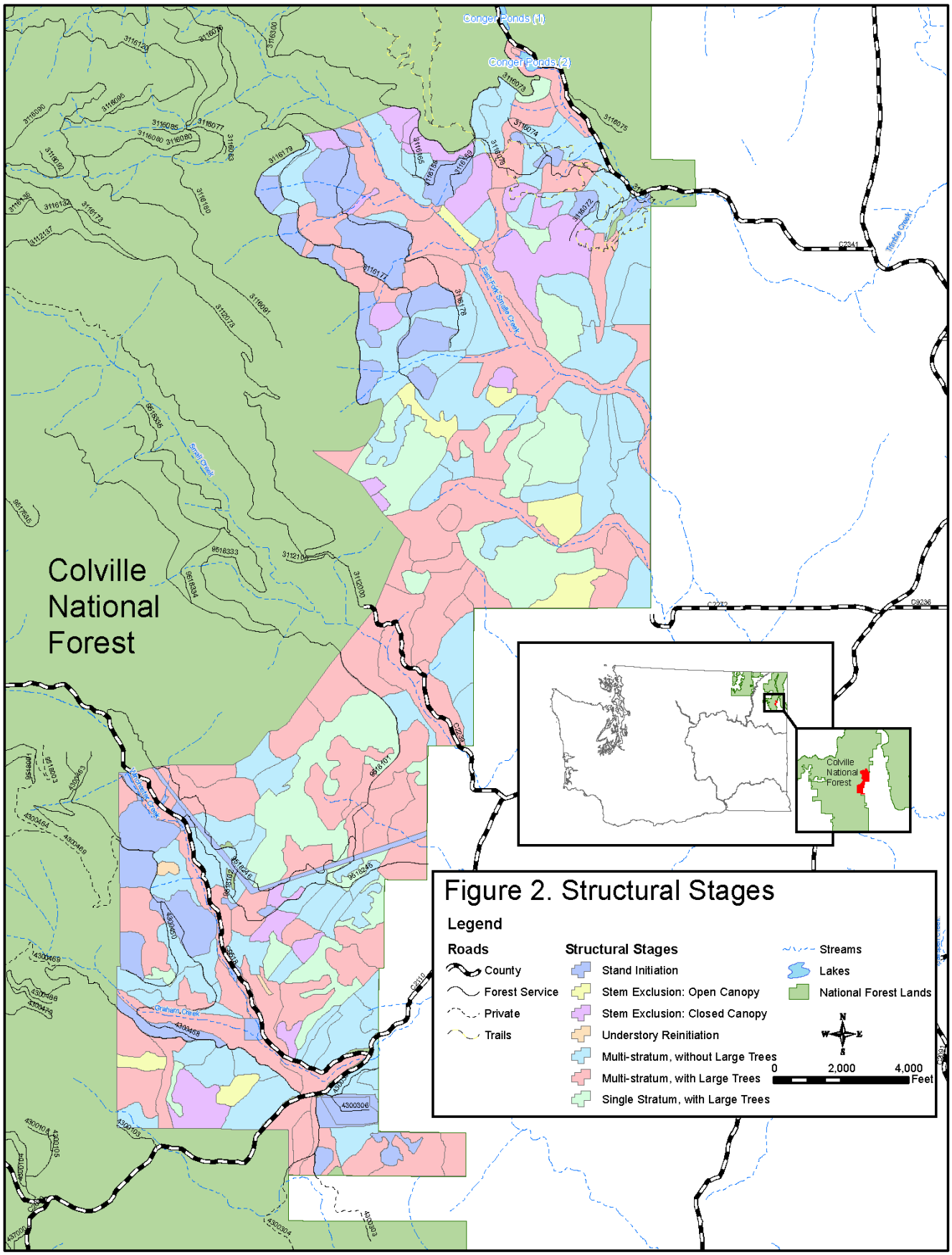
[1/]Based on Forest Plan (USDA Forest Service, 1988)


Conger Ponds (1)
Conger Ponds (2)
MA1
MA5
MA6
MA7
MA8
Colville National Forest
Figure 1. Project Area Vicinity Map
Legend
Roads
County
Forest Service
Private
Trails
Existing MA1, Proposed as MA6
Management Areas
MA1 (Proposed)
MA5
MA6
MA7
MA8
Private
Streams
Lakes
Project Area
National Forest Lands
0
2,000
4,000
Feet

Timber stands in the project area are predominantly western hemlock (*Tsuga heterophylla*)/western red cedar (*Thuja plicata*) and Douglas fir (*Pseudotsuga menzisii*)/grand fir (*Abies grandis*). Other stand types include ponderosa pine (*Pinus ponderosa*)/grand fir. Lodgepole pine (*Pinus contorta*) and subalpine fir (*Abies lasiocarpa*) exist at higher elevations. A variety of forest structural stages exist in the project area which support a diversity of wildlife species. Figure 2 displays the structural stage (SS) of each timber stand within the Conger project area as described below.

SS1 – stand initiation (seedlings / saplings / poles)
SS2 – stem exclusion, open canopy (1 cohort of trees up to 15" in diameter)
SS3 – stem exclusion, closed canopy
SS4 – understory re-initiation (second cohort of trees becoming established below the overstory)
SS5 – multi-stratum without large trees (2 or more cohorts of trees)
SS6 – multi-stratum with large trees (2 or more cohorts, overstory dominated by large trees)
SS7 – single stratum with large trees (single layer of large seral trees, open park-like)

Please note that SS6 and SS7 stands may, or may not be classified as old growth stands (under the North Idaho Zone definition), which is dependent on the average number of 21+ inch trees per acre.


Colville
National
Forest
Conger Ponds (1)
Conger Ponds (2)
East Fork Sinlahekin Creek
Small Creek
Graham Creek
Middle Creek
Colville
National
Forest
Figure 2. Structural Stages
Legend
Roads
County
Forest Service
Private
Trails
Structural Stages
Stand Initiation
Stem Exclusion: Open Canopy
Stem Exclusion: Closed Canopy
Understory Reinitiation
Multi-stratum, without Large Trees
Multi-stratum, with Large Trees
Single Stratum, with Large Trees
Streams
Lakes
National Forest Lands
N
W
E
S
0
2,000
4,000
Feet

The project area contains approximately 23.3 total miles of road (Table 2). The total road density is about 2.6 miles per square mile. Open road density is about 1.8 miles per square mile. There are also approximately 4.9 miles of off-highway vehicle (OHV) trails in the northeast portion of the project area.

Table 2. Mileage and density of roads and trails in the Conger project area.

Road Class	Miles
total roads	23.3
open year long	
-County road	4.4
-Forest Service road	11.8
-total open	16.2
restricted-year long	1.5
impassable	
-obliterated	5.6
motorized trail	4.9
snow mobile trail	0.0
Road Density	
miles / square mile - planning area	
-open roads	1.8
-total roads	2.6
-motorized trail	0.6
-snow mobile trail	0.0
miles / square mile – winter range	
-open roads	2.4
-total roads	3.1
-motorized trail	1.0
-snow mobile trail	0.0

III. PROPOSED ACTIVITIES

Alternative A is the "no action" alternative. No new forest management activities would occur with this alternative beyond programmatic activities (such as road maintenance) that are not related to this project.

Alternative B includes stand improvement activities designed to reduce hazardous fuel loads (i.e., ground and ladder fuels), with the overall objective of reducing the risk of future large-scale, stand replacing wildfire, and improve forest health in the Conger project area. The proposed action would employ a combination of timber sales, prescribed fire activity, and various mechanical means (e.g., pre-commercial thinning, etc) to adjust stand and landscape composition to accomplish these objectives (Table 3). Alternative B would employ helicopter logging on approximately 536 acres; ground based and skyline systems would be used elsewhere.

Alternative C includes only non-commercial harvests. Commercial thinning treatments proposed under Alternative C would target trees of commercial size (e.g., a tree that is 6 inches dbh with at least one 8 foot log to a 5-inch top diameter). Ground based and skyline logging systems would be used under this alternative. In stands were ground based systems are proposed harvested trees would then be relocated to a suitable decking/piling area and disposed of at a later time. This activity would be accomplished through the use of a service contract, rather than a timber sale or stewardship contract. Table 3 summarizes silvicultural and fire prescriptions under the alternatives and is followed by a description of the purpose and desired outcome of each activity. Some stands would receive more than one prescription.

No new road construction is proposed under any of the alternatives. Moderate reconstruction is planned for 9518101, 9518245, 3116177, 3116178, and 3116179 roads. Moderate reconstruction involves occasional drain dip construction, to reduce long-term sedimentation, and spot rocking of existing drain dips, outslope drains, RHCA's and their contributing areas, as well as occasional rocking to improve subgrade strength and sediment control with associated light blading and brushing. Additionally, occasional clearing of vegetation, including trees 6" and greater; excavation of the cutbank and roadbed for additional width to accommodate large vehicles (yarder, log truck, etc.); embankment construction; and culvert replacement and installation would be conducted as necessary.

Table 3. Proposed Activities by Alternative and Treatment Descriptions.

Proposed Treatment (Acres)	No Action (Alternative A)	Proposed Action (Alternative B)	Alternative C
Commercial thinning	0.0	430	430
Shelterwood regeneration harvest	0.0	20	20
Sanitation treatment	0.0	71	71
Clearcut with reserves	0.0	121	0
Pre-commercial thinning	0.0	334	334
Commercial thinning-shelterwood harvest	0.0	13	13
Commercial thinning-sanitation treatment	0.0	564	552
Clearcut with reserves-commercial thinning	0.0	39	0
Shelterwood harvest-sanitation treatment	0.0	21	0
Broadcast burn(low intensity)	0.0	2,841	2,841
Site preparation burn	0.0	250	30
New road construction (miles)	0.0	0.0	0.0
Road reconstruction (miles)	0.0	[1/]	[1/]

[1/] Mileage and exact location of road reconstruction to be determined.

Treatment Descriptions and Desired Outcomes

Commercial thinning	"Thin from below" treatment to increase the vigor of a stand to improve resiliency to fire, insects, and disease; target species to retain are fire resisters (e.g., thick bark and high, open crowns)
Shelterwood regeneration harvest	Variable retention method to leave enough healthy trees in the overstory to provide seed and shelter for the new stand; used to regenerate stands that have enough overstory dominants of the desired tree species
Sanitation treatment	Objectives are to slow, stop, and/or contain the growth of diseases in a stand. Involves removal of all susceptible tree species in an infected area plus a 50 foot sanitation buffer
Clearcut with reserves	Even-aged regeneration method designed to mimic a stand replacement fire
Pre-commercial thinning	Involves thinning sapling / pole sized trees to increase their vigor and resiliency
Broadcast burn (low severity)	Designed to reduce fuels and restore fire behavior attributes characteristic to the natural fire regime; secondary objective is to reduce densities of shade tolerant/ fire intolerant species that have established due to fire suppression
Site preparation burn	Reducing post-harvest slash and create a scarified seedbed, generally following clearcut with reserves or shelterwood harvest treatments

1. Habitat Conservation Measures

The Forest Service would incorporate the following measures in the design of Alternatives B and C to avoid, minimize, reduce, eliminate, or rectify the effects of the project to TES species and their habitats. These measures are accepted practices that have proven effective where they have been used in past timber harvest and fuel treatment projects.

Road Management

- Unauthorized, motorized traffic on any bermed roads opened for this project would be excluded with the use of gates, signs or other means. Once project activities are complete, these roads would be effectively re-closed to motorized travel with berms, boulders, piled slash, plantings, etc. In the same manner, skid trails would be effectively blocked where they intersect open roads.

Hiding Cover

- In order to maintain sight distances from roads, all brush, seedlings, saplings, and pole-sized trees would be maintained within 20 feet of the forested edge along open roads to the extent feasible. Prescribed fires would not be started within these forested "buffer strips". If necessary, fuels would be pulled away from the road edge or cut a fuel break to minimize the loss of vegetation from the roadside buffer.

Old Growth Associated Species Habitat

- Activities within structural stage 6 or 7 (late and old stand structure) would be directed toward reducing the risk of stand replacement wildfires, and to promote late and old stand

characteristics. Trees less than 21 inches in diameter and understory brush and fuel build up would be targeted for removal. No existing old growth stands would be harvested. If any such stands were identified during future reconnaissance or unit layout for harvest activities, they would be excluded from harvest.

- Commercial timber harvest would not occur within old growth associated species "core" habitat areas, including the MA1 area.
- Trees that are 21 inches in diameter or larger would not be marked for harvest except where necessary within temporary road or equipment corridors. Old corridors would be re-used to the extent possible.

Dead Wood Habitat

- All existing snags would be retained with the exception of those necessary to be felled within new equipment corridors, or for worker safety. Any snags felled would be left on site to contribute to down log levels.
- All existing down logs would be retained within harvest units.

Within-stand Diversity

- When thinning stands in Structural Stage 7 (park-like with large trees), some overstory leave trees would be left in clumps. This would provide pockets of higher basal area and interlocking tree canopies at the stand level. An average of 2-3 clumps would be retained per harvested acre. In addition, no treatments would be planned within discrete inclusions of shade tolerant trees in such stands.
- Where patches of aspen and birches exist, conifers would be more heavily marked in order to increase light levels for the shade intolerant hardwoods.

IV. PREFIELD REVIEW AND FIELD SURVEY

Field surveys within the Conger project area were conducted from 10 October to 13 October 2004, and the northern portion was walked on 1 May 2005. The objective was to survey forest stands distributed throughout the project area that provided a representative sample of the available forest types. Particular attention was devoted to areas likely to be the focus of timber and fuels management activities and areas with a high probability of use by priority species, including Threatened, Endangered, USDA Forest Service Region 6 Sensitive listed species, and all MIS species (e.g., potential travel corridors, older forested stands). Field surveys consisted of walking transects through forest stands starting from and ending on roads. Transects varied in length and normally followed UTM "tic" marks generated on field maps. A total of 81 forest stands were sampled. During surveys, general stand characteristics, occurrence of wildlife, wildlife sign, or other evidence of use, availability of large woody debris (> 15 inches in diameter at breast height) and snags (species and size class) were recorded, and the potential of the stand to provide winter range for ungulates based on the availability of forage (understory vegetation) and overstory cover. Snag size classes included 6 to 15 inches, 15 to 25 inches, and greater than 25 inches diameter at breast height. We also mapped any stick nests, game trails, and any other notable wildlife sign with a handheld GPS unit.

Methods used to analyze the effects of proposed activities on threatened, endangered and Forest Service sensitive listed species (TES) habitat included:

- review of data collected during field reconnaissance,
- review of timber stand examination data,
- aerial photo interpretation,
- review of environmental documents written for past timber sales in the area.

A risk assessment of the potential effects to each TES species was conducted according to procedures outlined in Forest Service Manual (FSM) 2672.42, 8/90, R-6 Supp. 2600-90-5.

V. EFFECTS OF THIS PROJECT AND ASSESSMENT OF RISK TO T&E AND FOREST SERVICE SENSITIVE LISTED SPECIES

bald eagle (threatened)

1. Management Framework – On the Colville National Forest, bald eagle habitat is managed according to the Bald Eagle Management Guidelines for Oregon and Washington (USFWS, 1981) and the Pacific States Bald Eagle Recovery Plan (USFWS, 1986). The Forest Plan states that active and potential bald eagle nesting habitat will be inventoried and that the effects of forest management on these sites must be assessed.

2. Existing Conditions – The bald eagle is federally listed under ESA as threatened and is also listed as threatened in Washington State; however, it is currently under review for delisting at the Federal level and will likely be downlisted from threatened to sensitive at the state level if it is delisted. Bald eagles occur year-round throughout Washington. Breeding bald eagles need large trees near open water that is not subject to intense human activity. In Washington, nearly all bald eagle nests (99 percent) are within 1 mile of a lake, river, or marine shoreline (Stinson et al., 2001). Assuming the presence of an adequate food supply, the single most critical habitat factor associated with eagle nest locations and success is the presence of large super-dominant trees (Watson and Pierce, 1998). Most nesting in the state occurs in western Washington; however, nesting occurs to a lesser degree east of the Cascades.

Breeding habitat for the bald eagle typically includes mature and old growth forest within 1 mile (1.6 km) of water (Brown, 1985; USFWS, 1986); nest sites in eastern Washington are most commonly found in ponderosa pine and black cottonwood trees. Roosting habitat for this species typically occurs in uneven-aged forest stands with some old growth characteristics close to a rich food source (Anthony et al., 1982). The project area is located west of the Pend Oreille River. Cottonwood trees are an important component of bald eagle habitat along the river. Most active eagle nests are in these trees and birds are frequently seen perched or roosting in cottonwoods on the riverbanks. Potential roost sites do occur in the project area in the form of large, mature conifer stands in the later structural stages of stand development (stages 6 and 7). Some birds may also use trees along the shores of Conger Lake, in the northeastern portion of the Conger project area. There are approximately 2,904 acres of forest in structural stages 6 and 7 in the project area, however, there are no known nests, roosts, or perches in the project area, and no stick nests were documented during the reconnaissance surveys.

Both breeding and wintering bald eagle numbers have continued to increase in Washington State since the early 1980s. Habitat removal and human disturbance are, and will continue to be, the main threats to bald eagle populations. Habitat alteration can limit suitable nesting and roosting habitat, and human disturbance can cause birds to leave their nests and can limit prey availability (Stalmaster, 1987).

3. Effects of This Project –
Alternative A—No management activities would occur within any potential bald eagle habitat. Left untouched, mature trees would be recruited to forest stands that could provide potential nesting and roosting habitat for bald eagles using the Pend Oreille River. Under a natural fire regime, a fire would remove some trees from younger stands, allowing a cohort of trees to mature and become dominant in the stand. However, due to past fire suppression activities that have restricted the natural fire regime,

many younger stands in the project area are over crowded. Consequently, the build up of forest floor and ladder fuels due to the lack of fire is conducive to large-scale stand-replacement wildfires that could potentially remove all mature trees, and thus potential habitat for bald eagles in the project area.

Alternatives B and C—Silvicultural activities proposed under Alternatives B and C would not impact any habitats managed specifically for late-successional and old growth species (e.g., MA 1). However, under these alternatives the current MA 1 would be relocated and would be increased from 640 acres to 730 acres. Approximately 591 acres of the new MA 1 would consist of structural stage 5, 6, and 7, an increase of 25 acres. In addition, the new MA 1 contains approximately 12.9 miles of class 2, 3, and 4 streams, whereas the existing MA 1 encompasses approximately 3.3 miles of class 2, 3, and 4 streams. Thinning and sanitation activities, directed toward reducing the risk of stand replacement wildfire, would impact approximately 600 acres of forest in structural stages 6 and 7. Dominant trees (greater than 21 inches diameter at breast height) would not be targeted for removal under either alternative, however, a few large trees potentially used by bald eagles for nesting or roosting would be lost in equipment corridors and for worker safety (e.g., snags). Additionally, thinning dense stands would promote the development of large, full-crowned trees by reducing inter-tree competition for resources (e.g., water, light, nutrients) and increasing the resistance of remaining trees to fire, insect, and disease.

To reduce fuel loads and restore the historic fire regime in the area, low intensity broadcast burning would be applied on approximately 1,883 acres of forest in structural stages 6 and 7. In more open, mature stands, primarily ponderosa pine dominated stands, where super dominant trees that could be potentially used by bald eagles are found, burns would likely be cool, removing brush, small fuels, herbaceous vegetation, and small clumps of young trees, leaving overstory trees intact. However, fires in overcrowded stands that contain abundant ground and ladder fuels could potentially spread to adjacent stands and burn mature trees. Although there is a possibility that some pockets of forest that may experience high intensity wildfire, measures including burning under optimal fuel moisture and weather conditions and not targeting high risk stands (e.g., cedar/hemlock) would be applied to reduce this likelihood. As such, no substantial impact to bald eagles due to the loss of large trees is anticipated.

Helicopter activity associated with commercial timber harvest under Alternative B would occur more than a mile from bald eagles using the Pend Oreille River. Additionally, landings would be located on roads within the sale area, or areas immediately adjacent to the sale area, and helicopter flight paths would not occur near the river. Consequently, no disturbance impacts from helicopter activity are anticipated for bald eagles.

4. Effects Determination – With all action alternatives, the timber sale contract would include standard contract clause CT6.25 (Protection of Habitat of Endangered, Threatened and Sensitive Species). This clause would insure that any individual eagle, or active nest, perch, or roost site found during the life of the sale, would be protected. Considering the above discussion, the project is **not likely to adversely affect** bald eagles.

Risk Analysis: Alternatives A, B, and C
Consequence of adverse effects = low
Likelihood of adverse effects = low
Risk index value = 1 x 1 = 1

gray wolf (endangered)

1. Management Framework – The Northern Rocky Mountain Wolf Recovery Plan (USFWS, 1987) identifies three areas for wolf recovery: the Yellowstone and Glacier National Park ecosystems, and central Idaho. Currently, there are no plans for wolf recovery in Washington State. Forest Plan direction for wolf management is to investigate sightings and protect any discovered resident animals.

2. Existing Conditions – The gray wolf is listed as threatened under the Federal ESA and is also a Washington State endangered species. Although there are no known viable wolf populations in Washington, it appears that gray wolves are currently becoming re-established in the North Cascades and Selkirk Mountains of Washington State (USFWS, 1993). In recent years, there have been several confirmed sightings of wolves on the east side of the Newport–Sullivan Lake Ranger Districts which likely dispersed from reintroduction sites in Montana or Idaho (USDA Forest Service, 2002). However, no wolf packs, or family units of breeding wolves, have been documented on the Colville National Forest.

Wolves may continue to increase in numbers in the next few years in Washington as they disperse from populations in central Idaho, Wyoming, and Montana. The USFWS has recently proposed to delist the Western Distinct Population Segment (DPS) of the gray wolf once all three states have approved wolf management plans. Three key habitat components for gray wolves include the availability of a year-round prey base, suitable and secluded denning and rendezvous sites, and sufficient space with minimal exposure to humans.

Prey Animals—The Conger project area is an important wintering area for deer and elk, the primary prey of gray wolves. The project area encompasses approximately 3,157 acres of land designated as Management Areas 6 and 8, which are land allocations managed under the Forest Plan with an emphasis on winter range. Impacts to winter range are addressed in the Management Indicator Species Report associated with this project and will not be discussed further here.

Seclusion—Gray wolves are sensitive to human activity along roads and may limit their use of areas with high levels of human activity. High road densities may impact wolves by increasing the potential for illegal hunting, avoidance/displacement, collisions, and disturbance. Additionally, an expansive network of roads provides easy access to public lands, which facilitates off-road uses in the form of all-terrain vehicles (ATVs), horses, mountain bikes, and foot traffic (Wisdom et al., 2004). To provide adequate seclusion habitat for wolves on National Forest system lands in northern Idaho and northeastern Washington, Hansen (1986) recommended that open road densities not exceed one mile per square mile. Road densities in the project area exceed these recommendations (Table 2).

Den and Rendezvous Sites—Den sites are established and used for pup rearing from March through early May in the Rocky Mountains. Dens may be dug out or located in caves, rock crevices, or abandoned beaver lodges and may be used repeatedly. Dens sites are commonly located on moderately steep slopes with southerly aspects. Wolf rendezvous sites are areas used for resting and gathering during the summer and early fall once dens have been abandoned. Rendezvous and den sites are usually located near water and are characterized by systems of trails, beds, and play areas, and often border meadows. Human disturbance near these sites may cause abandonment. No wolf den or rendezvous sites have been documented on the Colville National Forest. Due to the level of road and trail use in the project area, few suitable den or rendezvous sites that are secluded from human disturbance likely exist within the project area

3. Effects of This Project –
Effects to Big Game Winter Range

See the Management Indicator Species report associated with this project for a discussion of impacts to winter range.

Effects to Seclusion

Alternative A—There would be no change in seclusion habitat in the project areas since no project activities would occur.

Alternatives B and C—Human disturbance would increase in the project area under both alternatives, particularly associated with road construction, helicopter logging activities (Alternative B only) and prescribed burning. Any wolves using the project area would likely be displaced temporarily. No new roads would be constructed under Alternatives B or C, although approximately 10 miles of existing roads would be reconstructed to facilitate project activities. To minimize impacts to wolves, roads reconstructed to facilitate project activities would be closed to all vehicle traffic, and motorized vehicle (e.g., motorcycles and OHVs) use would be prohibited along closed roads following project completion.

Effects to Den and Rendezvous Sites

Alternative A—The suitability of all potential denning and rendezvous habitat would be maintained with this alternative since no forest management would occur.

Alternative B and C— In the unlikely event an active den or rendezvous site is established within the project area, project activities would be immediately halted in the vicinity. A biologist would be consulted as to measures required to protect the site and any animals present.

4. Effects Determination – The project area lies outside of designated recovery habitat for wolves. This means that habitats in the area are not needed for the survival and recovery of the species. At the present time, there is no direction to manage habitats specifically for gray wolves in the project area. Based on this and the preceding discussion, and provided all required mitigation is followed, the alternatives as proposed are **not likely to adversely affect** gray wolves.

Risk Analysis – Alternatives A, B, C
Consequence of adverse effects = low
Likelihood of adverse effects = low
Risk index value = 1 x 1 = 1

grizzly bear (threatened)

1. Management Framework – The management of grizzly bears on the Colville National Forest is directed by the Interagency Grizzly Bear Guidelines (1984), the Grizzly Bear Recovery Plan (USFWS, 1993), and the Forest Plan. Although the historic range of grizzly bears encompassed the Colville National Forest, the distribution now occurs primarily with recovery zones and through the establishment of Grizzly Bear Management Units (BMU) within these areas. Grizzly bears are protected outside recovery zones, though their use of such areas is not encouraged.

2. Existing Conditions – The Conger project area is not located within a grizzly bear recovery area. The closest recovery area is the Selkirk–Cabinet/Yaak Grizzly Bear Recovery Area, which includes the Selkirk Mountains Ecosystem of northern Idaho, southern British Columbia, and northeast Washington, and encompasses a portion of the Newport-Sullivan Lake Ranger Districts east of the Pend Oreille River. There are estimated to be between 40 and 50 bears using this recovery area (Kasworm et al., 1995 *cited in* Kasworm et al. 2005). Grizzly bears are occasionally sighted on the Newport-Sullivan Lake Ranger Districts and in August 2002, a radio collared 2-year old male was

detected at the 49 Degrees North Mountain Resort, which is located southwest of the Conger project area (USDA Forest Service, 2004). This bear traveled from northeastern Washington, through the Colville National Forest, and eventually end up in Idaho where it was shot and killed in December of 2002. Due to their wide-ranging nature, it is possible that grizzly bears could occur within the project area. Their use of the project area would be influenced by food availability, potential den sites, and the degree of isolation from humans.

Forage—During spring and early summer, grizzly bears use low elevation meadows and riparian areas where they forage on palatable grasses, sedges, and herbs. They also forage on winter killed elk, deer, other game, and fish when available. When the snow melts, they move to higher elevations (e.g., above 3,000 feet) to forage. During fall, grizzly bears forage heavily on huckleberries, serviceberries, mountain ash, roots, and moths. Throughout the year, bears also forage on ants and other insects in rotting logs and stumps. In the project area, natural and created openings with abundant early successional understory vegetation could provide potential forage for bears. Downed wood is also abundant in many stands.

Denning—During the winter, grizzly bears typically seek high elevation meadows and parks to hibernate. Dens are usually dug out of the ground and used from October or November to April or May. There are no high elevation meadows in the project area.

Hiding Cover—Isolation and safety are functions of available space and the amount of human activity present (USFWS, 1993). High levels of human activity can displace bears from foraging and den sites. Consequently, hiding cover is an important component of grizzly bear habitat, particularly in areas with extensive road and trail systems, although there is no requirement for its provision under the Forest Plan. Hiding cover for grizzly bears is defined as vegetation capable of hiding 90% of a standing adult bear from human view at a distance of 200 feet (USDA Forest Service, 1990).

Bears can also become habituated to relying on areas of human habitation for food, leading to human-bear conflicts. Garbage is cited as one of the primary contributors to these conflicts (Herrero, 1985). Problem bears can be relocated but may be destroyed if they become a threat.

Seclusion—As noted above, the project area has a current open road density of 1.8 miles per square mile, and a total road density of 2.6 miles per square mile. Because of these high road densities, seclusion habitat for bears is limited in extent in the area.

3. Effects of This Project

Effects to Forage

Alternative A—Natural and created opening in the project area would continue to produce herbaceous vegetation and shrubs that serve as a potential food source for grizzly bears. However, over time conifer encroachment in combination with the absence of a natural fire regime would cause these openings to close, shading out understory vegetation and rendering these areas no longer suitable as foraging habitat for grizzly bears. The long-term risk of intense wildfire would increase in these areas due to the build up of forest fuels. Although fire would increase understory growth and provide forage for bears, large-scale fires could also remove cover, creating unsuitable conditions for bears.

Alternatives B and C—Logging activities proposed under Alternative B and C would open up the tree canopy and allow more sunlight to reach the forest floor. The increase in sunlight would promote the growth of berry-producing shrubs and green forage plants used by bears.

Prescribed burning activities would also have a positive impact on foraging habitat. In open habitats with less fuel build up, fires are expected to be lower in severity and burn cooler, primarily removing

understory brush, small clumps of young trees, and grasses. The removal of these materials would result in the input of a pulse of nutrients in the soil, increasing the amount and palatability of returning understory species. However, in areas with significant fuel build up, fires have the potential to become severe and burn hot. Under this circumstance, understory vegetation would be burned over, and could take several years to become reestablished. During this time, these areas would not provide suitable foraging habitat for grizzly bears. Although high-intensity fires are not intentional under either of the action alternatives, there is a possibility of some pockets of high intensity fire, resulting in a mosaic of burned and unburned patches. To reduce the risk of stand replacement fire, measures including burning under optimal fuel moisture and weather conditions, and avoiding dense cedar/hemlock stands with a higher risk of intense fire, would be applied.

Effects to Hiding Cover

Alternative A—No direct impacts to hiding cover would occur under Alternative A. However, as noted above, fire suppression activities have created conditions conducive to stand replacement wildfires that might remove hiding cover over the long-term.

Alternative B and C—All silvicultural activities proposed under Alternative B and C would reduce the amount of hiding cover for grizzly bears. Clearcutting and shelterwood regeneration harvest would have the greatest impact on hiding cover because the greatest amount of timber would be removed under these treatments. A total of 231 acres would be clearcut or shelterwood harvested under Alternative B and a total of 33 acres would be shelterwood harvested under Alternative C. It is likely that grizzly bears potentially using areas with these treatments would be displaced to areas that provide sufficient hiding cover. Growing young trees in these harvested units would have likely restored hiding cover in 10-15 years.

Prescribed burns would also reduce the amount of hiding cover in the project area, with approximately 2,841 acres of the project area burned under both Alternative B and Alternative C. In areas with less fuel build up, a majority of the horizontal cover, in the form of larger trees and downed wood, would remain. In stands with significant fuel build up, there is greater potential for fires to remove overstory trees. However, tree boles, logs, shrub skeletons, and downed wood remain that would maintain cover and burned areas would mostly consist of a mosaic of burned and unburned fire skips. Additionally, areas of intense fire behavior would be minimized by igniting during optimal fuel and weather conditions.

Effects to Seclusion

The increased human activity in the project area associated with timber harvest, burning, and road management activities would reduce the seclusion of grizzly bears in the project area. To mitigate these impacts on grizzly bears potentially using the area, buffer strips would be left along roads and trails. No new roads would be constructed under any of the alternatives and roads reconstructed to facilitate project activities would be closed following project completion.

4. Effects Determination – The project area lies outside of designated recovery habitat for grizzly bears. This means that habitats in the area are not needed for the survival and recovery of the species. At the present time, there is no direction to manage habitats specifically for grizzlies in the project area. During the life of the project, individual bears discovered in the area would be protected according to direction in existing management/recovery plans and by the standard timber sale contract clause CT6.25. None of the action alternatives would adversely impact potential grizzly bear foraging habitat in the project area, nor substantially reduce seclusion. Thus, the alternatives as proposed are **not likely to adversely affect** grizzly bears.

Risk Analysis – Alternatives A, B, and C
Consequence of adverse effects = low
Likelihood of adverse effects = low
Risk index value = 1 x 1 = 1

Canada lynx (threatened)

1. Management Framework – In 1993, the Washington Department of Fish and Wildlife mapped prime lynx habitat across the state, delineating six areas identified as Lynx Management Zones (LMZ). Federal land jurisdictions include about 92 percent of the habitat within these areas in Washington, with the vast majority (approximately 88 percent) administered by the Forest Service (Ruediger et al., 2000). The National Park Service (North Cascades National Park) administers about 3.6 percent of primary lynx habitat across Washington, while reserve-type designations (wilderness areas, national parks, refuges, etc.) account for almost 40 percent of the lynx habitat in Washington (Ruediger et al., 2000).

Within this primary lynx range, smaller units called Lynx Analysis Units (LAUs) were identified to facilitate the management of lynx habitat at a smaller scale. The Canada Lynx Conservation Assessment and Strategy (LCAS) (Ruediger et al., 2000) is a culmination of the latest research findings on lynx, and provides guidance to Federal agencies with respect to management of lynx habitat on Federal lands. In 2000, Colville National Forest biologists mapped Lynx Analysis Units (LAUs), based on watershed boundaries. The Conger project area is not located within any LAUs.

2. Existing Conditions – The Canada lynx is both an ESA and state threatened species in Washington. In Washington, lynx are primarily associated with subalpine and boreal forest types in the north-central and northeastern parts of the state. They occur at high elevations (e.g., above 3,200 feet) in very remote areas, using extensive tracts of dense forest interspersed with rock outcrops, bogs, and thickets (Brittell et al., 1989; McCord and Cardoza, 1982; Ruggiero et al., 1994). Lynx are found in a mosaic of forest types from early successional to mature conifer and deciduous forest, as long as their primary prey source, snowshoe hares, are present (Ruggiero et al., 1994). Snowshoe hares are most abundant in young, dense, moist coniferous forests that provide cover, protection from predators, and year-round browse. Den sites for lynx, however, tend to be located in mature forest (older than 150 years) that: 1) are at least 5 acres in size; 2) have abundant downed woody material; 3) are undisturbed by humans; 4) are within 3.4 miles of foraging areas; and 5) are adjacent to natural travel corridors such as ridges and riparian areas (Brittell et al., 1989; Koehler, 1990).

3. Effects of This Project – Areas outside of LAUs are not considered important for supporting reproducing lynx (LCAS pp 7-2 to 7-4). Project activities would not occur within the vicinity of any know lynx den site. Therefore, the project would not affect adults or kittens during critical life stages.

4. Effects Determination – Based on the preceding discussion, this project would have **no effect** on Canada lynx.

Risk Analysis – Alternatives A, B, and C
Consequence of adverse effects = low
Likelihood of adverse effects = none
Risk index value = 1 x 0 = 0

fisher (sensitive)

1. Management Framework – The Forest Plan has no specific direction for managing fisher habitat. The forest-wide network of core habitat areas for other old growth associated species (pine marten, pileated woodpecker, and barred owl) likely provide habitat elements required by fishers.

2. Existing Conditions – Fishers are a USFWS Candidate species, Forest Service Region 6 Sensitive listed species, and a state Endangered species in Washington. Fishers are thought to occur throughout the western Washington Cascades, Olympic Mountains, and in eastern Washington in portions of the Okanogan Highlands (Aubry and Houston, 1992). Very little information is available for the fisher in eastern Washington. On the west side of the Cascades, the fisher is considered a low- to mid-elevation species. All westside trapping records of this species are from locations below 5,906 feet in elevation, and the great majority (87 percent) are below 3,280 feet (Aubry and Houston, 1992). Fishers appear to prefer conifer-dominated forests, although some hardwood stands may be used. Mature and old growth forests and forested riparian areas with at least 80 percent canopy coverage seem to provide the most suitable habitat for this species, although second-growth and clearcuts can be used if sufficient cover is present. Allen (1983) estimated that at least 100 square miles of suitable contiguous habitat with 80 percent tree canopy coverage is necessary for fishers. Breeding habitat for the fisher contains an abundance of logs and snags, and is usually found in forests that are greater than 80 years old (Thomas et al., 1979). Riparian areas, ridgelines, and lakeshores located in and adjacent to forests, are used by fishers for foraging and as travel corridors (Buck et al., 1983). Within the Conger project area there are approximately 1,629 acres of forest in structural stage 5 (multi-storied without large trees) and 2,558 acres in structural stage 6 (multi-storied with large trees).

Habitat Connectivity—Removal and fragmentation of suitable habitat, primarily due to timber management activities and associated road construction, and human presence are of concern for fisher populations (Powell and Zielinski, 1994). Fishers tend to avoid non-forested areas such as clearcuts, meadows and areas above timberline, and rely on travel corridors to move across a managed landscape. Within the Conger project area, potential travel corridors have been mapped, most of which follow riparian corridors and low saddles.

3. Effects of This Project –

Impacts to Late and Old Structural Stage Habitats

Alternative A—In the absence of a natural fire regime, forest stands in structural stages 5, 6 and 7 would continue to become encroached upon by young conifers over time. Increased stand densities, in combination with the build up of forest fuels due to past fire suppression policies, increases the potential for large-scale, stand replacement fires that could completely remove mature and old growth forest stands.

Alternative B — Alternative B proposes thinning or sanitation treatments on 1,065 acres of stands in structural stages 5, 6, and 7, under-burning on 2,692 acres, and clearcut or shelterwood harvest approximately 175 acres (Table 4). Both silvicultural and burn activities have the potential to remove overstory cover, however the greatest amount of removal would occur under clearcutting or regeneration harvest regimes. As stated earlier, no timber harvest activities would occur in mature forest stands that would meet the North Idaho Zone definition of old growth. All timber harvest activities are aimed at reducing the risk of large-scale wildfire and would not involve the removal of trees greater than 21 inches in diameter, with the exception of a minimal number that would need to be removed from equipment corridors or to maintain worker safety. Trees retained in thinned mature stands would eventually (15-20 years) begin to fill in the canopy, restoring their value to fishers. Likewise, thinning in younger stands would help accelerate the succession of these stands to mature

stands suitable for fishers by reducing inter-tree competition for resources (e.g., water, light, nutrients) and would increase the resistance of remaining trees to fire, insect, and disease. Alternative B involves the removal of cut timber from the stand that could otherwise serve as potential den sites.

Prescribed burning would retain overstory trees in stands with less fuel build up. In these stands primarily understory brush, grasses, and other herbaceous vegetation would be removed. Conversely, in un-thinned stands with significant fuel base, fires have the potential to burn more intensely that could remove overstory trees entirely. The risk of high intensity wildfires would be minimized by burning under optimal fuel, moisture, and weather conditions and by avoiding dense cedar/hemlock stands with the greatest risk. Although there may be some pockets of high intensity fire, these burned areas are expected to result in a mosaic of burned and unburned fire skips.

Alternative C— Alternative C proposes to thin or apply sanitation treatments to approximately 981 acres, conduct regeneration harvest on approximately 30 acres, and under-burn 3,226 acres of stands in structural stages 5 and 6 and 7. As noted above, activities in mature stands would focus on promoting old growth characteristics through under-burning and thinning and sanitation treatments that target trees less than 21 inches in diameter. No clearcutting would occur under Alternative C. Consequently, substantial impacts to overstory cover in these stands would be less than under Alternative B.

As noted under impacts to bald eagles, the current MA 1 within the project area would be relocated and increase by 90 acres, including an additional 25 acres of structural stage 5, 6, and 7 stands. This additional protection would increase the amount of available habitat to fishers in the project area.

Impacts to Travel Corridors

Alternative A—The Forest Service has mapped travel corridors for pine marten, which could also be used by fishers. These travel corridors would not be directly impacted under Alternative A because no silvicultural or burn treatments are proposed. However, continuing fire suppression activities would increase the long-term risk of stand replacement wildfires, particularly in areas with substantial fuel build up. Such fires have the potential to remove travel corridors all together, which would reduce the ability of fishers to move across the landscape and increase the isolation of a small populations or smaller parcels of potential habitat.

Alternative B — Within travel corridors, Alternative B proposes to thin or apply sanitation treatments to approximately 101 acres, clearcut or shelterwood regeneration harvest approximately 4 acres, and burn approximately 347 acres (452 total acres affected). Clearcut/shelterwood regeneration harvest, which could effectively sever a travel corridor by removing all tree cover comprise only a small portion of the travel corridors in the project area. In these situations, 2 connections would be maintained between neighboring core habitat areas,

MA1 and structural stage 6 stands per Forest Plan direction. Thinning and sanitation treatments would not eliminate the function of travel corridors for fishers but would likely reduce their effectiveness.

Fires in thinned stands with less fuel build up would be less severe, primarily removing understory brush, grasses, and herbaceous vegetation, leaving much of the overstory cover and large pieces of downed wood. However, fires in stands with substantial fuel build up are likely to be more severe and could remove portions of the travel corridors entirely, however, this risk would be minimized by burning under optimal fuel, moisture, and weather conditions and by avoiding dense cedar/hemlock stands that are at higher risk.

Alternative C — Alternative C proposes comparable thinning, sanitation, and burning treatments within project area travel corridors (101 acres thinning/sanitation treatment; 343 acres burning; 444

acres total), but does not include clearcutting and proposes less than 1 acre of shelterwood regeneration harvest. Therefore, Alternative C would provide greater protection to travel corridors potentially used by fishers.

Table 4. Acres of treatments applied to forest structural stages under Alternatives B and C; no treatments would be applied under Alternative A.

	Stand Structural Stages [1/]											
	1		2		3		5		6		7	
Alternative/Treatment	B	C	B	C	B	C	B	C	B	C	B	C
Commercial thinning			14	14	30	30	226	226	160	160		
Sanitation treatment							30	30	40	40		
Shelterwood regeneration harvest					16	16	4	4				
Clear-cut with reserves					40		81					
Pre-commercial thinning	328	328					6	6				
Commercial thin-shelterwood harvest											13	13
Commercial thin-sanitation treatment			55	55	35	34	88	76	344	344	43	43
Clearcut with reserves-commercial thin							39					
Clear-cut with reserves-sanitation treatment							18					
Shelterwood harvest-sanitation treatment							21					
Prescribed broadcast burn	39	39	115	115	203	203	599	599	1,170	1,170	713	713
Site preparation burn					41		210	30				

1/ Please refer to Section II-Project Area Description for the structural stage definitions.

4. Effects Determination

Based on the above discussion, the proposed action alternatives **may impact individuals but not likely to cause a trend to federal listing or a loss of viability** to the fisher.

Risk Analysis – Alternatives A, B, and C
Consequence of adverse effects = moderate
Likelihood of adverse effects = low
Risk index value = 5 x 1 = 5

California wolverine (sensitive)

1. Management Framework – The Forest Plan provides no specific direction for managing wolverine habitat other than direction provided by the National Forest Management Act that specifies protection of sensitive species. However, remote country with minimal human disturbance appears to be essential to the maintenance of viable wolverine populations. As such, the provision of seclusion habitat for wintering big game animals could also benefit wolverines.

2. Existing Conditions – The wolverine is a USFWS species of concern, a Forest Service Region 6 sensitive listed species, and a candidate for state listing in Washington. The wolverine is a wide-ranging species that inhabits a variety of habitats, but is generally found in remote montane forests (Banci, 1994). Wolverines generally avoid clearcuts, although they will travel through them if necessary. Human presence near den sites can cause abandonment and/or removal and relocation of

kits to new den sites (Copeland, 1996). Habitat fragmentation and human access resulting from land-use activities (e.g., roads and timber management) are of particular concern for this species.

Foraging Habitat — In summer, wolverines forage at high elevations and hunt along alpine slopes. In winter, they drop to lower elevations following big game migration and may move far away from the mountains in search of winter kill. Wolverines feed primarily on carrion, especially in winter. Wolverines also kill small prey such as marmots, hares, and various rodents. There are no alpine slopes in the Conger project area but some potential foraging area may be present on deer and elk winter range in the project area.

Denning Habitat — Den sites are usually located in talus areas or fallen logs (Copeland, 1996). Human presence near den sites can cause abandonment and/or removal and relocation of kits to new den sites (Copeland, 1996). There are no talus slopes in the project area, however, large pieces of downed wood and stumps are common in some of the more mature forest stands, but generally at lower elevations.

Seclusion—See the discussion of this habitat listed under gray wolves.

3. Effects of This Project

Impacts to Denning Habitat

Alternative A — All potential den sites would be maintained under this alternative but due to past fire suppression policies, there is increased potential for large scale fires that could remove a substantial amount of suitable pieces of downed wood. Habitat managed specifically for old growth dependent species (MA 1) would not be altered under this alternative.

Alternative B and C — No activities would occur in MA 1 habitat under either of the action alternatives. However, MA 1 habitat would be relocated within the project area and would be increased to 730 acres. Approximately 591 acres of the new MA 1 would consist of structural stage 5, 6, and 7, an increase of 25 acres. In addition, the new MA 1 contains approximately 12.9 miles of class 2, 3, and 4 streams, whereas the existing MA 1 encompasses approximately 3.3 miles of class 2, 3, and 4 streams. Neither of the action alternatives involves the removal of downed logs or snags, although some snags may need to be felled for worker safety. Any such trees would be left on the ground to contribute to down log levels.

Impacts to Forage

Wolverines depend on big game animals as a food source and any adverse impacts to the winter ranges of these species that would result in their reduced use of these areas could impact wolverines by reducing hunting and foraging opportunities (see the above discussion for gray wolves). Elsewhere in the project area, silvicultural and burning prescriptions may benefit wolverines by increasing their food base. By opening forest canopies and facilitating the growth of understory vegetation, some small mammal populations that use these areas would increase temporarily. Other species would become more vulnerable to predation due to the lack of hiding cover. Because wolverines are opportunistic feeders, they would likely take advantage of these resources.

Impacts to Seclusion

Impacts to wolverine seclusion would be similar to those described above for gray wolves.

4. Effects Determination – Based on the above information, the proposed action alternatives **may impact individuals but are not likely to cause a trend to federal listing or a loss of viability** to the California wolverine.

Risk Analysis – Alternatives A, B, and C
Consequence of adverse effects = low
Likelihood of adverse effects = low
Risk index value = 1 x 1 = 1

Townsend's big-eared bat

1. Management Framework – There is no direction provide by the Forest Plan for the management of Townsend's big-eared bats.

2. Existing Conditions – The Townsend's big-eared bat is a USFWS Species of Concern, a Forest Service Region 6 Sensitive listed species, and a Candidate for state listing in Washington. Townsend's big-eared bats are widespread in the Northwest and have been documented from sea level to 10,365 feet, in a variety of habitats where they forage on flying insects (Nagorsen and Brigham, 1993). The presence of suitable undisturbed roost, nursery, and hibernaculum (i.e., wintering hibernation) sites is the most important habitat component dictating the presence of this species (Perkins and Levesque, 1987). Hibernacula, in particular, are extremely susceptible to disturbance. Big-eared bats use caves, buildings, mines, and the undersides of bridges with appropriate temperature and humidity for nurseries and for hibernation. A lack of or change in vegetation near a cave entrance may render a cave unsuitable for bats due to effects on microclimatic conditions, depending on the characteristics of the cave. There are no known caves or mines in the project area.

3. Effects of This Project – Because there are no known potential nursery, roost, or hibernaculum sites in the project area, no impacts to Townsend's big-eared bats are anticipated under any of the alternatives.

4. Effects Determination – The alternatives as proposed would have **no impacts** on Townsend's big-eared bats.

Risk Analysis - All Alternatives
Consequence of adverse effects = low
Likelihood of adverse effects = none
Risk index value = 1 x 0 = 0

northern leopard frog (sensitive)

1. Management Framework – The Forest Plan does not provide direction on managing northern leopard frogs.

2. Existing Habitat Conditions – The northern leopard frog is a Region 6 sensitive species. The range of this species extends from the northeastern United States, through the Great Lakes, Midwest, and Great Plains regions. The western portion of its range includes eastern Washington. In Washington, this frog is found east of the Cascade Mountains, throughout the northeast and north-central portions of the state. It has been documented in the Potholes Reservoir in Grant County, and along the Columbia and Snake Rivers in Walla Walla, Benton, Klickitat, and Whitman Counties. These frogs have also been known to occur in Pend Oreille, Stevens, and Okanogan Counties (Leonard et al., 1993; Leonard and McAllister, 1996); however, the current distribution in Washington is thought to be primarily in the potholes region (McAllister et al., 1999).

In the last 20 years, the northern leopard frog has declined in numbers throughout North America, and this trend is apparent within Washington and Canada as well (Leonard and McAllister, 1996). Surveys suggest that this frog may be absent from up to 90 percent of its historic range in Washington (Andelman and McAllister, 1994). The definite causes for this decline are unknown, though habitat loss, pesticide use, and nonnative predators contribute to the problem (Hays and Jennings, 1986; Andelman and McAllister, 1994; Leonard and McAllister, 1996).

The northern leopard frog inhabits marshes, wet meadows, riparian areas, and moist, open woods, at elevations ranging from 270 feet to 1,363 feet. Prey items include insects and spiders, leeches, fish, other amphibians, small snakes, and birds (Leonard et al., 1993). This frog breeds in spring (usually begins in March or April), in marshes and ponds, or along lake margins where there is dense aquatic vegetation. It avoids bodies of water with no vegetation, preferring cattail or sedge marshes and weedy ponds. Northern leopard frogs will use both temporary and permanent bodies of water for breeding (Nussbaum et al., 1983). Eggs are usually attached to submerged vegetation, near the surface of water that is at least 1.6 feet deep. In the summer, this
frog often strays far from water (Leonard et al., 1993). It inhabits moist meadows, hay fields, and grassy woodlands, and requires high ground cover for concealment (Nussbaum et al., 1983). During the winter, northern leopard frogs hibernate under rocks or other objects within aquatic habitats (Nussbaum et al., 1983).

3. Effects of This Project –
Alternative A — No impacts to riparian areas, wetlands, or moist, open forests would occur under Alternative A because no silvicultural or burn treatments would occur. Some open areas could be lost over time due to forest succession.

Alternatives B and C — No harvest activities would occur in Riparian Habitat Conservation Areas (RHCAs) under either of the action alternatives. In addition, no timber harvest would occur within 100 feet of any wetland less than one acre in size or within 150 feet of wetlands larger than one acre (USDA Forest Service, 1995). Streams are similarly protected with Riparian Habitat Conservation Areas that range from 100 to 300 feet depending on the flow and fish bearing status of the stream. However, if broadcast burns become intense (e.g., in stands with substantial fuel build up) some of the drier habitats used by northern leopard frogs could be affected. Riparian areas, wetlands, and other moist habitats would likely be too wet to burn substantially.

4. Effects Determination – Based on the above discussion, the alternatives as proposed above **may impact individuals but are not likely to cause a trend to federal listing or a loss of viability** for the northern leopard frog.

Risk Analysis – Alternatives A, B, and C
Consequence of adverse effects = low
Likelihood of adverse effects = low
Risk index value = 1 x 1 = 1

great gray owl (sensitive)

1. Management Framework – The Forest Plan provides no specific direction for management of great gray owl habitat.

2. Existing Habitat Conditions – The great gray owl is a Forest Service Region 6 sensitive listed species and a Washington State monitor species. The great gray owl is the largest owl in North America and ranges from central Alaska south to the Sierra Nevadas and east through Canada and the

northern Rocky Mountains. In Washington, it is found in the Cascade Range and in the northern portion of the state. Great gray owls are known to breed in eastern Okanogan and western Ferry counties, and can be found rarely as winter visitors in western Washington lowlands and other parts of the state. Nesting and roosting habitat for the great gray owl consists of dense coniferous forest near wet montane meadows, marshes, lakes or other openings with a high prey base (Zeiner et al., 1990). Nests are most frequently located in large, broken-topped snags greater than 24 inches in diameter at breast height (dbh) in old growth red-fir (in California), mixed conifer, or lodgepole pine forests (Zeiner et al., 1990). Small mammals, such as voles and other rodents, are their primary prey. There are approximately 3,853 acres of mature and old growth forest (structural stages 5, 6, 7) in the project area, although very few of these acres are likely to provide potential nesting habitat for great gray owls due to the lack of extensive meadow complexes in the project area that could provide suitable foraging habitat. Nests are also typically located adjacent to open wet meadows. No known great gray owl nests are documented within the project area and no great gray owls or stick nests were documented during the reconnaissance surveys. Potential foraging habitat is most abundant adjacent to the project area on private lands (e.g., pastures and fields).

3. Effects of this Project –

Alternative A — In the absence of a natural fire regime, forest stands in structural stages 5 and 6 would become encroached upon by young conifers over time. Increased stand densities, in combination with the build up of forest fuels due to past fire suppression policies, increases the potential for large-scale, stand-replacing fires that could completely remove mature and old growth forest stands.

Alternative B — Alternative B proposes thinning or sanitation treatments on 1,065 acres of stands in structural stages 5, 6, and 7, under-burning on 2,692 acres, and clearcut or shelterwood harvest approximately 175 acres (Table 4). All treatments in mature stands (structural stage 6 and 7) would be directed toward reducing the risk of large-scale wildfire would not target trees larger than 21 inches in diameter. A few large trees would be removed to facilitate large equipment access and for worker safety (e.g., hazard trees). Both silvicultural and burn activities have the potential to open dense stands of mature forest, however the greatest impacts would occur in association with clearcutting or regeneration harvest regimes (structural stage 5 only). A larger scale removal of trees would make these areas no longer suitable as nesting or roosting sites for great gray owls. Trees retained in thinned mature stands would eventually begin to fill in the canopy, restoring their value to these birds. Likewise, thinning in younger stands would help accelerate the succession of these stands to suitable mature stands. Additionally, none of the activities under Alternative B involves the removal of dominant trees that could be used by nesting or roosting great gray owls.

Prescribed burning would retain overstory trees in stands with less fuel build up. In these stands primarily understory brush, grasses, and other herbaceous vegetation would be removed. However, in unthinned stands with significant fuel base, fires have the potential to burn more intensely that could remove dominant trees entirely, thus making them unsuitable for great gray owls. Risk of high intensity wildfire would be minimized by burning during optimal fuel, moisture, and weather conditions and by avoiding dense stands of cedar/hemlock that are most at risk. Pockets of high intensity fires are possible, but it is expected that they will result in a mosaic of burned areas and unburned fire skips and thus will not be widespread. .

Alternative C— Alternative C proposes to thin or apply sanitation treatments to approximately 981 acres, conduct regeneration harvest on approximately 30 acres, and under-burn 3,226 acres of stands in structural stages 5 and 6 and 7. As noted above, activities in mature stands would focus on promoting old growth characteristics through under-burning and thinning and sanitation treatments that target trees less than 21 inches in diameter. No clearcutting would occur in these stands under Alternative C.

Consequently, substantial impact to potential roosting, nesting and foraging nesting habitat in these stands would be less than under Alternative B.

4. Effects Determination – Based on the above discussion, and the low suitability of the project area for this species, the alternatives as proposed above **may impact individuals but are not likely to cause a trend to federal listing or a loss of viability** for great gray owls.

Risk Analysis – Alternatives A, B, and C
Consequence of adverse effects = low
Likelihood of adverse effects = low
Risk index value = 1 x 1 = 1

peregrine falcon (sensitive)

1. Management Framework – Forest Plan direction for the management of peregrine falcon habitat includes monitoring nests sites for activity and supporting recovery plans and efforts.

2. Existing Habitat Conditions – The peregrine falcon is a federal species of concern, a Forest Service Region 6 sensitive listed species and a State sensitive species. Formerly listed as an endangered species under ESA, the peregrine falcon was removed from the endangered species list in August 1999. Peregrine falcons occur year-round in Washington, either as nesting or migratory individuals. Potential nesting and roosting habitat for this species usually includes cliffs or high escarpments that dominate the nearby landscape, although office buildings, bridges, and river cutbanks have been used for nesting as well (USFWS, 1982). Foraging habitat for this species includes open areas with a high abundance of potential prey, such as marshes, lakes, river bottoms, croplands, and meadows, where peregrines prey on songbirds, waterfowl, and shorebirds. Past declines in the populations of the peregrine falcon were mainly caused by pesticide pollution (particularly DDT), which led to egg-thinning. This threat has been substantially reduced (USFWS, 1999). Within the Conger project area, peregrine falcons may be seasonally transient but there are no suitable nest sites (high cliffs) or large expanses of open habitat for foraging. Near the project area, the Pend Oreille River Valley likely provides suitable hunting habitat for transient peregrine falcons when waterfowl congregate during migration.

3. Effects of this Project – Because the project area does not contain suitable foraging or nesting habitat for peregrine falcons, no direct impacts to this species are anticipated under any of the alternatives. Helicopter activity, silvicultural and burn activities, and road management may be a source of disturbance to peregrine falcon flying over the project area, however these impacts would be temporary and are not likely to displace birds from their traditionally used foraging and nesting areas.

4. Effects Determination – Based on the above discussion, the alternatives as proposed would have **no impact** on peregrine falcons.

Risk Analysis – Alternatives A, B, and C
Consequence of adverse effects = low
Likelihood of adverse effects = none
Risk index value = 1 x 0 = 0

VI. CUMULATIVE EFFECTS

Cumulative effects of the alternatives are discussed below and are based on past, current, and reasonably foreseeable future activities in the project area and areas immediately adjacent that have

affected or continue to affect wildlife and their habitats. These activities include grazing allotment actions, fuels management and reforestation/thinning activities on NFS lands, forest practice applications approved by the WDNR, ongoing road use, and road/trail improvement projects. The following is a list of these activities:

- Seven Forest Service timber harvest and reforestation projects have occurred on the Colville National Forest in the last 20 years. In total clearcutting was applied to 573 acres, clearcutting with reserves was applied to 22 acres, shelterwood harvest was applied to 46 acres, salvage logging was done on 37 acres, full planting (400 trees per acre was done on 437 acres, fill planting (approximately 200-250 trees per acre) was done on 41 acres, pre-commercial thinning was applied to 3,336 acres, and broadcast burning was done on 19 acres. Below is a summary of each project. At this time the Forest Service has no plans for additional timber harvest in the Conger project area.
  - Dorchester: An 8-acre unit clearcut in 1988, full planted in 1990, 2000.
  - Graham: 2 units, 27 and 19 acres, shelterwood harvested in 1995, full planted in 1996 and 997 (one each year).
  - Seed Orchard: 2 units, 25 and 15 acres, clearcut in 1987; 25-acre unit was full planted in 1989, 15-acre unit full planted in 1991 and 1994.
  - Surprise: 11 units totaling 274 acres clearcut in the late 70s and early 80s, full planted between 1981 and 1989. All were pre-commercial thinned between 1998 and 2001.
  - Tacoma Peak: a 33-acre unit clearcut in 1990, full planted in 1991, and fill planted in 1995.
  - Trimble: 3 units, totaling 22 acres, clearcut with reserves in the early 90s; 2 units (19 acres) broadcast burned in 1993, full planted in the mid 1990s.
  - Winchester Graham: 3 units clearcut in the early 70s, full planted shortly after; two units (67 acres) pre-commercial thinned around that time.
  - Winchester 1 and Winchester 2: 2 units, total 37 acres, salvage operations.
- Formerly the project area was part of the Winchester grazing allotment, which included the entire Winchester drainage west of the Forest boundary. During the 1930s and 1940s, the upper basins were grazed by sheep; between the 1940s and approximately 1977, cattle grazed this area. In 1979, the Addy-Cusick powerline was established and the allotment has been vacant ever since.
- The Gardin-Taco timber sale, north of the analysis area, was sold in July 2005. This sale involves 16,411 acres.
- Two forest practice applications were applied for and granted in 2004 near the project area. In total, these involve 400 acres of uneven aged harvest and 200 acres of even aged harvest. Road maintenance activities (e.g., cleaning and replacing cross drains and culverts, rocking soft areas along the road to facilitate truck traffic, etc.) were proposed on 13,070 feet of road as well as 450 feet of new road construction.
- Three fish culverts on Trimble Creek and one on Graham Creek are barriers to fish passage and will eventually be replaced.
- A portion of the Batey-Bould trail is planned to be re-routed, including the addition of road 3116072 to the trail system.
- Ongoing high levels illegal firewood cutting along County Road 9518.
- Ongoing maintenance of the Addy-Cusick powerline corridor.

LargeTtree Habitat and Mature/Old Growth Forests — None of the proposed activities associated with this project involve the removal of trees larger than 21 inches in diameter, although, a few large trees would be lost within equipment corridors, prescribed burn areas, and to mitigate hazards to workers (snags). State Forest Practices regulations do not prohibit the harvest of large diameter trees

on state or private lands. Many large trees have been removed from these ownerships in the area and this trend is likely to continue over time. Loss of large trees in areas adjacent the project area could impact species that nest or roost in dominant trees such as bald eagles or great gray owls. Because large trees are associated with mature and old growth forests, their loss impacts other species that require greater canopy cover and downed woody debris characteristic of these successional stages (e.g., fishers, wolverines, etc.). These wide-ranging species could use areas within and adjacent to the project area, provided that travel corridors are available. This project, in combination with other similar Forest Service timber management activities, would promote the development of large tree habitat and late-successional stand structure by reducing inter-tree competition for resources (e.g., water, light, nutrients) and increase the resistance of remaining trees to fire, insect, and disease through thinning.

Forage Plants — Thinning and other timber removal activities associated with this project and other Forest Service, state, and private projects would open the forest canopy and encourage the growth of understory forage plants, both on and adjacent to the project area. Locally, forage conditions would improve due to the increased abundance and palatability of forage plants. Although improved forage conditions could result in increased use of these areas by wildlife, use is depended in the presence of travel barriers (e.g., highways), large open spaces, and the level of human disturbance.

Hiding Cover/Travel Corridors — All silvicultural activities associated with this project would reduce the amount of hiding cover in the project area to some degree. These effects would be cumulative to the impacts of the forest management activities on other land ownerships, described above. Measures to reduce impacts to hiding cover, including maintaining buffer strips along roads and trails, and retaining patches of reserve trees in clearcuts, have been incorporated into this project and other Forest Service projects, however, there are no requirements for these provisions on private lands.

Removal of forest habitat and reconstruction of roads in the project area, in combination with those activities, as well as new road construction on adjacent non-National Forest System lands, would also contribute to the overall level of habitat fragmentation, resulting in increased edge effects. Fragmentation reduces the amount of interior habitat and may create travel barriers for species that avoid large openings and areas with low canopy cover. Such barriers may restrict access to high quality habitats, limiting the available habitat within a home range, or isolate small populations. Travel corridors would be maintained with this and other Forest Service projects, however, there are no such requirements for activities on private lands.

Seclusion—Activity along forest roads and reconstruction of existing roads to facilitate activities proposed for this project would add to the relatively high levels of activity along roads and trails in the project area. However, conservation measures, including closing reconstructed roads following the completion of timber and fuel management activities and prohibiting motorized vehicle use along closed roads would minimize impacts to seclusion on the Colville National Forest. Impact to seclusion would be localized and temporary and would not be substantial unless multiple projects were being carried out in proximity to one another. On state and private lands new roads would continue to be built and their construction would comply with forest practices rules that include provisions for minimizing disturbance to some sensitive species (e.g., bald eagles), however the closure of these roads post project is not known.

VII. SUMMARY OF EFFECTS

The following table briefly describes the effects of the proposed Conger Timber and Fuels Management Project on threatened, endangered, and sensitive species, including the rationale for each determination (Table 5).

Table 5. Summary of Effects to Threatened, Endangered, and Sensitive Species

Species	Alternative	Determination	Rationale for Determination
bald eagle	A	**not likely to adversely affect**	No immediate impacts to any existing habitats. However, increasing fuel loads could elevate the risk of large tree loss to future, hot fires.
	B,C		No trees greater than 21 inches dbh harvested. Large tree habitat promoted through thinning. No known nest, perch, or winter roost in project area. Nest or roosts discovered during project implementation would be avoided
gray wolf	A	**not likely to adversely affect**	Increasing fuel loads could elevate the risk of forest cover loss to future, hot fires. Such fires could promote big game forage
	B,C		Beneficial impacts to forage on big game winter range. No impacts to potential den sites. Temporary reduction in seclusion from project activities. Mitigation for maintenance of roadside hiding cover.
grizzly bear	A	**not likely to adversely affect**	Project is outside recovery habitat. Increasing fuel loads could elevate the risk of forest cover loss to future, hot fires. Such fires could promote forage.
	B,C		Potential for local improvements in forage from burning and timber harvest. Hiding cover reduced but mitigated for by maintaining road side buffers.
Canada lynx	A, B,C	**no effect**	Project lies outside primary lynx range. Activities would not occur within the vicinity of any known lynx den site. Project is consistent with Lynx Conservation Assessment and Strategy (LCAS).
wolverine	A, B,C	**not likely to cause a trend to federal listing**	Same as for gray wolves.
fisher	A	**not likely to cause a trend to federal listing**	No immediate impacts to habitats or the abundance of downed wood. Increasing fuel loads are elevating the risk of habitat loss to future, hot wildfires.
	B,C		Reduction in canopy closure and horizontal cover. Decreased risk of large forest structures (live and dead trees and down logs) being consumed by wildfire. Large tree habitat promoted through thinning.
Townsend's big-eared bat	A,B,C	**no impact**	No known nursery, roosts, or hibernacula in project area
northern leopard frog	A	**not likely to cause a trend to federal listing**	No impacts to wetland or riparian areas. Some areas lost to succession over time.
	B,C		No harvest in RHCA or in proximity to wetlands. If broadcast burns become severe wet habitats unlikely to burn.
great gray owl	A	**not likely to cause a trend to federal listing**	No impacts to mature forest. Increased fuel base may result in large-scale wild fire.
	B,C		Low habitat suitability. Mature habitat promoted through thinning. Habitat could be lost if prescribed burns become severe, but fires are designed to be low intensity.
peregrine falcon	A, B,C	**no impact**	No impacts to foraging or nesting areas. Any potential for disturbance to birds flying over the project area would be temporary.

VII. MITIGATION

In addition to the habitat conservation measures identified in Section III, the following measure will be applied to further avoid a "likely to effect" determination for any species listed as threatened or endangered under ESA, or for any USDA Forest Service (Region 6) sensitive-listed species.

- If a TES species is found in the project area while project activities are occurring, a biologist would be consulted as to measures required to protect the species and its essential habitat.

VIII. HABITAT IMPROVEMENT OR ENHANCEMENT PROJECTS

The following projects could be accomplished dependent on the availability of excess timber sale receipts authorized for collection under the Knutson-Vandenberg (KV) Act.

- Where hiding cover is lacking along forest roads, plant conifers to provide hiding cover for wildlife.
- In burned areas, plant species palatable to big game, such as forage seed mixes, service berry, snowberry, elderberry, and other upland shrubs.
- Restore / protect aspen clones in the project area through livestock exclosure fencing, small conifer removal, prescribed burning, etc.
- Assess the effectiveness of road and motorized trail closures in the project area over time. Implement new measures to make closures more effective.

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Appendix A
Habitats of Threatened, Endangered, and Sensitive (TES) Species Listed for the Colville National Forest (CNF)

USDI Fish and Wildlife Service **Threatened and Endangered Species**
Listed for the Colville National Forest (FWS reference: 1-9-05-SP-0272). Last update: June 1, 2005

Species	Status	Essential Habitats
bald eagle *(Haliaeetus leucocephalus)*	T	foraging - rivers, large lakes with abundant fish, (ex. Pend Oreille River, Sullivan Lake) nesting/perching - large trees that stand above the main forest canopy roosting - late and old structural stage stands with good canopy closure
bull trout *(Salvelinus confluentus)*	T	spawning – upper reaches of streams that have high water quality, low gradient, uniform flow and uniform gravel or small cobble substrate. Stream temperatures that exceed 35-39 degrees F. are limiting to bull trout.
Canada lynx *(Lynx canadensis)*	T	This species occupies higher elevation (above 3500 feet) forest habitats. foraging - extremely dense, young lodgepole pine, other conifers, or mixed conifer/ hardwood stands (snowshoe hare habitat) denning - late and old stands with jackpots of down logs (also habitat for red squirrels, an important alternate prey species) other considerations - habitat connectivity, seclusion from human disturbance
gray wolf *(Canis lupus)*	E	foraging - habitats that support big game, particularly winter ranges, calving/fawning sites denning - moderately steep slopes on south aspects within 400 feet of water seclusion from human disturbance
grizzly bear *(Ursus arctos)*	T	Grizzly bear recovery habitat is located on the Sullivan Lake Ranger District. spring foraging - lower elev. riparian areas, meadows, with succulent herbs, grasses, etc. summer/fall foraging - mid to high elevation, berry producing shrub fields denning – commonly on the north side of ridges with deep soils seclusion from human disturbance
woodland caribou *(Rangifer tarandus)*	E	Woodland caribou recovery habitat is located on the Sullivan Lake Ranger District. suitable habitat - late and old stands in the cedar/hemlock and subalpine fir/spruce habitat series, above 4000 feet in elevation late winter, calving - ridgetops, open stands of subalpine fir/spruce with arboreal lichens seclusion from human disturbance

USDA Forest Service Region 6 **Sensitive Species**
Listed for the Colville National Forest

Species	Documented on CNF?	Range/Essential Habitats
northern leopard frog *(Rana pipiens)*	Yes	Found in wet meadows, potholes and riparian areas with much concealing cover, this frog may be very susceptible to predation by bullfrogs.
Pacific fisher *(Martes pennanti)*	Yes	Fishers inhabit dense coniferous or mixed coniferous/deciduous forests with good canopy closure. They prefer late and old structural stage stands. travel habitat - forest stands adjacent to lakeshores, riparian areas, ridges denning - large hollow logs or snags, tree cavities, brush piles etc.
Townsend's big-eared bat *(Corynorhinus townsendii)*	Yes	hibernation - caves or mine adits that are generally close to freezing reproduction - nursery colonies are typically located in sites above 50 degrees F., often in old abandoned buildings roosting – caves, mine adits, old buildings, and the undersides of bridges
wolverine *(Gulo gulo)*	Yes	denning - rock slides, caves, crevices, particularly in glacial cirque basins foraging - all habitats but particularly those where carrion can be found seclusion from human disturbance
common loon *(gavia immer)*	Yes, nesting confirmed	Loons require large lakes or rivers with abundant fish (example; Pend Oreille River) that have adequate shoreline vegetation to conceal a nest. Seclusion from human disturbance is critical to nesting loons.
eared grebe *(Podiceps nigricollis)*	Yes, but nesting not confirmed	This species occupies lakes and marshes and nests in colonies. The nearest colony is on the Turnbull National Wildlife Refuge near Cheney, WA. Individual birds have been reported from Sullivan Lake, Little Pend Oreille Lakes.
great gray owl *(Strix nebulosa)*	Yes, but nesting not confirmed	foraging - open, grassy habitat including open forest stands, selective and clear-cut logged areas, meadows and wetlands nesting - forest stands near lakes, wet meadows, and pastures nest structures - large, broken topped snags, abandoned raptor nests.
peregrine falcon *(falco peregrinus anatum)*	Yes, but nesting not confirmed	foraging - habitats that provide waterfowl, upland game birds, and larger passerine birds; particularly open marshes, river bottoms and seacoasts nesting - scrapes placed on a ledge of a tall (150 foot +) sheer cliff face.
sandhill crane *Grus canadensis)*	Yes, but nesting not confirmed	feeding/resting - large tracts of undisturbed marshes or meadows nesting - isolated sites with good cover more than ¼ mile from roads.
pygmy whitefish *(Prosopium coulteri)*	Yes	This species is found in oligotrophic lakes usually deeper than 20 feet and cold streams from WA to AK. spawning - riffles of streams or near lake shores.
westslope cutthroat (*O. clarki lewisi*)	Yes	This subspecies inhabits lakes and streams from the Cascades to the upper Missouri River. Spawning, first three years of rearing occur in stream habitat with cool water temps, low substrate embeddedness and high habitat complexity.
interior redband trout (*O. mykiss spp.*)	Yes	This subspecies inhabits streams in the Columbia River basin from the East Cascades to the Rockies into British Columbia and Alberta. Spawning and rearing occur in streams with cool water, low substrate embeddedness and a high proportion of riffle to pool habitat.

United States Department of Agriculture | Forest Service | Colville National Forest | Newport-Sullivan Lake Ranger Districts
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Reply To: 2672 **Date:** February 7, 2006

Subject: Addendum to the Biological Evaluation and Management Indicator Species Document for the Conger Timber and Fuels Management Projects

To: Amy Dillon, Interdisciplinary Team Leader

I. Introduction

In 2005 the Forest Service (FS) contracted the survey work, analysis, and environmental reports for the Conger Timber and Fuels Management Project. This document amends the biological evaluation (BE) and Management Indicator Species (MIS) reports completed by contract for this project, based on refinements the FS has made to the project design. It should be noted that the revisions covered under this addendum would not result in any changes to the effects determinations for threatened, endangered or sensitive (TES) listed species in the final biological evaluation for the Conger project.

II. Habitat Conservation Measures

On January 24, 2006, FS specialists assigned to reviewing the contractors' documents for the Conger project made several changes to the conservation measures for the project for the purposes of clarity as well as to address potential conflicts between measures for different resource areas. The Forest Service would incorporate these measures in the design of Alternatives B and C to avoid, minimize, reduce, eliminate, or rectify the effects of the project to threatened, endangered, sensitive, and management indicator species (MIS) and their habitats. These measures are accepted practices that have proven effective where they have been used in past timber harvest and fuel treatment projects. What follows are the conservation measures pertaining to wildlife resources that have been updated by the FS.

1. To the extent feasible, enough low vegetation would be retained along open roads adjacent to harvest units in order to maintain existing line-of-sight distances from the roads into the units. Typically this would entail retaining brush, seedlings, saplings, and pole-sized trees in clumps or linear strips that are at least 20 feet wide. Prescribed fires would not be started within these forested "buffers". If necessary, fuels would be pulled away from the road edge or a fuel break would be cut to minimize the loss of vegetation from the roadside buffer.

2. Management activities within structural stage 6 or 7 (late and old stand structure) would be directed toward reducing the risk of stand replacing wildfires. Trees less than 21 inches in diameter, understory brush, and fuel jackpots would be targeted for removal. If any stands meeting the North Idaho definition of old growth were identified during future reconnaissance or unit layout, they would be excluded from timber harvest.

3. Existing snags would be retained within harvest units with the exception of those necessary to be felled within new equipment corridors, or for worker safety. Any snags felled for these reasons would be left on site to contribute to down log levels. Snags identified as hazard trees along the Batey-Bould Motorcycle Trail could be felled and harvested with this contract.

4. All existing down logs that are at least 12 inches in diameter at the small end would be retained within harvest units.

5. When thinning dry forest types (ponderosa pine / Douglas fir), some overstory leave trees would be left in clumps. This would provide pockets of higher basal area and interlocking tree canopies at the stand level. An average of 2-3 clumps would be retained per harvested acre. A clump would consist of 2 to 6 ponderosa pine or Douglas fir trees that have forks below DBH or are closely spaced (2 to 8 feet apart). In addition, no treatments would be planned within discrete inclusions of shade tolerant trees (i.e. pockets of western redcedar / western hemlock) in such stands.
6. If a TES species is found in the project area while project activities are occurring, a biologist would be consulted as to measures required to protect the species and its essential habitat.

Management Indicator Species (MIS)

7. Where the opportunities exist, 5 acres of dense conifer seedlings/saplings/poles would be maintained per every 40 acres of thinning in MAs 6 and 8. These trees would be reserved from thinning in 3- to 5-acre patches. Dense copses located on benches, saddles, and in dry draws should be the highest priority to maintain. This measure is intended to optimize cover availability for mule deer.

8. Under Alternatives B and C, prescribed fire may be used in designated travel corridors if the predicted fire effects result in a residual canopy closure that meets or exceeds eastside screens. Skid trails, roads, handlines, blacklines, wetlines and/or fuel breaks may be used to exclude fire from these areas if predicted and/or actual fire effects fail to meet the eastside screens for timber sales (Lowe, 1995).

9. To limit disturbance to wintering big game, winter harvest activities would be confined to units located in one half of the sale area in a given winter. If winter activities were scheduled to occur north of Smalle Creek in a given winter, no winter activities would occur south of the creek, and vice-versa. The wintering period for big game runs from December 1 to March 31.

10. If an active raptor or heron nest were found within or near to an activity area, a biologist would be consulted as to specific measures needed to protect the site.

III. Effects of the Project to Big Game

When the contract wildlife biologist (Steve Negri) quantified the existing big game habitat components for this project, he found that the percent of thermal cover on designated big game winter range (Forest Plan Management Areas 6 and 8) is presently below Forest Plan objectives. Steve was unclear on the need for thermal cover stands to be maintained on the winter range, in order to meet Forest Plan objectives. Based on Steve's analysis, the FS has modified the project proposal to ensure that all existing thermal cover stands are maintained on MAs 6 and 8 in the project area. Steve's MIS report must be modified to reflect these changes. What follows are those sections of his final report that would be modified.

A. Deer and Elk Winter Range

1. Existing Habitat Condition

On Colville National Forest lands located west of the Pend Oreille River, the management emphasis on designated big game winter range is to provide suitable winter habitat for deer. The Conger project area encompasses approximately 3,157 acres of land designated as Management Areas 6 and 8, which

are land allocations managed under the Forest Plan with an emphasis on winter range. Approximately 2,558 acres in the central portion of the project area are designated as Management Area 6; approximately 599 acres in the northern and southwestern portions of the project area are designated as Management Area 8. These totals are a result of the relocation of the MA 1 habitat in the project area north of its original location. The new MA 1 location, encompasses an area that used to be classified as MA 6 and 8, however, this was compensated for by assigning the original MA 1 location to MA 6, for a net increase in project area winter range of approximately 144 acres. Table 4 summarizes the potential forage and cover habitats for deer and elk in MAs 6 and 8 in the project area.

Forage- Deer and elk winter range consists of a mosaic of forage and cover habitats. Both deer and elk forage on understory plants, however the species differ in terms of forage preference. Elk are primarily grazers and are capable of consuming large quantities of coarse forage (e.g., grasses and sedges) whereas deer are browsers and better suited to selecting sparse but nutritious forbs and evergreen plants (Kirchhoff and Larsen 1998). However, when range conditions are poor or forage is seasonally limited (e.g. winter) elk and deer may exhibit increased dietary overlap and may both subsist on browse (Cowan, 1947, Kirchhoff and Larsen 1998).

Optimal foraging habitats are typically characterized by areas with an open forest overstory (<40 percent canopy cover) where sunlight penetrates to the forest floor, causing forage species such as grasses, forbs, and shrubs to grow. Elk and deer are associated with forest edge areas and tend to forage closer to the edge rather than the interior of a natural or created opening, where simultaneous access to foraging and cover areas is maintained. Consequently, under Forest Plan direction for the management of winter foraging areas, no point in created openings should be further than 600 feet from a forested edge. For this analysis, foraging habitats are defined as open, park-like stands (structural stage 7), meadow/ shrub habitats, and open stands of seedlings /saplings (structural stages 1 and 2). There are approximately 752 acres of foraging habitat on winter range in the project area (Table 4).

Cover-Deer and elk rely on forest stands for hiding cover and protection from inclement weather. The Forest Plan defines three types of cover including hiding, thermal, and snow intercept. Hiding cover consists of vegetation capable of hiding 90 percent of an animal's body at a distance of 200 feet (Thomas et al., 1979). On the Newport-Sullivan Lake Ranger Districts, forest stands in structural stages 3, 4, 5, and 6 normally provide suitable hiding cover due to their high understory tree densities.

Although recent research has questioned the significance of the thermal benefits forest cover provides, deer and elk may seek forest stands with dense canopies for protection from wind and infrared radiation, and their slightly warmer nighttime temperatures (Duncan, 2000). Dense forests also intercept snow, which reduces snow accumulations and facilitates travel between foraging areas. The Forest Plan defines adequate thermal cover for deer as stands of evergreen trees that are 40 feet high or taller with a canopy closure of 60 percent or greater (70 percent or greater for elk) with a distribution not to exceed 600 feet between cover units. For this analysis, thermal cover was defined as stands in structural stages 4, 5, and 6 with greater than 60 percent canopy cover. Snow intercept cover is provided by multi-storied stands with over-story trees that are at least 12 inches in diameter. For this analysis, forest stands in structural stage 6 with greater than 70 percent canopy cover were used to define snow intercept cover. These stands are characterized by large trees and multiple cohorts of trees.

Table 4 displays the acres of each habitat type on big game winter range in the project area. Each stand was assigned the habitat component that best described the stand, using the criteria given above. Note that most stands typed as thermal or snow intercept cover, also provide hiding cover, by virtue of their dense understories. Also, some forage for big game is available in most stands typed as cover,

dependent on the amount of sunlight reaching the forest floor. By far, the most productive and best quality foraging areas are located in the more open habitats typed as forage in Table 4.

A forage/cover ratio approaching 50:50 is the Forest Plan objective for winter range habitats. As displayed in Table 4, only about 24% of the winter range in the project area is open foraging habitats. The winter range is cover rich with about 17% of the area in thermal or snow intercept cover and 58% typed as hiding cover.

Table 4. Acres of habitat components on big game winter range (MAs 6 and 8)

	Existing[/]		Forest Plan Goal	
Habitat Type	Acres	%	Acres	%
Forage	752	23.8	1,579	50
Thermal Cover	321	10.2	947	30
Snow intercept cover	227	7.2		
Hiding cover	1,836	58.2	631	20
Other (e.g., rock)	21	0.6	--	--
Total Winter Range	3,157	100	3,157	100

Seclusion-Gaines (2003) listed five factors associated with roads and their influence on elk including hunting, poaching, avoidance/displacement, collisions, and disturbance. Similar affects have been documented on deer. Further, an expansive network of roads provides easy access to many public lands, which facilitates off-road uses in the form of all-terrain vehicles (ATVs), horses, mountain bikes, and foot traffic (Wisdom et al. 2004). Elk tend to exhibit a flight response to avoid a disturbance whereas deer tend to seek patches of dense cover. These responses may result in energetic costs to the animals over the long term. Road systems also increase habitat fragmentation and can facilitate the spread of non-native plants that may reduce the quality of foraging habitat.

Under the Forest Plan, road densities in MAs 6 and 8 should not to exceed 1.5 miles of open road per square mile of winter range during the season of use. There are approximately 10.1 miles of open roads on deer winter range in the project area. The open road density is 2.0 miles per square mile. About half of the road miles on winter range are county-owned roads. The Forest Service does not have the authority to manage use of those roads. Forest roads that are physically open in the project area appear to receive little to no motorized use in a given winter. There are approximately 5.0 miles of motorized trail on deer winter range (about 1 mile per square mile). Almost all of the trail mileage is part of the Batey-Bould Motorcycle Trail system. Motorized use of these trails in the winter has never been documented. Snowmobile use is problematic, since the trail treads are narrow, twisty, and located in dense forest.

2. Effects of This Project

With all alternatives, the existing MA1 area would be re-located to include more suitable forest stands for old growth associated species. The original MA 1 would be re-classified as MA 6, resulting in a net increase of 144 acres (5 percent) of designated winter range in the project area. Impacts to specific components of big game winter range are presented in Tables 5 and 6.

Alternative A

There would be no immediate impact to winter range habitats since no forest management would occur with this alternative. Over time, certain younger forest stands would mature and begin to attain the necessary height and crown closure of thermal cover. Other stands that are too over-stocked with

young trees may stagnate and never develop enough overhead canopy to provide thermal regulatory properties for big game.

Over time, existing, open foraging sites would slowly decline in productivity as encroaching young conifers shade out upland shrubs, grasses, and herbs. More cover would be recruited on the winter range at the expense of productive foraging sites. Fuel loading and ladder fuels would continue to increase incrementally in forest stands across the project area. The potential for a large, intense wildfire to remove whole stands of conifers would increase over the long run. In such an event, the resultant increase in sunlight on the forest floor would promote the growth of big game forage plants; potentially providing new foraging opportunities for big game. However, high-intensity fires have the potential to burn large expanses of forest and result in openings so large that they may be underutilized by forest edge-associated big game species, due to the absence of nearby cover.

Stand replacement wildfires are the most likely to provide good growing conditions for noxious weeds. With such high-intensity burns there would be more overhead canopy removed (higher light levels), more duff consumed (exposing soils), and less living vegetation for newly established weeds to compete with for sunlight, water, and soil nutrients. If burned areas became infested with weeds, existing native plants could be replaced, including those palatable to big game animals. Large infestations could change the way the animals use the landscape by effectively reducing the area of suitable habitat.

Alternatives B and C
Timber harvest and under-burning proposed with these alternatives would be designed to restore the historic fire regime of the area. Smaller ground fuels and fuel ladders would be reduced across the project area. Future wildfires that might occur in these stands should burn cooler and would be less likely to ascend into the crowns of overstory trees. Thus, the risk of a hot crown fire removing forest cover over large areas of winter range would be reduced with these alternatives.

Effects to Forage - Timber harvest would open up the forest canopy and allow more sunlight to reach the forest floor. As a result, the productivity and vigor of any existing browse and green forage should improve in treated areas. This would be particularly true within regeneration harvest units (seed tree harvest, shelterwood harvests) where most overstory trees would be removed. In areas where prescribed fire would be employed, decadent, woody vegetation on many upland shrubs and grasses would be burned off. A “pulse” of nutrients would be released into the soil. Forage plants for big game should respond to these burns with profuse basal sprouting and an increase in palatability for several years following treatment.

No new roads would be constructed with this project that could provide pathways for the spread of noxious weeds. Noxious weeds could potentially colonize soils exposed by road reconstruction, ground-based logging equipment, and prescribed fire. However, a number of factors would work to minimize the potential for weeds to spread in the project area. Prescribed fires would be completed during optimum weather and fuel moisture conditions in order to ensure low-intensity fire behavior. Thus, most (if not all) of the forest duff should be maintained in burned areas and very little soil should be exposed. Reconstructed roads would be seeded and closed with several excavated earth berms following the project. These road entrances would then be planted with shrubs and/or trees in order to effectively close the roads to off-highway vehicle access. In addition, the project design would incorporate other routine practices to check the spread of noxious weeds such as seeding exposed soils at landings, skid trails and burn piles.

Effects to Cover - No treatments would occur within stands presently classed as thermal cover or snow intercept cover on big game winter range. Thinning in other forest stands would reduce the inter-tree

competition for sunlight, water, and soil nutrients, and increase the vigor of the remaining trees. As a result, the residual trees should be better able to fend off insect and disease attack. Over time, thinning should promote the rapid development of larger, full crowned trees sooner than had no treatment occurred. High quality thermal cover could be developed in these stands over the long term.

Commercial timber harvest would remove or degrade hiding cover where it exists. Regeneration harvest prescriptions such as seed tree harvest and shelterwood would convert hiding cover to open forage habitat for 15 or more years. Where partial harvest prescriptions such as thinning are used, hiding cover would be locally degraded for five years or more, and essentially removed for at least that long within new skid trails and pockets of sanitation harvest. Based on partial harvests completed elsewhere on the ranger districts, there should still be enough understory vegetation retained to provide hiding cover at the stand level.

Young trees (seedlings / saplings) within certain forest stands or older plantations would be pre-commercially thinned. This would be done to concentrate growth on the most full-crowned and vigorous trees of the desired species. With this prescription, hiding cover would be locally degraded but not removed at the stand level.

Low severity prescribed fires would be used to remove logging slash, thin out thickets of fir and other conifer regeneration, and reduce finer ground fuels. Burning would occur during optimum weather and fuel moisture conditions in order to ensure low-intensity fire behavior. Treated areas would be a mosaic of burned and unburned sites, owing to discontinuous fuel concentrations. Hiding cover would be degraded in burned areas; particularly where prescribed fire and timber harvest are used in combination. However, tree boles, burn “skips”, and the skeletons of burned trees and shrubs should still be providing adequate horizontal cover at the stand level. Any grasses and upland shrubs that are burned over should quickly re-sprout from their bases and regain much of their above ground biomass within one or two growing seasons.

Table 5. Acres of proposed treatments in winter range habitats by alternative. No treatments would occur with Alternative A.

	Forage		Thermal Cover		Snow-intercept Cover		Hiding Cover	
Treatment	B	C	B	C	B	C	B	C
Thinning	12	12	0	0	0	0	343	343
Thinning-shelterwood harvest	13	13	0	0	0	0	0	0
Thinning-sanitation treatment	68	68	0	0	0	0	444	444
Seed tree harvest	0	0	0	0	0	0	83	0
Seed tree-thinning	0	0	0	0	0	0	42	0
Seed tree-sanitation treatment	0	0	0	0	0	0	22	0
Shelterwood harvest	0	0	0	0	0	0	16	16
Shelterwood harvest-sanitation treatment	0	0	0	0	0	0	22	0
Sanitation treatment	0	0	0	0	0	0	10	10
Precommercial thin	82	82	0	0	0	0	8	8
Broadcast burn	623	623	0	0	0	0	1,084	1,084
Site preparation burn	0	0	0	0	0	0	190	10

Table 6. Acres of big game winter range (MAs 6 and 8) habitat components by project alternative.

	Alternative A (No Action)		Alternative B		Alternative C	
Habitat Component	Acres	Percent of Winter Range	Resulting Acres[1]	Percent of Winter Range	Resulting Acres[1]	Percent of Winter Range
Forage	752	23.8	937	29.7	768	24.3
Thermal cover	321	10.2	321	10.2	321	10.2
Snow-intercept cover	227	7.2	227	7.2	227	7.2
Hiding cover	1,836	58.2	1,651	52.2	1,820	57.6
Rock, other	21	0.6	21	0.6	21	0.6
	3,157	100	3,157	100	3,157	100

[1/] With regeneration harvest prescriptions (seed tree and shelterwood), all cover components would become forage. Partial harvests, precommercial thinning, and under-burning proposed with this project would degrade but not remove hiding cover.

As displayed in Table 6 above, all alternatives would maintain existing thermal and snow intercept cover stands, over at least the short term. Alternative B would increase the available forage acres on big game winter range by 5.9%, Alternative C would increase forage by 0.5%. Following the project, there would be no areas of open forage that lie further than 600 feet from a usable cover block for deer.

Effects to seclusion

Alternative A

No impacts to seclusion would occur under Alternative A because open road densities and the current level of human activity in the project area would not change.

Alternatives B and C

The level of human activity in the project area would increase for the duration of the project. Big game animals (particularly elk) might avoid areas of ongoing timber harvest and prescribed burning. It is worth noting that white-tailed deer have been documented foraging on arboreal lichens and conifer needles within active logging units on the ranger districts. Certain logging units might be harvested over the snow, in order to better protect soils. If this were to occur, all activities would be confined to one half of the project area (either north or south of Smalle Creek) in a given winter. This measure would provide wintering big game with more secure habitat they could displace to if disturbed.

No new roads would be built with this project. All presently closed roads would remain administratively closed to the public. A few roads that are presently bermed and brushing in would be reconstructed and used with this project. Once project activities are complete, the FS would re-install berms and plant shrubs / conifers on these road entrances. This measure has proven successful at precluding off-highway vehicle travel on closed roads elsewhere on the ranger districts. Thus, motorized access should not be increased on big game winter ranges as a result of this project. Where harvest units lie adjacent to open roads, the FS would maintain vegetative buffer strips along the roads to maintain line-of-sight distances from the roads into the units.

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