

Wildlife Report for Whitetail Hazardous Fuels Project

**Ashland Ranger District
Custer National Forest
USFS Northern Region
Montana**

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3.1 Description of Alternatives Considered in Detail

3.1.1 Alternative 1 – No Action / Existing Condition

3.1.2 Alternative 2 – Proposed Action

3.2 Wildlife, Fisheries, and Sensitive Plants

The effects to species of concern are disclosed in the following order:

- Effects on federally listed species (black-footed ferret);
- Effects on Forest Service Region-1 Sensitive Species (Townsend's big-eared bat, pallid bat, spotted bat, fringed myotis, long-eared myotis, long-legged myotis, black-tailed prairie dog, bald eagle, burrowing owl, sage grouse, loggerhead strike, plains spadefoot, great plains toad, northern leopard frog, greater short-horned lizard, milksnake, and western hog-nosed snake);
- Effects to Custer National Forest Plan, Habitat Indicator Species and Key (Major Interest) Species (elk, golden eagle, prairie falcon, merlin, mule deer, white-tailed deer, pronghorn, sharp-tailed grouse, eastern, western and Cassin's kingbird, northern oriole, yellow warbler, spotted towhee, Brewer's sparrow); and
- Local interest (wild turkey).

Forest Plan - The Custer National Forest established a list of management indicator species (MIS) based upon NFMA regulations criteria (USFS, 1986, p. 19 and 180). The concept of MIS includes both biological indicators (those species that represent a whole group of other species that use the habitat similarly), as well as species of high interest, such as major hunted species and those listed as threatened or endangered (see Biological Assessment). Biodiversity as applied and considered in this analysis (see Glossary and references to Forest Plan) is based on a course filter (MIS) / fine filter (TES) process which includes associated habitats. The analysis assumes habitat is a surrogate for wildlife and plant populations. Several recent court decisions have supported this approach to management concerning project analysis in relation to 36CFR 219.19 [Inland Empire Public lands Council v. USFS, 88 F.3d 754, 760 (9th Cir. 1996) and Idaho Sporting Congress v. Thomas 137 F. 3d 1146 (9th Cir. 1998)] and for programmatic plans and the NFMA diversity provision [Northwest Forest Plan – Seattle Audubon Soc. v. Mosely, 871 F. Supp. 1291 (W.D. Wash. 1994) aff'd 80 F. 3d 1401 (9th Cir. 1996)]. Incidental observations on species on the Ranger District have been included in the NHTracker data base or FAUNA data base.

Designated Habitat - The Ranger District does not provide habitat designated as "Critical" for any federally listed species. In addition, the project area does not contain any specially designated habitats relative to federally listed or proposed species nor USFS Northern Region sensitive species (Kimbell, August 28, 2004).

Fish - Information on aquatic ecosystems was coordinated with Darin Watschke, Forest Fisheries Biologist, Sept 12, 2007, and incorporated into this report (Watschke, Sept. 12, 2006). Water sources are limited to isolated springs, stock ponds, and occasional seasonal wetlands. USFS inventories have not identified any fisheries in or immediately adjacent to the project area.

3.2.1 Existing Condition

Mature Forest - Compared to the available mature forest considered in the Forest Plan (USFS, 1986), post-Forest Plan activities, especially wildfires, have removed large areas of forested habitat, including mature forest, on the Ashland Ranger District. Mature forest for wildlife habitat is believed to be a limiting factor to dependent species compared with the historic age distribution for the Ranger District. The Whitetail project area has had limited stand replacement from wildfire (19 A. of wildfire since 1980) and harvest (Timber sale circa 1970 and 1985).

Forest Plan Management Areas - The majority of the project area is in Management Area (M.A.) "D" and is a multiple-use area that includes forested areas, grass/timber complexes, and rangelands. Forest Plan goals and objectives for this management area emphasize maintenance or improvement of long-term diversity and quality of habitat for selected wildlife species identified by the Ranger District as well as accommodating other resource management activities such as timber harvest, livestock grazing, and oil and gas development. The selected species for M.A. "D" for the Ashland Ranger District is the mule deer. Prescribed Fire could be used for range improvement and wildlife habitat, timber stand maintenance, fuels reduction, sanitation, and maintaining vegetation and associated wildlife habitat dependent on periodic fire.

If the responsible official determines that resource conflicts cannot be adequately mitigated, he/she will resolve the conflicts in accordance with management area goals and if necessary in consultation with affected parties (USFS, 1986, P. 49).

The portions of MA "D" in the project area contains portions of at least three goshawk home ranges and at least two PFAs and nest stands..

Water Sources - The natural distribution of water sources has been augmented over time by water developments primarily designed to enhance water availability for permitted livestock grazing. There has been an incremental increase in areas influenced by livestock as a result of water development. Secondary range has been converted into primary range as a result of some water developments located away from springs and other natural sources. In recent years the reconstruction of stock water tanks has included ramps for wildlife access and escape; some stock water tanks are in need of maintenance and lack these wildlife ramps. Big game species have adapted to and utilize these water sources.

Roads - Road density in the project area is 2.12 mile per square mile of project area on NFS lands (Table 3.5.3.1.1.T1) which exceeds the density of less than 1.0 mile per square mile desired for big game and other wildlife security. The roads that allow access to areas off major roads are surface with native soil materials. Access conditions generally allow hunter access during dry weather, but reduce travel and motorized hunter opportunity during wet weather to the aggregate surfaced portions of main roads.

3.2.2 Desired Condition

The desired condition on a coarse scale is to maintain a range of vegetation seral stages distributed across the landscape in order to provide suitable and sustainable habitat for dependent species. On a fine scale habitats are maintained for USFS sensitive species such as loggerhead shrike (woody draws) and black-tailed prairie dog (low seral grassland). Suitable mature forest habitat is maintained for MIS (goshawk). The structure of ponderosa pine forests is managed to provide for single and multi-storied structure and open and closed canopy for dependent wildlife species. Although active treatments such as thinning and prescribed burning create more open overstories and increase understory diversity at the stand level, a mix of treated and untreated areas will likely maximize heterogeneity and diversity at the landscape scale (Metlen and Fiedler, 2005).

Forested areas are generally a sea of single-storied open spaced pine forest with island of mature high crown cover to provide habitat for goshawk and hiding cover for elk and other big game species. Small islands of multi-storied pine forest are scattered across the project area. Snags and snag-replacement trees are well dispersed across the landscape spatially and temporally to provide for cavity dependent wildlife over time.

Disturbances such as fire, grazing animals, and insect and disease play a role in maintaining these habitats. Big sagebrush habitat is maintained and contains an understory of mid-grass dominated species. Riparian, woody draw, aspen habitat is maintained at Proper Functioning Condition for dependent species. Woody draw and aspen habitat is maintained and contains deciduous vegetation of multiple age classes. Suitable habitat is maintained at springs and other water sources to support dependent amphibian and reptile populations.

Livestock generally graze pastures of native vegetation within allotments unevenly; these patterns provide a variety of grassland structure and wildlife habitats. High seral grasslands (high structure) and low seral (prairie dog towns) are present where suitable environmental conditions exist on the landscape.

Maintaining elk security would help achieve Montana Elk Management Plan habitat management strategies (MDFWP, 2005, P. 389) and address concerns for big game security as identified in scoping. Based on the literature (Hillis et al. 1991) it is desirable to maintain an open road density of no more than 1.0 mile per square mile so as to achieve elk security areas (0.5 miles from road open to public motor vehicle access) on at least 30 % of the Ranger District (currently estimated at less than 10%).

Metlen, et al. (2006, P. 355) concludes that although active treatments create more open overstories and increase understory diversity at the stand level, a mix of treated and untreated areas will likely maximize heterogeneity and diversity at the landscape scale. Similarly, Pillod et al. (2006, P. Abstract) management activities that consider the retention of habitat structures (such as snags, down wood, and refugia for untreated stands) could increase habitat heterogeneity and could benefit the greatest number of species in the long run.

3.2.3 Project Bounding / Cumulative Effects

Spatially, the cumulative effects analysis area boundary is the same as the project area unless otherwise stated for a particular species. Temporally, short-term effects are < 10 years and long-term 10 years or greater, unless otherwise stated for a species. The temporal period for effects is 30 years, unless otherwise stated, because it represents the approximate time for ladder fuels to reestablish in the absence of treatment in a mature single-storied ponderosa pine stand.

3.2.4 Analysis Considerations / Cumulative Effects

The analysis of environmental consequences is based on qualitative changes in habitat for most species and qualitative and quantitative changes for other species (e.g., goshawk and elk). According to the Council on Environmental Quality (CEQ, June 24, 2005, P. 2), “Generally agencies can conduct an adequate cumulative effects analysis by focusing on current aggregate effect of past actions without delving into the historical details of individual past actions.” The effects of all the past actions have created the current affected environment / conditions, consequently specific past actions are listed generally. Past, present, and reasonably foreseeable actions were considered in this analysis (See, NEPA document Appendix, Project Activities Considered). Conservation strategies and the Forest’s Monitoring Program are determined at the Forest Plan level and are outside of the scope of this project analysis.

3.3 Threatened and Endangered Species

See attached Biological Assessment (black-footed ferret) for the Proposed Action (“No Effect” – absent) which includes coordination with the USFWS (Hanebury, Oct. 24, 2007).

3.4 USFS R-1 Sensitive Species

Sensitive Species are “Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by: a. Significant, current or predicted downward trends in population numbers or density; b. Significant current or predicted downward trends in habitat capability that would reduce a species’ existing distribution. (FSM 2670.5, P. 12, 6/23/95)” The Sensitive Species policy is applied to forest plans developed, revised, and amended under the 1982 NFMA Planning Rule, as well as projects and activities implementing such plans (USFS, July 3, 2006). The Custer Forest Plan (USFS, Oct. 1986) was developed under the 1982 NFMA Planning Rule.

The USFS Northern Region (R1) sensitive species list (Kimbell, August 28, 2004), the addition (Kimbell, March 31, 2005) and then removal (Tidwell, July 17, 2007) of the northern goshawk and black-backed woodpecker was considered in this analysis. The FS sensitive species identified as present or potentially present in the project area as well as Determination of Effects by alternative are identified in the following table and summarized below.

Table 3.4.T1. USFS Northern Region Sensitive Species ¹, Ashland Ranger District, Custer N. F.

Species	Status ^{1,2}	Habitat ¹	Habitat Present (P) or Absent (A)	Species Present (P) or Absent (A)	Alt. 1 Existing Condition	Alt 2 Proposed Action
Federally Listed						
Black-footed ferret <i>Mustela nigripes</i>	Federally Listed		A	A	No effect	No effect
Mammals						
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	USFS sensitive	Wet meadows, water sources, and rimrocks	P	P	NI	MIH
Pallid bat <i>Antrozous pallidus</i>	USFS sensitive	Dessert areas, rock outcrops, particularly near water	P	P?	NI	MIH
Spotted bat <i>Euderma maculatum</i>	USFS sensitive	Rimrocks – ponderosa pine forest	P	P?	NI	MIH
Fringed myotis <i>Myotis thysanodes</i>	USFS sensitive	Forest / Grassland	P	P	NI	MIH
Long-eared myotis <i>Myotis evotis</i>	USFS sensitive	Forest / Grassland	P	P	NI	MIH
Long-legged myotis <i>Myotis volans</i>	USFS sensitive	Forest / Grassland	P	P	NI	MIH
Black-tailed prairie dog <i>Cynomys ludovicianus</i>	USFS sensitive	Grasslands	P	P	NI	MIH
White-tailed prairie dog <i>Cynomys leucurus</i>	USFS sensitive	Grasslands	A	A		
Gray wolf <i>Canis lupus</i>	USFS sensitive	Remote mountainous areas	A	A		
Wolverine <i>Gulo gulo luscus</i>	USFS sensitive	Remote mountainous areas	A	A		
Birds ³						
Bald eagle <i>Haliaeetus leucocephalus</i>	USFS sensitive	Rivers, Wetlands, Forests	P	P (Migrant)	NI	NI
Peregrine falcon ² <i>Falco peregrinus anatum</i>	USFS sensitive	Cliffs and wetlands	A	A		
Flammulated owl <i>Otus flammeolus</i>	USFS sensitive	Forest	A	A		
Burrowing owl <i>Athene cunicularia</i>	USFS sensitive	Prairie dog towns and grasslands	P	P?	NI	MIH
Sage grouse	USFS sensitive	Sagebrush grasslands	P?	A		

<i>Centrocercus urophasianus</i>							
Baird's sparrow <i>Ammodramus bairdii</i>	USFS sensitive	Grassland	P	A			
Sprague's pipit <i>Anthus spragueii</i>	USFS sensitive	Grassland	P	A?			
Blue-gray gnatcatcher <i>Polioptila caerulea</i>	USFS sensitive	Nests in shrubs	A	A			
Loggerhead shrike <i>Lanius ludovicianus</i>	USFS sensitive	Woody draws and grasslands	P	P	NI	MIIH	
Long-billed curlew <i>Numenius americanus</i>	USFS sensitive	Grasslands	?	A			
Harlequin duck <i>Histrionicus histrionicus</i>	USFS sensitive	Mountains streams	A	A			
Amphibians							
Plains spadefoot <i>Spea bombifrons</i>	USFS sensitive	Grasslands – small ponds	P	P	NI	NI	
Western toad (Boreal toad) <i>Bufo boreas</i>	USFS sensitive	Wetlands, grasslands, and forests	A	A			
Great plains toad <i>Bufo cognatus</i>	USFS sensitive	Grasslands – small ponds	P	P	MIIH	MIIH	
Northern leopard frog <i>Rana pipiens</i>	USFS sensitive	Riparian and wetlands	P	P	MIIH	MIIH	
Reptiles							
Greater short-horned lizard <i>(Phrynosoma hernandesi)</i>	USFS sensitive	Sandy soil areas - grasslands	P	P	NI	MIIH	
Milksnake <i>(Lampropeltis triangulum)</i>	USFS sensitive	Grasslands, rocky outcrops	P	P	NI	MIIH	
Western hog-nosed Snake <i>(Heterodon nasicus)</i>	USFS sensitive	Sandy soil areas - grasslands	P	P	NI	MIIH	
Fish	USFS sensitive						
Sturgeon chub <i>Macrhybopsis gelida</i> ⁴	USFS sensitive	Turbid streams	A	A			
Northern redbelly dace <i>Phoxinus eos</i>	USFS sensitive	Prairie streams	A	A			
Yellowstone cutthroat trout <i>Oncorhynchus clarki bouvieri</i>	USFS sensitive	Cold water	A	A			
Plants							
Baar's milkvetch <i>Astragalus barrii</i>	USFS sensitive	Bare rocky hill sides	P	A?	NI	NI	

Heavy sedge <i>Carex gravida</i>	USFS sensitive	Moist Northerly Slopes	P	A?	NI	MIH	
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¹ Federally listed species based on consultation with the USFWS (Lou Hanebury, October 24, 2007 by Don Sasse). The species listed as sensitive on Update of the Forest Service Northern Region Sensitive Species List (Kimbell, August 28, 2004). Options in determination of impacts to sensitive species are based on Salwasser and Bosworth (1991, Aug. 17). **NI** = No impact. **WIFV*** = Will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population of species. (* = Trigger for a significant action as defined in NEPA.) **MIH** = May impact individuals or habitat, but will not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species. **BI** = Beneficial. There would be "no impact" to sensitive species determined to be absent from the project area and not included in this table. P = species present and considered in analysis; P? = The species is potentially present; A = Species absent and no further analysis will be completed.

² The species is listed as sensitive on the Revised Forest Service Northern Region Sensitive Species List (Kimbell, Oct. 28, 2004). Options in determination of impacts to sensitive species are based on Salwasser et al. (1995, Aug. 17). **NI** = No impact. **WIFV*** = Will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population of species. (* = Trigger for a significant action as defined in NEPA.) **MIH** = May impact individuals or habitat, but will not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species. **BI** = Beneficial. There would be "no impact" to sensitive species determined to be absent from the project area and not included in this table.

³ The northern goshawk and black-backed woodpecker were added (Kimbell, March 31, 2005) and then removed (Tidwell, July 17, 2007) from the Northern Region sensitive species list. This is to be considered information provided by the Regional Forester, and guidelines that may be applied. Note: The northern goshawk is considered as a Custer NF Management Indicator Species.

⁴ Fisheries information provided by Darin Watschke, Forest Fisheries Biologist, Custer National Forest, July 12, 2007 (Watschke, 2007).

3.4.1 Bats

Affected Environment – In general, habitat for bats would benefit from improvements in the grassland structure, riparian and woody draws in proper functioning condition (PFC), as well as a mosaic of ponderosa pine forest structure and size classes including small patches of fire killed trees. Townsend's big-eared bat, pallid bat, spotted bat, fringed myotis, long-eared myotis, and long-legged myotis are present on the Ranger District (Lenard et al, 2007; NHTracker) and potentially forage in these habitats; these bats could utilize rimrocks or tree cavities during the day as roosts. Caves and mine adits are absent from the area.

Environmental Effects – Bat habitat can be maintained by managing for forests and grasslands in good condition in a mosaic of forest and grassland habitat, and woody draws and riparian areas in proper functioning condition. The proposed action would remove some snags through timber harvest of mature trees and through prescribed burning of some existing snags. Prescribed burning would also create new snags. Fewer acres would be treated with commercial harvest than would be treated through prescribed burning. The existing situation would maintain woody draw riparian habitat but the proposed action would improve these habitat for bats in the long-term. Intermediate harvest (CT, CT1) tends to favor and retain the larger ponderosa pine trees, while regeneration harvest (ST, SH) tends to remove most large trees in the treated areas on the landscape. There would be no direct or indirect impacts to bat hibernacula including rim rocks or rock fractures from any of the proposed action

Cumulative Effects – Snag management guidelines and prescribed burning would provide for cavity dependent habitat. Overall, and considering the direct, indirect, and reasonably foreseeable future actions of cumulative effects, the proposed action would have short-term effects, but better maintain habitat for bats than the existing condition. Snag management guidelines and prescribed burning are expected to provide for cavity dependent habitat

3.4.2 Black-tailed prairie dog and Burrowing Owls

Affected Environment - The Forest Plan identifies a goal for the acceptable acreage (300 acres) of primary suitable range occupied by prairie dogs for the Ashland Ranger District (USFS, Oct.1986, p. 20). No limits are established for prairie dog acreage on secondary and unsuitable range. The USFS was a participant in the multi-party development of a Conservation Plan for black-tailed and white-tailed prairie dogs in Montana, which was recently approved (Montana Prairie Dog Working Group, Jan. 2002). "The goal of this conservation plan for the state of Montana is to provide for management of prairie dog populations and habitats to ensure long-term viability of prairie dogs and associated species." In 2003, there were at least 681 acres of black-tailed prairie dog (*Cynomys ludovicianus*) on NFS lands which occupy 0.16% of the 435,822 A. on the Ashland Ranger District. There are approximately six active colonies of black-tailed prairie dogs within the project area. Burrowing owls rely on prairie dog towns for habitat and are potentially present.

Environmental Effects - The proposed action is focused on forested habitats and to minimize impacts to grassland and grassland / shrub habitat. The proposed action is expected to remove some trees colonizing grassland in the short-term and maintain the habitat in the long-term

slightly better than the existing condition. The prairie dog towns are likely, in the absence of control action or plague outbreaks, to expand slowly under the proposed action and existing condition. Burning or mowing of grassland has been shown to favor prairie dog colonization of treated areas (Northcott et al. 2007, P. 1). In the event of wildfire, active prairie dog towns and low vegetative condition tend to function as fuel breaks on the landscape. Any disturbed areas on suitable slopes and soils within grasslands are potential areas for new colony establishment. Timber Sale Contract "C" clauses would be used to avoid heavy equipment use in prairie dogs with the exception of trucks traffic over existing roads.

Cumulative Effects – Considering past, present and reasonably foreseeable actions of cumulative effects, the proposed action would have a slight improvement in habitat because of tree removal over the existing situation. Burrowing owls could potentially respond positively to increases in active prairie dog town acreages. Maintenance of active prairie dog towns would contribute to the fuel break mosaic across the landscape.

3.4.3 – Bald Eagle

Affected Environment – Bald eagles migrate over the Ranger District, but there are no known or suspected winter roosts nor nest sites. The biology of this bird is described in Reel et al. (1989). Bald eagles continue to be protected by the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA).

Environmental Effects / Cumulative Effects – Considering past, present and reasonably foreseeable actions of cumulative effects, the proposed action would have no impact on the bald eagle because there are no nests, winter roosts, and during migration the species tends to use the grassland areas for foraging. The proposed action focuses on forested habitats.

3.4.4 - Northern Leopard Frog

Affected Environment - Historically, the northern leopard frog was widespread in Montana, but it now appears to be extinct throughout much of the western part of the state (Hendricks and Reichel, 1996, pp. 14-15). Its status is uncertain in central and northeastern Montana. It remains abundant and widespread in southeastern Montana and northwestern South Dakota. The species is present on the Ashland Ranger District (Hendricks and Reichel, 1996; Maxell, 2004).

Northern leopard frogs are found in or near water in non-forested habitats. Vegetation is typically dense, as in a cattail marsh or dense sedge-meadow. Breeding takes places in lakes, ponds (temporary and permanent), springs, and occasionally backwaters of beaver ponds in streams. Hendricks and Reichel (1996) indicate that tadpoles were large and transforming to the terrestrial stage on the Ashland Ranger District by the time of late-July surveys; adults were encountered between early June and late September in 1995. Aquatic emergent vegetation at springs and water sources is an important habitat component for this amphibian.

Environmental Effects – The proposed action would improve habitat conditions slightly in the long-term over the existing condition. Avoidance of riparian areas by heavy equipment and vegetation treatments to maintain riparian and woody draw habitat as well as removing trees

along grassland edge is expected to improve habitat through the proposed action over the existing condition. In the short-term some individuals could be lost due to injury from heavy mechanical equipment or through prescribed burning through the proposed action over no loss in the existing situation.

Cumulative Effects - Considering past, present, and reasonably foreseeable future actions and existing inventories, the proposed action would have minor short-term impacts to individuals, but potentially improve habitat conditions (riparian, woody draws, grasslands) slightly in the long-term over the existing condition.

3.4.5 - Other Amphibians and Reptiles

Affected Environment - In general potential habitat for plains spadefoot and great plains toad would generally be maintained by grassland structures, riparian and woody draw condition (PFC). The greater-short-horned lizard, western hog-nosed snake, and milksnake potentially utilize these grassland habitats. These species generally use habitats other than ponderosa pine forest and have adapted to periodic low intensity fires. See Werner, et al., 2004 for species distribution and habitats use in Montana. Maxell, 2004, summarizes survey results for 2002 and 2004 and includes amphibian and reptile species distribution maps for the Ashland RD.

Environmental Effects – The proposed action would improve the habitat for these species slightly over the existing situation by using prescribed fire to remove pine trees colonizing grassland. The focus of the proposed action is on forested habitats and minimizing effects on grasslands habitats.

Cumulative Effects – Considering the past, present, and reasonably foreseeable future actions of cumulative effects the proposed action would maintain the current habitat condition for these species over the long-term, whereas the trees could continue to colonize grasslands and reduce habitat for these species slightly under the existing condition.

3.4.6 - FS Sensitive Plants

Affected Environment – Information on FS Sensitive plants was coordinated with Kim, Reid, Forest Program Manager (Reid, Sept. 26, 2007) and incorporated into this report. Table 3.4.T1 displays FS Sensitive species that were considered in this analysis. The project area contains a mosaic of habitat types. The proposed project is designed to treat ponderosa pine forest, which is unsuitable habitat for many sensitive plant species. There are no known occurrences of sensitive plants in or immediately adjacent to the project area. The nearest population occurs about one mile to the west of Holiday Campground (*Carex gravida*). *Carex gravida* typically occurs within moist woody draws. Dry site ponderosa pine forest (southerly aspects) is unsuitable for *Carex gravida*. Potential habitat for *Astragalus barrii* is very limited within the project area (moderately sloped badlands) and unlikely to be included in proposed activities. The north aspect sites of ponderosa pine that have heavy canopy cover primarily from sapling to pole canopy making them unsuitable for sensitive plant habitat.

Environmental Effects – When applying SMZ requirements, harvest activities are not expected to affect potential *Carex gravida* habitat. Two temporary roads could cross moist woody draws which could impact potential habitat. Individual plants could be impacted, but temporary road crossings are not likely to impact the viability of any population that might be present. If padding is used for a temporary crossing, it is recommended that it be removed after activity completion. Prescribed fire activities are not expected to appreciably affect potential *Carex gravida* habitat which has evolved with limited amounts of fire, especially low intensity fires typical of prescribed burning. Also, fire rarely consumes moist woody draws to a large degree of high severity which impacts soil properties.

Astragalus bairdii occurs in very sparse fuel settings and does not typically grow under forest cover or within community types found in the project area. Based on this information the project area has a low probability for supporting this species and therefore no impacts are anticipated.

Cumulative Effects – Considering the past, present, and reasonably foreseeable future actions of cumulative effects the proposed action and existing situation are expected to maintain habitat for these species over the long-term,

3.5 – Management Indicator Species

Management Indicator Species and Key (major indicator) species are displayed and relative change in populations / habitats are displayed in Table 3.5.T1.

Table 3.5.T1. Management Indicator Species ¹ and Key (Major Interest Species) ², Ashland Ranger District, Custer National Forest.

“0” = neutral; “-“ = negative; “+” = positive.

Species	HABITAT INDICATORS ¹ KEY (Major Interest) SPECIES ²	Habitat ¹	Habitat Present (P) or Absent (A)	Species Present (P) or Absent (A) ³	Alt. 1 Existing Situation	Alt 2 Proposed Action
Northern goshawk Sartin Draw (R1F08D04-13)	HABITAT INDICATOR	Forest: old growth Nests in mature forest containing suitable prey species.	P	P	-/+ Wildfire Risk / Habitat - See narrative	0 See narrative
Northern goshawk Green / Whitetail Creek (R1F08D04-09)	HABITAT INDICATOR	Forest: old growth Nests in mature forest containing suitable prey species.	P	P	-/+ Wildfire Risk / Habitat - See narrative	0 See narrative
Northern goshawk Holiday Springs CG (R1F08D04-10)	HABITAT INDICATOR	Forest: old growth Nests in mature forest containing suitable prey species.	P	P	-/+ Wildfire Risk / Habitat - See narrative	0 See narrative
White-tailed deer – Cover / Roads	HABITAT INDICATOR KEY (Major Interest) SPECIES	Forest: dog hair ponderosa pine Riparian habitat, ponderosa pine forest, riparian.	P	P	Roads and Cover = -/0 Low / Mod. Severity Fire Mosaic = -	Roads and Cover = 0/0 Low / Mod. Severity Fire Mosaic = +
Ruffed grouse	HABITAT INDICATOR	Forest: aspen	A	A		
Western kingbird (Ashland R. D.)	HABITAT INDICATOR	Forest: open savanna Woody draws in prairie (open savanna) provide habitat.	P	P	0	+
Lark sparrow (Sioux R. D.)	HABITAT INDICATOR	Forest: open savanna Woody draws or scattered shrubs in prairie (open savanna) provide habitat.	N/A	N/A		
Northern oriole (Bullock’s oriole)	HABITAT INDICATOR	Riparian: tree Riparian areas contain deciduous trees provide habitat.	P	P	0	+
Yellow warbler	HABITAT INDICATOR	Riparian: shrub Shrubby riparian areas provide habitat.	P	P	0	+

Ovenbird	HABITAT INDICATOR	Hardwood draw: tree	P	P	0	+	
Rufous-sided towhee (Spotted towhee)	HABITAT INDICATOR	Hardwood draw: shrub	P	P	0	+	
Brewer's sparrow	HABITAT INDICATOR	Evergreen shrubs: sagebrush	P	P	0	0	
Sharp-tailed grouse	HABITAT INDICATOR KEY (Major Interest) SPECIES	Prairie grasslands Woody draws and grasslands.	P	P	0	0	
Cutthroat trout	HABITAT INDICATOR KEY (Major Interest) SPECIES	Aquatic: cold water Previously addressed - Sensitive Species	A	A			
Largemouth bass	HABITAT INDICATOR	Aquatic warm water	P	A			
Elk – Cover / Roads	KEY (Major Interest) SPECIES	Forest and grasslands. (potential habitat)	P	P	Roads and Cover = -/0 Low / Mod. Severity Fire Mosaic = -	Roads and Cover = 0/0 Low / Mod. Severity Fire Mosaic = +	
Golden eagle	KEY (Major Interest) SPECIES	Cliffs, mature forest, and grasslands.	P	P (No Nests)	0	0	
Prairie falcon	KEY (Major Interest) SPECIES	Cliffs and grasslands.	P	P (No Nests)	0	0	
Merlin	KEY (Major Interest) SPECIES	Forest, woody draws, and grasslands.	P	P (No Nests)	0	0	
Mule deer – Cover / Roads	KEY (Major Interest) SPECIES	Ponderosa pine forest, juniper forest, woody draws and sagebrush grasslands.	P	P	Roads and Cover = -/0 Low / Mod. Severity Fire Mosaic = -	Roads and Cover = 0/0 Low / Mod. Severity Fire Mosaic = +	
Bighorn sheep	KEY (Major Interest) SPECIES	Cliffs and grasslands.	A	A			
Pronghorn antelope	KEY (Major Interest) SPECIES	Grasslands.	P	P	0	0	

¹ Management Indicator Species include the categories of Habitat Indicator and Key (Major Interest) Species. Habitat Indicator species are based on the Custer Forest Plan (USFS 1986, p. 18).

² The Key (Major Interest) Species are based on the Custer Forest Plan (USFS, Oct. 1986, see list on p. 17 and 180 of the Forest Plan; USFS, Oct. 1986b. FEIS, p. 121. See Direction; USFS, Oct. 1986, p. 18.) Management Indicator Species include the categories of Habitat Indicator and Key (Major Interest) Species.

³ P = species present and considered in analysis; P? = The species is potentially present: A = Species absent and no further analysis will be completed.

3.5.1 - Northern Goshawk

The northern goshawk (*Accipiter gentilis atricapillus*), here after called “goshawk,” and black-backed woodpecker were added (Kimbell, March 31, 2005) and then removed (Tidwell, July 17, 2007) from the Northern Region sensitive species list. The following analysis addresses the goshawk as a Custer NF Management Indicator Species (MIS).

NGPAP – 3.2.1 – Northern Goshawk Project Analysis Process

The goshawk is identified as a MIS in the Custer National Forest Plan (USFS, Oct. 1986, P. 18). The Regional Direction (Tidwell, July 17, 2007) and accompanying Northern Goshawk, Northern Region Overview (Brewer et al., May 2007, Sec. 3.2) provides information for the following Northern Goshawk Project Analysis Process (NGPAP). The information summarizes the best available science for goshawks and leaves options open for professional judgment at the local level (Tidwell July 17, 2007, P.1).

NGPAP – 3.2.1.1 Step One – Regional Context

Several investigations have established the Regional context.

- In its 12-month status review of the species, the Service concluded “that the goshawk population is well distributed and stable at the broadest scale (63 FR 35183, June 29, 1998).
- It is estimated that goshawks across the Region are a part of one population (Samson 2006a).
- The species is considered globally secure, and in Montana, the population is considered stable and moderately vulnerable to threats to habitat or population (MNHP 2006).
- Based on habitat and goshawk detection estimates, breeding goshawks and their habitat appear abundant and well distributed across the USFS Northern Region (Kowalski 2006, Map – Northern Goshawk Historic Active nests 2000-2005, and Map – Northern Goshawk Detection Survey 2005; Samson 2006a, Appendix 07, Map - goshawk well distributed).
- Each National Forest appears to have more than enough habitat to maintain a minimum viable population of goshawks (Samson 2006b).

The Regional context establishes the framework for assessing the distribution, status, and trend of goshawks Region-wide and the background for discussing goshawk viability in the final determination section at the end of this analysis.

NGPAP – 3.2.1.2 - Step Two – Forest Context

Custer Forest Plan - The goshawk is the Custer National Forest's habitat indicator species for old-growth timber (USFS, 1986, P. 18), which is defined in the glossary (USFS, Oct. 1986, p. 135-136) as follows. “Old Growth Timber - See Overmature Timber. ... Overmature Timber - Individual trees or stands of trees that in general are past their maximum rate in terms of the physiological processes expressed as height, diameter and volume growth.” The Plan (USFS, Oct. 1986, p. 12) also states “E. Management Standards. The following standards apply to the National Forest ... administered by the Custer National Forest. They are intended to supplement, not replace, the National and Regional policies, standards, and guidelines found in the Forest

Service Manuals and Handbooks, and in the Northern Region Guide.” Under “E. Management Standards” (USFS, Oct. 1986, p. 17) states “e. Habitat Indicator Species (Management Indicator Species). These are species whose population changes are believed to indicate effects of management on other species of a major biological community or on water quality. The forest will provide for the maintenance and improvement of habitats for these indicator species.”

Old Growth / Mature Forest – The Timber Stand Management Record System (TSMRS) does not include ponderosa pine stands that have an average tree diameter ≥ 17 ” dbh on the Ashland RD (Pers. Com., Dennis Sandbak, Jan. 31, 2008) and that meet the definition of old growth for the Eastern Montana Zone (Green et al., 2005, P. 10). TMSRS stands are most always $> 5A$. The following analysis is based on mature ponderosa pine forest stands.

Custer NF – Data analysis from 2002 (112,187 A.) to 2008 (at least 87,005 A.) indicate mature forest declined by up to 27%, primarily due to wildfires. These data reflects on-the-ground changed conditions between 1999 and Jan. 2008. In 2002 approximately 112,187 acres of unaltered over mature forest occurs on the Beartooth RD, 16,300 on the Sioux RD and 140,700 on the Ashland RD (Whitford, Nov. 25, 2002). At least 89,005 A. (91,701 A. less up to 2696 A. potentially eliminated in Lost Creek Fire, FY 2007) were present on the Ashland RD in Jan. 2008 (Project file, Wildlife Map – Potential goshawk habitat, Jan. 2008). A total of 2,696 A. of mature forest were present within the 10,733A. Lost Wildfire Area, but data on amount of mature forest removed in the 2007 Lost Fire is not available. All acreages are approximate. All suitable habitat is assumed to be occupied by goshawks, though all nests may not have been detected.

Surveys – Extensive surveys by contract and USFS personnel located only two territories in the Ekalaka Hills (Parks, Jan. 2008), each with apparent large home ranges. Evidence based on habitat and identified nest sites tends to indicate similar situation on the Ashland RD where habitat requirements are thought to exceed those listed in Reynolds et al. (1992).

Ashland RD - In terms of landscape, the Ashland RD is an island of ponderosa pine forest surrounded by range land. On the Ashland RD goshawk habitat has been reduced in terms of acres and known and potential territories since the development of the Forest Plan (USFS, 1986). Of 14 confirmed nest territories, at least five territories have been affected by wildland fire and all habitat removed in two others (Hay Creek, Chelsea) on the Ashland RD (Table 3.2.1.2.T1). It is assumed that the goshawk population is utilizing all available habitat. The existing habitat is distributed in patches (Project file, Wildlife Map – Potential goshawk habitat, Jan. 2008).

Forest Inventory and Analysis (FIA) – Goshawk Habitat on Ashland RD - Forest Inventory and Analysis (FIA) provide a statistically sound representative sample to provide unbiased estimates of forest conditions for regional and forest wide assessments and planning. See Leach (2002) and Leach (2005) for information on summary statistics for variable computations. Estimates for northern goshawk habitat are summarized in Table 3.2.1.2.T2 and represents data from 46 forested FIA primary sample units (PSUs) on the Ashland RD. Of the PSUs 0%, 8.3%, and 16.1% contained vegetation elements associated with goshawk nest, PFA, and foraging habitat, respectively. While goshawk nest habitat was not detected in the FIA inventory, the habitat is known to be present on the Ashland RD. FIA PSUs altered by fire, harvest activities, or land

exchange prior to 2003 were removed from the analysis. See Samson (2006a) for methods and description of vegetation characteristics used to calculate habitat estimates.

Table 3.2.1.2.T2. FIA plots on the Ashland RD based on 2003 samples. ¹

Goshawk Habitat Component	Estimate of the Means for 46 Forested PSUs	Range	Standard Error	Confidence Interval
Nest	0%	0.0 – 0.0%	0	90%
PFA	8.3%	3.8 – 13.0%	32.323	90%
Foraging	16.1	10.6 – 16.1%	22.029	90%

¹ Information based on standard query for goshawk habitat from the FIA summary database (DiBenedetto, Sept. 18, 2007). On the Ashland Ranger District there were 71 FIA PSUs of which 46 were found to be with forested condition.

Table 3.2.1.2.T1. Summary of confirmed and potential goshawk nest territories, Ashland RD, Oct. 2007.

Status – Date Confirmed Active	Last Confirmed Active	Territory No.	Territory Name	Past Wildfire	Past Rx Fire	Past Timber Harvest	Comment
1985	2004	R1F08D04-01	Logging Cr.	No	No	?	Historic logging?
1985	1985	R1F08D04-02	Willie Bull Prong	Yes	No	No	Wildfire – Foraging habitat removed.
1987	1987	R1F08D04-03	Upper Hay Cr.	Yes	No	Yes	Wildfire – Habitat removed.
1987	2003	R1F08D04-04	West Dailey	Yes	No	No	Wildfire – Habitat removed
1990	1992	R1F08D04-05	Chelsea	Yes	No	Yes	Wildfire/Salvage – Habitat removed.
1991	2003	R1F08D04-06	Lemonade	Yes	No	Yes	Wildfire – Habitat removed
1990	2006	R1F08D04-07	Timber Cr.	Minimal	Yes	Yes	Timber Cr. prescribed burn
1996	2003	R1F08D04-08	N. Fk. Taylor Cr.	No	Yes	Yes	Goodspeed prescribed burn
1980	2003	R1F08D04-09	Green Creek	No	No	Yes	Whitetail Project
1995	2007	R1F08D04-10	Holiday Springs Campground	No	No	Yes	E. Fk. Otter Creek Project Whitetail Project
1995	1996	R1F08D04-11	Upper Wilbur Cr.	No	No	Yes	Timber Harvest – Status Undetermined
Potential 1999	None	P-R1F08D04-A Potential (R1F08D04-12)	Soft Water Springs	No	No	No?	Threemile EIS
2003	2006	R1F08D04-13	Sartin Draw Springs	No	No	No	Minor part in Whitetail Project
2003	2004	R1F08D04-14	Surprise Spring	No	No	No	Liscom Butte Prescribed Burn
2004	2005	R1F08D04-15	Davis Prong	No	Yes	No	Red Rock prescribed burn
Potential	None	P -R1F08D04- B Potential	S. Fork Threemile Cr.	Yes	?	No	Erickson Spring Wildfire
Potential	None	P - R1F08D04- C Potential	Elk Cr. Sawmill Springs	No	No	No	Large intact stand of mature forest - Taylor-Ten Area

NGPAP – 3.2.1.3 - Step Three – Home Range and Project Context

NGPAP - 3.2.1.3.1 *Defining and Delineating the Analysis Area* – Mature forest and goshawk nest territories tend to be concentrated in the northern portion of the Ashland Ranger District which includes the project area. The project area includes portions of Sartin Draw Springs (R1R08D04-13), Green Creek (R1R08D04-09), and Holiday Spring Campground (R1R08D04-10) goshawk nest territories (Map 3.2.1.3.1.M1). Biologists were uncertain if the Green Creek (R1R08D04-09) PFA and nest stands represented one or two pairs of goshawks, but were conservative in combining the information into one territory. Available habitat was identified for PFA and nest stands.

Goshawk habitat requirements are thought to be greater on the Custer NF where average precipitation is lower (less productive site), prey species appear to be more scarce (more energy expenditure to obtain prey), and forest stands are more interspersed with grasslands (adults must cover greater area for prey), than in the southwestern US where Reynolds et al. (1992) guidelines were developed. Bassett et al. (1994, P. 45) point out that the achievable Vegetation Structural Stage (VSS) percentage, as described in Reynolds et al. 1992, should be determined by considering existing local factors that influence forest establishment and growth, expected management intensity, and tree longevity. Brewer et al. (May 2007) summarizes the best available science for goshawks and leaves options open for professional judgment at the local level (Tidwell July 17, 2007, P.1). For a definition of active territory see Brewer et al. (May 2007, glossary).

The cumulative effects boundary for this analysis is the sum of three known goshawk home ranges potentially impacted by the proposed action (Map. 3.2.1.3.1.M1). The cumulative effects area is larger than the project boundary and encompasses known goshawk home ranges within or partly within the project boundary. The temporal period is 30 years since it represents the approximate time for ladder fuels to reestablish in the absence of treatment in a single-storied ponderosa pine stand.

Topography (slope and aspect) and site conditions appear to limit the uniform distribution of habitat in the cumulative effects area. Goshawk nest and PFA habitat is located in existing patches of ponderosa pine forest especially along the southern and eastern side of the cumulative effects area. These nest territories were used to define home range (foraging, PFA, and nest stands) for the analysis area which includes areas outside of the Whitetail project area (Map. 3.2.1.3.1.M1).

The cumulative effects analysis area includes the Whitetail project area and the East Fork of Otter Creek (E. Fk. Otter Cr.) project (Project file, Wildlife Map – Potential goshawk habitat, Jan. 2008). The approximately 15,000 A. of home range areas were based on 5,000 A. of forest per territory for each of the three nest territories. The E. Fk. Otter Cr. project is located in the western portion of the Holiday Springs goshawk territory foraging areas.

NGPAP - 3.2.1.3.2 *Analysis of Foraging Area habitat within the Analysis Area* – TSMRS data was used on NFS lands and SILC 3 on private as needed to fill in other mapping areas because V-Map information was not available. V-Map information would likely be more accurate in

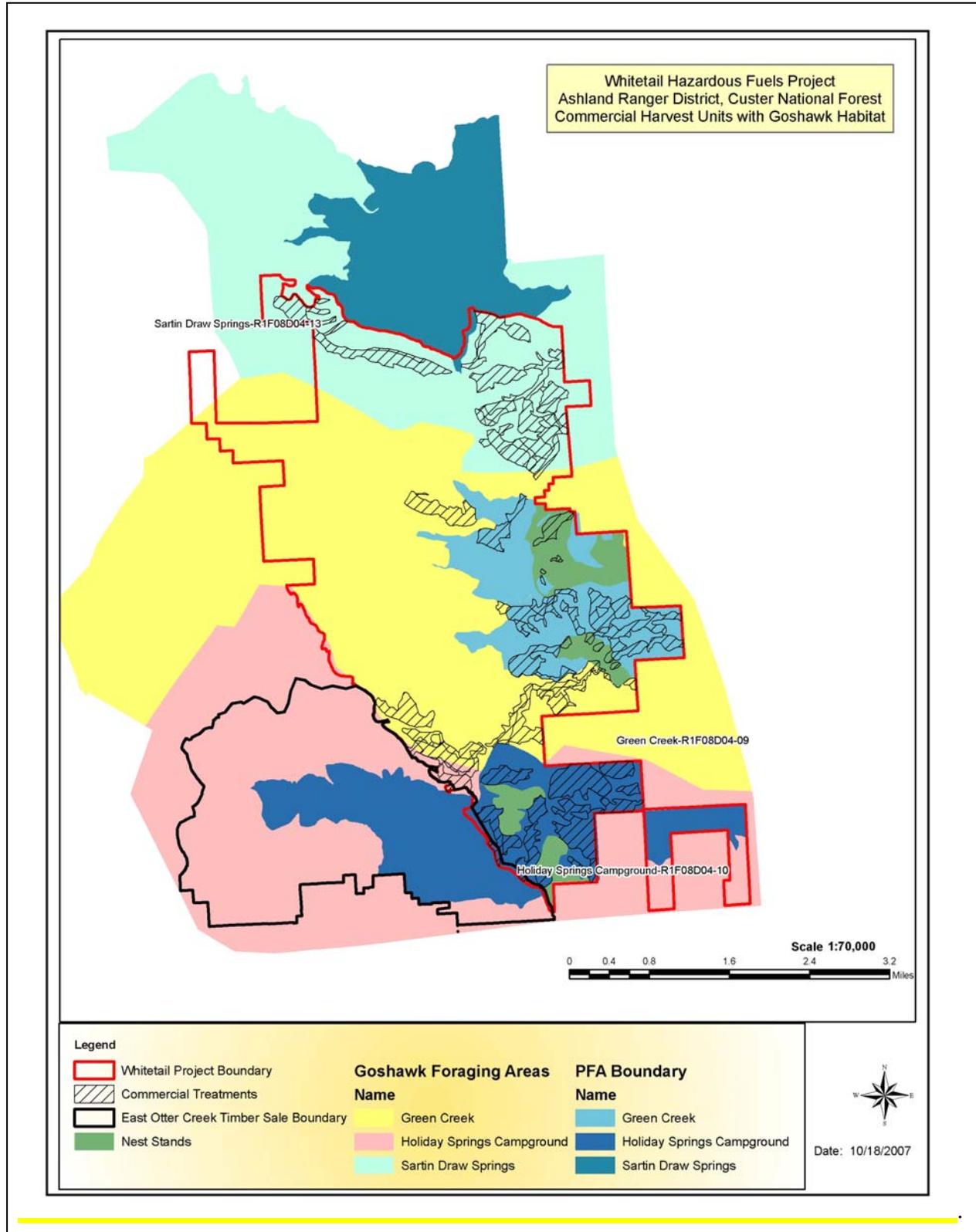
identifying habitat acres as TSMRS stands could include small inclusions of openings and or different size class trees than are listed for the average stand strata. Based on SILC the distribution of suitable habitat on private lands was often fragmented from the NFS lands and approximately 1-2% of the private lands (Gonzales, Oct. 5, 2005). The following analysis was based on TSMRS data available for NFS lands.

Data from the NGPAP analysis area (Table 3.2.1.3.1.M1) was compared to Reynolds (1992) and existing percent tree size / canopy distribution (Table 3.2.1.3.1.T1, 3.2.1.3.1.T2, and 3.2.1.3.1.T3).

NGPAP - 3.2.1.3.2.a_ *GIS Analysis Using VMap or SILC* – The VMAP coverage was not available for use in this analysis. TSMRS data was used where available on NFS lands and SILC 3 used to cover other areas. TSMRS strata from Development Stage 7 (Old Forest) was combined into the Development State 6 (Mature Forest) since stands with an average DBH of >17 inches have not been observed in the field in the project area. TSMRS stands coded as Development Stage 7 (Old Forest) could reflect photo interpretation codes.

NGPAP - 3.2.1.3.2.b_ *Using Stand Exam Data for habitat Analysis and Updating GIS Information* – Where possible the TSMRS coverage was set to prioritize stand exam data information over photo interpretation (PI) for vegetation strata classifications.

NGPAP - 3.2.1.3.2.c_ *Inventory Analysis with Intensified Field Grid* – Intensified field grid data was not available



Map. 3.2.1.3.1.M1. Map of three goshawk home ranges including foraging area, PFAs, and nest habitat in and around the Whitetail Hazardous Fuels project area (Gonzales 2007.10.18.0744).

Table 3.2.1.3.1.T1. Foraging area diversity matrix for habitat analysis of Sartin Draw Springs goshawk nest territory (R1R08D04-13).¹

Development Stage Code	Development Stages for Goshawks	Diameter Range (inches)	Minimum Canopy Closure %	Desired Balance for Goshawk (% of Area) ²	Home Range Existing Acres and % ³	Proposed Action Acres ⁴	Foraging Post-treatment Acres and % for Project Area
0	Unclassified	N/A	N/A	N/A			
1	Non-Forest Openings	N/A	N/A		1,734 (34%)	10	1,724 (52%)
2	Grass/Forb/Seedling	0-1	None	10	0	0	0
3	Seedling/Sapling	1-5	None	10	0	0	0
4	Young Forest	5-9	None	20 (15-20%)	178 (4%)	CT = 41 ST = 22	115 (3%)
5	Mid-Aged Forest 1	9-14	50%	10 (5-15%)	827 (18%)	SH = 26 ST = 37	764 (23%)
5	Mid-Aged Forest 2	9-14	60%	10 (5-15%)	921 (25%)	SC = 45 SH = 59 ST = 224	593 (18%)
6	Mature Forest	14-20	50%	20 (15-25%)	256 (>19%)	CT = 6 ST = 87 STR = 27	137 (>5%)
7	Old Forest	>20	50%	20 (15-25%)	0	0	0
	Sub-Totals (NFS lands)			100%	3,916 (100%)	583	3,333 (100%)
	Private				1140		
	Home Range Total Acres				5,056		

¹ GIS query of TSMRS data on NFS lands (Gonzales, Oct. 18, 2005, 1522).

² Reynolds et al. 1992, P. 27.

³ Sum of existing development stage codes 5-7 = 2,004 A (51%). Sum of existing development code stages 6 – 7 = 256 A. (6%).

⁴ GIS query of TSMRS data on NFS lands (Gonzales, Nov. 6, 2005, 1013).

Table 3.2.1.3.1.T2. Foraging area diversity matrix for habitat analysis of Green Creek goshawk nest territory (R1R08D04-09).¹

Development Stage Code	Development Stages for Goshawks	Diameter Range (inches)	Minimum Canopy Closure %	Desired Balance for Goshawk (% of Area) ²	Home Range Existing Acres and % ³	Proposed Action ⁴	Foraging Post-treatment Acres and % for Project Area
0	Unclassified	N/A	N/A	N/A	14 (>1%)	0	14 (>1%)
1	Non-Forest Openings	N/A	N/A		2,644 (42%)	7	2,637 (44%)
2	Grass/Forb/Seedling	0-1	None	10	0	0	0
3	Seedling/Sapling	1-5	None	10	0	0	0
4	Young Forest	5-9	None	20 (15-25%)	332 (5%)	CT = 45	287 (5%)
5	Mid-Aged Forest 1	9-14	50%	10 (5-10%)	1862 (30%)	LIB = 22 SH = 57 ST = 90 STR = 10	1,683 (28%)
5	Mid-Aged Forest 2	9-14	60%	10 (5-10%)	1313 (21%)	SH = 22 ST = 94 STR = 2	1,195 (20%)
6	Mature Forest	14-20	50%	20 (15-25%)	229 (4%)	SH = 6 ST = 11 STR = 10	202 (3%)
7	Old Forest	>20	50%	20 (15-25%)	0	0	0
	Sub-Totals (NFS lands)			100%	6394 (100%)	376 (100%)	6,018 (100%)
	Private				2,352		
	Home Range Total Acres			100%	8,746		

¹ GIS query of TSMRS data on NFS lands (Gonzales, Oct. 18, 2005, 1522).

² Reynolds et al. 1992, P. 27.

³ Sum of existing development stage codes 5-7 = 3,404 A. (53%). Sum of existing development code stages 6 – 7 = 229 A. (4%).

⁴ GIS query of TSMRS data on NFS lands (Gonzales, Nov. 6, 2005, 1013).

Table 3.2.1.3.1.T3. Foraging area diversity matrix for habitat analysis of Holiday Springs CG goshawk nest territory (R1R08D04-10).¹

Development Stage Code	Development Stages for Goshawks	Diameter Range (inches)	Minimum Canopy Closure %	Desired Balance for Goshawk (% of Area) ²	Home Range Existing Acres and % ³	E. Fork Otter Creek Project	Proposed Action ⁵	Foraging Post-treatment Acres and % for Project Area
0	Unclassified	N/A	N/A	N/A	14 (>1%)	0	0	14 (>1%)
1	Non-Forest Openings	N/A	N/A		1,635 (38%)	0	0	1,635 (50%)
2	Grass/Forb/Seedling	0-1	None	10	65 (1%)	0	0	65 (1%)
3	Seedling/Sapling	1-5	None	10	25 (>1%)	0	0	25 (>1%)
4	Young Forest	5-9	None	20 (15-25%)	108 (2%)		CT = 23	85 (3%)
5	Mid-Aged Forest 1	9-14	50%	10 (5-15%)	889 (21%)	41 ⁴	SH = 30	818 (25%)
5	Mid-Aged Forest 2	9-14	60%	10 (5-15%)	426 (10%)	211 ⁴		215 (6%)
6	Mature Forest	14-20	50%	20 (15-25%)	1,173 (27%)	723 ⁴	0	453 (14%)
7	Old Forest	>20	50%	20 (15-25%)	0		0	
	Sub-Totals (NFS lands)			100%	4,335 (100%)	975 (100%)	50 (100%)	3,310 (100%)
	Private				1,424			
	Home Range Total Acres			100%	5,759			

¹ GIS query of TSMRS data on NFS lands (Gonzales, Oct. 18, 2005, 1522).

² Reynolds et al. 1992, P. 27.

³ Sum of existing development stage codes 5-7 = 2,488 A. (57%). Sum of existing development code stages 6 – 7 = 1,173 A. (27%)

⁴ Source was Wildlife Report for E. Fork Otter Creek Project, T. Whitford.

⁵ GIS query of TSMRS data on NFS lands (Gonzales, Nov. 6, 2005, 1013).

NGPAP - 3.2.1.3.3 *Nest Area Habitat within the Analysis Area* – Brewer et al. (May 2007) summarizes the best available science for goshawks and leaves options open for professional judgment at the local level (Tidwell July 17, 2007, P.1). Nest stands were identified based on available habitat, because local thresholds are not known, and because habitat is considered to be less productive (rainfall, topography) on the Ashland Ranger District than that from Reynolds et al. 1992. Habitat attributes that commonly occur in an active nest area were used to identify alternate nest stands. Some TSMRS stands could contain minor inclusions of other stand strata, and therefore contain slightly less acres of suitable goshawk habitat than the stand acres. Existing TSMRS strata were used to compare alternatives as data are not available to further quantify these habitat acreages.

NGPAP - 3.2.1.3.3.a *GIS Goshawk Nest Stand Attributes* – Table 6 in Brewer et al (May 2007, P. 35) was considered in this analysis.

NGPAP - 3.2.1.3.3.b *Stand Exam Data for Habitat Analysis and Updating GIS Information Sartin Draw* - All of the nest stands are outside of the Whitetail project boundary and not directly impacted by the proposed action (Map. 3.2.1.3.1.M1).

Green Creek - The Green Creek shows 431 A. which is more than the minimum recommend 240 A. for nest stands for one territory, but less than the 480 for nests stands if two territories are present (Table 3.2.1.3.3.1.T1). As previously stated, biologists are uncertain if this represents one or two nest territories, and identified available habitat.

Holiday Springs Campground - Existing acres total 185 A. which are less than the 240 A. minimum recommended for nest stands (Table 3.2.1.3.3.1.T2). However, excess acres are potentially provided in adjacent PFA areas to offset this shortfall in nest habitat. See following discussion under NGPAP - 3.2.1.3.4., Holiday Springs Campground.

Table NGPAP -3.2.1.3.3.a.T1. Nest stand habitat analysis for Green Creek goshawk nest territory (R1R08D04-09).

Development Stage Code	Development Stages for Goshawks	Diameter Range (inches)	Minimum Canopy Closure %	Desired Balance for Goshawk (% of Area) ²	Nest Stand Existing Acres and % ³	Proposed Action	Nest stand Post-treatment Acres and % for Project Area
0	Unclassified	N/A	N/A	N/A	0	0	0
1	Non-Forest Openings	N/A	N/A		0	0	0
2	Grass/Forb/Seedling	0-1	None	0	0	0	0
3	Seedling/Sapling	1-5	None	0	0	0	0
4	Young Forest	5-9	None	0	0	0	0
5	Mid-Aged Forest 1	9-14	50%		0	0	0
5	Mid-Aged Forest 2	9-14	60%		108 (25%)		108 (25%)
6	Mature Forest	14-20	50%	50%	323 (75%)		323 (68%)
7	Old Forest	>20	50%	50%	0		0
	Total Acres			100%	431 ⁴	Total = 4	431 ⁵ (100%)

¹ GIS query of TSMRS data (Gonzales, Oct. 18, 2005, 1522). Modified to reflect treatment units dropped or modified, Jan. 14, 2008.

² Reynolds et al. 1992, P. 27. Brewer et al. 2007, P. 11 and 35, stands with >40% canopy cover.

³ Sum of existing development stage codes 5-7 = 431 (100%). A. Sum of existing development code stages 6 – 7 = 323 A. (75%).

⁴ Biologists are uncertain if the identified nests stands located in two drainages represent one or two goshawk nest territories.

⁵ Sum of post-treatment development stage codes 5-7 = 431 A. which exceeds the approximately 240 A. recommended (Brewer et al, 2007, P. 39); but would be slightly less than the 480A. need if two nest territories are present

Table 3.2.1.3.3.a.T2. Nest stand habitat analysis for Holiday Springs CG goshawk nest territory (R1R08D04-10).

Development Stage Code	Development Stages for Goshawks	Diameter Range (inches)	Minimum Canopy Closure %	Desired Balance for Goshawk (% of Area) ²	Nest Stand Existing Acres and % ³	Proposed Action	Nest Stand Post-treatment Acres and % for Project Area
0	Unclassified	N/A	N/A	N/A	(%)	0	(%)
1	Non-Forest Openings	N/A	N/A	0	(%)	0	(%)
2	Grass/Forb/Seedling	0-1	None	0	(%)	0	(%)
3	Seedling/Sapling	1-5	None	0	(%)	0	(%)
4	Young Forest	5-9	None	0	(%)	0	(%)
5	Mid-Aged Forest 1	9-14	50%		0 (0%)	0	0 (0%)
5	Mid-Aged Forest 2	9-14	60%		30 (16%)	0	30 (16%)
6	Mature Forest	14-20	50%	50%	155 (84%)	0	155 (84%)
7	Old Forest	>20	50%	50%		0	
	Total Acres			100%	185 (100%)	0	185 ⁴ (100%)

¹ GIS query of TSMRS data (Gonzales, Oct. 18, 2005, 1522). No timber harvest within nests stands by E. Fork Otter Project 2006.

² Brewer et al. 2007, P. 11 and 35, stands with >40% canopy cover.

³ Sum of existing development stage codes 5-7 = 185 A. (100%) Sum of existing development code stages 6 – 7 = 155 A. (84%).

⁴ Sum of post-treatment development stage codes 5-7 = 185 A. which is less than the approximately 240 A. recommended (Brewer et al, 2007, P. 39); but would represent what is available. Additional potential nest acres are within the adjacent 876A. of maintained PFA areas (see Table NGPAP - 3.2.1.3.4.T2).

NGPAP - 3.2.1.3.3.c *Inventory Analysis with Intensified Grid Data* – Intensified grid data was not available for this analysis.

NGPAP - 3.2.1.3.4. PFA Habitat Analysis – PFAs were identified based on available habitat because habitat is considered to be less productive (rainfall, topography) on the Ranger District than that from Reynolds et al. 1992. Brewer et al. (May 2007) summarizes the best available science for goshawks and leaves options open for professional judgment at the local level (Tidwell July 17, 2007, P.1).

Reynolds et al. (1992, P. 23-24) describes the desired conditions for PFAs for ponderosa pine forest type:

- *Stand Structure* - The portions of the PFA in the mature and old forest (see Development Stage Codes in Tables) have a minimum canopy of 50%. One-third of the area in the mid-aged portion has a minimum canopy cover of 60%, and the remaining two-thirds has a minimum canopy cover of 50%.
- *Snags* – At least 2 large (≥ 18 inch DBH, ≥ 30 feet tall) snags per acre throughout the PFA. These dimensions meet the minimum requirements for the majority of prey species.
- *Downed logs* – At least 3 large (≥ 12 inch diameter mid-point, ≥ 8 feet long) downed logs per acre throughout the PFA. Downed logs of this number and size are important for many prey species.
- *Live trees* - A minimum of 3-5 mature and old, live trees per acre in groups or stringer with interlocking crowns. Interlocking crowns allow squirrels to move from tree crown to tree crown.

PFA Habitat Analysis

- *Sartin Draw* – The PFA is outside of the Whitetail project boundary and not directly impacted by the proposed action (Map. 3.2.1.3.1.M1).
- *Green Creek* – The PFA is within the Whitetail project area and totals 1,338 A., but only 1,058 are in the mid-aged to old forest stages, and only 320 A. in the mature to old age stages (Table NGPAP - 3.2.1.3.4.T1). These pretreatment acres for PFA exceed the 420 A. minimum for a PFA including 1/3 > 60% canopy cover (need at least 140A., have 266 A.) and 2/3 > 50% canopy cover (need at least 280, have 792) (See previous paragraph NGPAP - 3.2.1.3.4., Stand Structure). Again there is uncertainty as to whether this represents one or two nest territories. Post-treatment short-term values for PFA exceed the 1/3 > 60% canopy cover (need at least 140A., retaining 222 A.) and 2/3 > 50% canopy cover (need at least 280, retaining 538) for one territory, but would be slightly less than 560A. if two territories are present. After 10 years, canopy coverage on CT1 treatment (356) is expected to meet PFA (420A.) minimum canopy coverage goals and provide approximately 1,056 A. of PFA which would be more than sufficient for two territories (420 A. X 2 = 840A) if present. Since the 1,056 A. figure exceeds the 840 A. by 216A. it also provides a safe guard in potentially maintaining 10 year post-treatment acres in the event of unanticipated environmental changes to forest canopy.

- *Holiday Springs Campground* – Part of the PFA is within the Whitetail project area and remainder in the E. Fork of Otter Creek Project (Table NGPAP - 3.2.1.3.4.T2; Map 3.2.1.3.1.M1). The PFA totals 2,295 A., but only 1,882 A. are in the mid-aged to old forest stages, and 1,291 A. within the mature to old age stages (Table NGPAP - 3.2.1.3.4.T2). These pretreatment acres for PFA exceed the 420 A. minimum for a PFA including 1/3 > 60% canopy cover (need at least 140A., have 400 A.) and 2/3 > 50% canopy cover (need at least 280, have 1,482A.) See previous paragraph NGPAP - 3.2.1.3.4., Stand Structure. Post-treatment short-term values for PFA are less than the 1/3 > 60% canopy cover (need at least 140A., retaining 72A.) and 2/3 > 50% canopy cover (need at least 280, retaining 546, of which 396A. is mature forest) per territory. After 10 years, canopy coverage on CT1 treatment in the project area (444A.) and adjacent E. Fk. Otter Creek Project area (975A.) is expected to meet PFA (420A.) minimum canopy coverage goals and provide approximately 2,295A. of PFA which would be more than sufficient for a territory (420 A). Since the 618A. figure (strata 5-7) exceeds the 420 A. minimum by 198A. it also provides a safe guard in potentially maintaining 10 year post-treatment acres in the event of unanticipated environmental changes to forest canopy.

Table NGPAP - 3.2.1.3.4.T1. PFA habitat analysis for Green Creek goshawk nest territory (R1R08D04-09).

Development Stage Code	Development Stages for Goshawks	Diameter Range (inches)	Minimum Canopy Closure %	Desired Balance for Goshawk (% of Area) ²	PFA Existing Acres and %	Proposed Action	PFA Post-treatment Acres and % for Project Area
0	Unclassified	N/A	N/A	N/A	0	0	
1	Non-Forest Openings	N/A	N/A	N/A	241 (18%)	0	241 (25%)
2	Grass/Forb/Seedling	0-1	None	10	8 (>1%)	0	8 (>1%)
3	Seedling/Sapling	1-5	None	10	0	0	0
4	Young Forest	5-9	None	20 (15-25%)	31 (2%)	0	31 (3%)
5	Mid-Aged Forest 1	9-14	50%	13 (8-18%)	472 (36%)	156 (44%)	316 (32%)
5	Mid-Aged Forest 2	9-14	60%	7 (2-12%)	266 (20%)	102 (29%)	164 (17%)
6	Mature Forest	14-20	50%	20 (15-25%)	320 (24%)	98 (27%)	222 (23%)
7	Old Forest	>20	50%	20 (15-25%)	0	0	0
	PFA Total Acres			100%	1338	356	982 (100%)

¹ GIS query of TSMRS data (Gonzales, Oct. 18, 2005, 1522). Modified to reflect treatment units dropped or modified, Jan. 14, 2008.

² See Brewer et al. (May 2007, P. 14) for Reynolds 1992 recommendations for comparison. Of the area in the mid-aged portion has a minimum canopy cover of 60%, and the remaining two-thirds has a minimum canopy cover of 50% (Reynolds 1991, P. 23)

³ Sum of existing development stage codes 5-7 = 1,058 A. Sum of existing development code stages 6 – 7 = 320 A.

⁴ Sum of post-treatment development stage codes 5-7 = 702 A. which exceeds the approximately 420 A. recommended (Brewer et al, 2007, P. 38), but is less than 840A. if two territories are present. After 10 years, PFA habitat is expected to return to a total of 1338 A. and meet an approximately 840A. recommended for up to 2 territories.

Table NGPAP - 3.2.1.3.4.T2. PFA habitat analysis for Holiday Springs CG goshawk nest territory (R1R08D04-10).

Development Stage Code	Development Stages for Goshawks	Diameter Range (inches)	Minimum Canopy Closure %	Desired Balance for Goshawk (% of Area) ²	PFA Existing Acres and %	E. Fk. Otter Cr Project ⁴	Proposed Action ⁵	PFA Post-treatment Acres and % for Project Area
0	Unclassified	N/A	N/A	N/A	0	0	0	0
1	Non-Forest Openings	N/A	N/A	N/A	357 (15%)	0	0	357 (42%)
2	Grass/Forb/Seedling	0-1	None	10	48 (2%)	0	0	48 (6%)
3	Seedling/Sapling	1-5	None	10	0 (0%)	0	0	0
4	Young Forest	5-9	None	20 (15-25%)	8 (>1%)	0	0	8 (<1%)
5	Mid-Aged Forest 1	9-14	50%	13 (8-18%)	191 (8%)	41	0	150 ⁶ (18%)
5	Mid-Aged Forest 2	9-14	60%	7 (2-12%)	400 (18%)	211	117 CT1	72 ⁶ (8%)
6	Mature Forest	14-20	50%	20 (15-25%)	1291 (57%)	723 ⁵	327 CT1	396 ^{5,6} (26%)
7	Old Forest	>20	50%	20 (15-25%)	0	0	0	0
	PFA Total Acres			100%	2,295 (100%)	975	444	876 (100%)

¹ GIS query of TSMRS data (Gonzales, Oct. 18, 2005, 1522). Modified to reflect treatment units dropped or modified, Jan. 14, 2008.

² See Brewer et al. (May 2007, P. 14) for Reynolds 1992 recommendations for comparison. Of the area in the mid-aged portion has a minimum canopy cover of 60%, and the remaining two-thirds has a minimum canopy cover of 50% (Reynolds 1991, P. 23)

³ Sum of existing development stage codes 5-7 = 1,882 A. Sum of existing development code stages 6 – 7 = 1,291 A.

⁴ E. Fork Otter Creek Project acres based on Whitford, July 8, 2005, P. 24. Holiday PFA = 2,295A. of which potentially suitable habitat in Stage5-7 total = 1,882A. Portions of the 2,295 A. Holiday Springs PFA are located in the E. Fork Otter (1,024A) and Whitetail (1,254A., less 185A. nest stands = 1,069A.) project areas (GIS query, M. Gonzales, 2/14/2008.

⁶ CT1 = Initial canopy goal of 30-40% with 10 year recovery goal of 40-60%.

⁷ Sum of post-treatment development stage codes 5-7 = 618 A. which exceeds the approximately 420 A. recommended (Brewer et al, 2007, P. 38). After 10 years, PFA habitat is expected to return to a total of 1062 A. and meet an approximately 420A. recommended.

Data from the project area was compared to Reynolds (1992, P. 7, Table 1) to ensure consistency with recent case law.

NGPAP - 3.2.1.3.4.a *GIS Analysis* – The PFA will be approximately 420 A. centered on the nest.

NGPAP - 3.2.1.3.4.b *R1 Geospatial Group Tool* – The tool is under developed, but not available at the time of this analysis.

NGPAP - 3.2.1.3.4.c *Stand Exam Data for Habitat Analysis and Updating GIS Information* – Data was included, where available, incidental to TSMRS queries.

NGPAP - 3.2.1.3.4.d *Inventory Analysis with Intensified Grid* – Data was not available to analyze with intensified grid.

NGPAP – 3.2.1.4 - Step Four – Treatment Context

- NGPAP - 3.2.1.4.b *Nest Habitat in the Foraging Area* – Habitat would be maintained in the Sartin Draw nest stands which are outside the Whitetail project area. Habitat would be maintained in Green Creek / Whitetail Creek as well as the Holiday Springs nest stands. Maintenance would include using chainsaws to selectively remove understory ladder fuels (green trees < 7 dbh) and prescribed burning while maintaining the mature forest overstory (NCBB, NCBJ). It is important to maintain adequate forest canopy in mature forest in goshawk nest and PFA. Substantial reductions in the mature forest canopy in nest stands can reduce vegetative protection for nests and potentially decrease survival of eggs and young. Changes in the structure and composition of forested habitats, especially changes that result in reduced forest canopy, could favor habitat needs of competitors, thereby potentially decreasing relative habitat availability to goshawks (Squires and Kennedy 2006) as cited in Brewer, et al., 2007, P. 17.

NGPAP - 3.2.1.4.a *Treatment acres in foraging area, potential nesting areas, and in recently occupied PFAs* – The treatment units for the proposed action are listed in Table 2 of Chapter 2 of the NEPA document. The Sartin Draw PFA is not impacted because it is outside the Whitetail Project area. Portions of the Green Creek and Holiday Springs PFAs are affected in the short-term by the CT1 treatment of the proposed action. Harvesting of CT1 would have a negative impact in the short-term (<10 years), but improve habitat in the long-term (>10 years) because the goal is 40-60% canopy cover. Other treatments, because of prescription constraints, including prescribed fire are expected to result in a minimal change in the overstory canopy. ST and SH harvest would be located outside of the nest and PFA areas.

NGPAP - 3.2.1.4.c *Nest Area / No Activity Buffer for Known Occupied sites that will be Protected* – Timber sale contract “C” clauses would provide for a no activity buffer around nest trees consistent with R1 guidance. Non-commercial mechanical slashing

treatments would follow these “C” clause dates for avoidance of disturbance. Prescribed burning is of short duration, localized, and typically occurs before nest activity in the spring or after nesting activity in the late fall.

NGPAP - 3.2.1.4.d *Activity Timing within PFAs* – Allow no ground disturbing activities inside known occupied PFAs from 15 April through 15 August to protect the goshawk pair and young from disturbance during the breeding season until fledglings are capable of sustained flight. After August 15, treatment-related activities could commence within the PFA but outside the nest area. Nest sites are assumed to be active in the absence of survey information. See definition of Occupied or Recently Occupied (Brewer et al., May 2007, P. 44).

NGPAP - 3.2.1.4.e *Direct, Indirect, and Cumulative Effects* – Reference the 8 questions to be answered under this heading. The list of direct, indirect, and cumulative effects considered are addressed in the NEPA document.

- *Is there a potential for project activities to disturb or displace goshawks during the nesting period?* Application of timber sale contract “C” clauses would avoid disturbance at known nests. Disturbance could result if undetected nests are used by goshawk outside of identified nest stands.
- *Will the project increase / decrease the amount and suitability of nesting, PFA, or foraging area habitat?* Sartin Draw – Nest and PFA habitat is maintained, some forage habit would be modified by timber harvest in project, but the majority of foraging habitat is outside the project area and with no reasonably foreseeable site specific impacts. Green Creek (Whitetail Creek) - Nest stands (NCNS) would be maintained because overstory trees are maintained. Small diameter non-commercial understory trees would be selectively slashed (cut with chainsaws) followed by prescribed burning to reduce wildfire risk to the overstory canopy. No commercial harvest would occur within nest stands. PFA stands (CT1) with a suggested goal of >50% canopy (Brewer et al., 2007, P.11 and 13 -14) would be commercially treated (CT1). The resulting thinning from below and canopy cover reduction to 30-40% by timber harvest in the short-term, is expected to result in a 10 year goal of recovery to 40-60% in the long-term resulting in generally single-storied stands with reduce wildfire risk to the overstory canopy in the long-term. Holiday Springs Campground – The effects would be the same as those described above for Green Creek. The CT1 treatment for PFA areas in the project area was also applied to PFA areas in the S. Fork of Otter Creek Project area.
- *Will the action provide for adequate amounts of nesting habitat to support the estimated number of breeding pairs?* Sartin Draw – Yes, nest habitat is outside of project area. Green Creek (Whitetail Creek) – Yes, the proposed action provides for adequate habitat for one confirmed pair, but slightly less than adequate if two pair were present. Holiday Springs Campground – Yes, the proposed action provides for adequate habitat for one pair. In Green Creek and Holiday Springs there is a low risk of scorching to a minimal percent of overstory trees from prescribed burning to improve habitat in the long-term because of limitations set

- in the design criteria, prescriptions, and information brought forward into burn plans.
- *Will the project fragment suitable nest areas?* Sartin Draw and Holiday Springs – No, there are no commercial harvest units within nests stands. There is a low risk of minor areas of overstory trees being scorched by prescribed burning.
 - *If so, is there a potential for increasing the risk of predation or competition from more open-forested species?* Unknown.
 - *Will the project increase habitat diversity for prey populations in the PFA and foraging areas?* It is assumed that following the Regional Direction (Tidwell, July 17, 2007) and accompanying Northern Goshawk, Northern Region Overview (Brewer et al., May 2007) will provide habitat, including required prey habitat, for the goshawk. The proposed action would increase forest size class diversity between stands and mosaic of grassland / forest and woody draws / riparian and likely improve diversity of prey.
 - *Have or will past, present, and reasonably foreseeable activities affect the amount and suitability of goshawk nesting and foraging habitat?* Past commercial mechanical treatment (logging) and burned areas have occurred in Green Creek area. In Holiday Springs Campground PFA some commercial removal of habitat in short-term and improvement in the long-term as part of the E. Fork Otter Creek project. Similarly, there would be a long-term improvement from non-commercial mechanical / prescribed burning on the western portion. Present conditions from Whitetail project were previously described. Reasonably foreseeable could include wildfires, mechanical treatment, and prescribed burning, but site specific locations are unknown. Recreation (hunting) and permitted livestock grazing would continue as under the present condition.
 - *How do project and cumulative affects relate to available habitats across the Forest and Region?* Each National Forest appears to have more than enough habitat to maintain a minimum viable population of goshawks (Samson 2006b). Section NGPAD 3.2.1.2, *Custer NF*, of this report has displayed the present estimated mature forest habitat on the Ashland RD. Wildfires are reasonably foreseeable, but not site specific. It is assumed that any reasonably foreseeable proposed action will meet the Northern Region goshawk information provided (Tidwell July 17, 2007; Brewer et al., May 2007). Mature forest habitat appears to be adequate to maintain the existing goshawk nest territories.

NGPAP – 3.2.1.5 - Step Five – Conclusions

Overview - The proposed action would generally improve goshawk habitat by reducing the risk of wildfire through removal of ladder fuels in combination with commercial mechanical treatment (logging), pre-commercial thinning (slashing), and prescribed burning over the existing situation.

- *Forest Plan / MIS* – NFMA is implemented through the Custer Forest Plan. Maintaining habitat for viable populations of MIS includes providing habitat for the goshawk over the long-term. The proposed action vegetation treatments are designed to meet regional information (Brewer et al. May 2007) for goshawk

- habitat and provide for habitat over the long-term over the fire risk in the existing situation.
- The proposed action includes several treatments designed to enhance PFA habitat in the long-term and includes CT1 harvest by thinning from below. Non-commercial mechanical / prescribed fire treatments in foraging, PFA, and nest habitat are also designed to thin from below and result in reduced ladder fuels over the existing situation.
 - *Disturbance / Timber Sale* - Under the proposed action, Timber Sale contract “C” clauses would help minimize disturbance to goshawks from logging associated activities.
 - *Public Access / Roads* – Road improvement in terms of widths, surfacing and extension of existing roads in goshawk nest and PFA habitat could potentially increase human activity associated roads open to the public for motor vehicle access. Year-long public motor vehicle access restrictions associated with four existing gates would reduce potential travel on roads within or adjacent to most of the identified nest stands and some areas of PFA and help to avoid disturbance to goshawks and other wildlife. The disturbance would be primarily during the period of April 15 through August 15 for PFAs (Brewer et al. 2007, P. 39); the breeding season is defined as March 1 – Sept. 30 (Brewer et al. 2007, P. 41).
 - *Power River Co. Fire Plan* - The Powder River County Fire Plan identified USFS TSMRS mature forest stands with greater than 70% canopy cover within FS Priority 1 Area as a priority for treatment. Many of these stands are also goshawk habitat. The Powder River County Fire Plan also focuses on the NFS lands within 1.5 miles of the private boundary which include essentially all of the project area and much of the Ranger District. Providing adequate habitat to meet (Brewer et al., May 2007) and treating the areas outside of identified goshawk habitat can help achieve both Powder River County Fire plan and goshawk habitat goals.
 - *Patches of Mature Forest* – The project area contains more mature forest habitat than would be expected on the average for the Ranger District (See Map – Potential Goshawk Habitat, Jan. 2008). In view of past wildfires and land management activities, the goshawk habitat within the project area will need to be maintained periodically to maintain mostly single-storied stands in order to avoid a potential reduction of nest territories from wildfires on the Ranger District in the long-term.
 - *Weather* - Weather that is adverse to goshawk nesting and fledging is foreseeable, but not temporally nor site specific. Weather, more than any other factor is through to affect egg and nestling survival as well as territory occupancy (Bechard et al. 2006, Keane et al. 2006, Squires and Kennedy 2006). The proposed action includes provisions to help maintain suitable habitat and ameliorate potential adverse weather effects.
 - *Fragmentation* - The proposed action would help maintain existing goshawk PFAs and nest stands in the cumulative effects area and follows information provided by the Northern Regional (Brewer et al. May 2007). The proposed action would help insure continued goshawk territorial occupancy in the long-term and maintaining population viability compared with a higher risk to stand replacing wildfires and associated with loss of territories and associated

fragmentation at the landscape level under the existing situation. The proposed action incorporates landscape level strategies by treating areas to reduce fuels adjacent to mature forest patches and / or developing shaded fuel breaks to spatially isolate mature forest patches from adjacent contiguous fuel and fire risk. These strategies are described for PNW dry forests in (USFS, Sept. 2005, P. 6 and 8). The intended result is spatially isolated patches of dense forest meeting the habitat needs of the goshawk, embedded in a matrix of more fire-tolerant forest more fire resilient landscapes

Monitoring Past Goshawk Habitat Treatment - Treatments to maintain or improve goshawk habitat by mechanical and prescribed fire on the Custer NF have been based Reynolds et al. (1992), meet past regional direction, and meet current information (Brewer et al. 2007). While there have been no statistical measurements of pre- to post-treatment stand conditions and respective goshawk use and nest productivity at treated stands on the Ranger District, informal review indicates generally positive changes in habitat. Field review of mechanical slashing and prescribed fire treatment appears to mimic described conditions and prescriptions designed to thin from below appear to generally create more open habitat while maintaining most of the overstory. In the Ekalaka Hills on the Sioux RD, two goshawk territories remained active in 2007 during ongoing timber sale harvest (Parks, Jan. 2008). The Ekalaka project which is in ponderosa pine forest is approximately 50% complete as of Jan. 2008, and designed to commercially thin stands from below to maintain goshawk habitat in the long-term similar to that in the proposed action for the Whitetail Project.

Cumulative Effects - Considering the past, present, and reasonably foreseeable future action of cumulative effects the proposed action would generally improve goshawk foraging, nest, and PFA habitat in the long-term because it helps maintain adequate existing habitat for known nesting pairs of goshawks because it follows regional information. See Tidwell, (July 17, 2007) and accompanying Northern Goshawk, Northern Region Overview (Brewer et al., May 2007). The proposed action is designed to help provide for habitat over the long term and reduce low to moderate intensity wildfire risks over the existing situation. Past timber harvest in the project areas last occurred circa 1985. Treating woody fuels at a landscape level to achieve a sea of open pine with islands of mature forest with high-crown cover (goshawk habitat) would help maintain goshawk and other wildlife habitat over the long-term.

3.5.2 - Black-backed Woodpecker (not MIS or USFS Sensitive)

Affected Environment – USFS Regional information (Tidwell, July 17, 2007) and black-backed woodpecker information (Bonn et al. Jul 13, 2007) was considered. There are no large areas of fire killed trees to consider in the project area. Past lighting caused wildfires are generally limited to less than five acres.

Environmental Effects – Prescribed burning will likely kill ponderosa pine trees and create some scattered habitat for black-backed woodpeckers beyond the currently level, primarily outside of goshawk nest and PFA habitat.

Cumulative Effects – Considering the past, present, and reasonably foreseeable future actions of cumulative effects the proposed action would maintain and likely improve habitat over the existing condition for this woodpecker.

3.5.3 - Big Game (Elk, Black Bear, Mountain Lion, Mule and White-tailed Deer)

3.5.3.1 - Affected Environment – Hunting is the primary recreation use on the Ashland RD. In this analysis elk and their habitat are used as a surrogate for big game habitat including MIS (mule and white-tailed deer) and local interest (black bear, mountain lion) species and because elk habitat requirements (cover and roads) encompass these species. There is no MIS management plan specific for mule and white-tailed deer. Elk are addressed in the Forest Plan: USFS, Oct. 1986, P. 18, f., Key /Major Interest Wildlife Species; P. 19, 4, Key Species; P. 180, C. Major Interest. Further the Forest Plan states that Key species and habitats ... will be managed in cooperation with state and Federal Agencies. Forest activities with potential for an impact on key wildlife species or key habitats will have wildlife considerations made early in the project analysis process. Biologists feel it is desirable to maintain high quality elk habitat to retain elk on NFS lands where animals are available to the public and to minimize conflicts on private lands (see Elk Plan Habitat Management Strategies in trailing paragraph). The elk herd is non-migratory. A limited elevation range of 1,467 ft. (4,407 ft. at Home Creek Butte and 2,940 ft. at Ashland Ranger Station) contributes to relatively low snow depths permitting elk travel across the area as compared to mountainous areas. Elk were present in minimal numbers and not considered in detail for the Ashland RD in the Forest Plan (USFS, Oct. 1986). In 1992 the first elk general hunting season was begun with a quota of 4 either sex animals. The elk herd has been increasing in numbers since 1992. The 2007 estimated minimum population is 500 head in Hunting District (HD) 704 which includes Ashland RD. Essentially the entire Ranger District is currently thought to be used by elk. The cumulative effects boundary for this analysis is the Ranger District. Short-term is defined as 0-9 and long-term as ≥ 10 years.

The Montana Final Elk Management Plan (MDFWP, January, 2005) addresses broad goals for the state. The Habitats Management Strategies for HD704 and relative to the project include (MDFWP, January, 2005, P. 389):

- Special emphasis will be placed on strategies that encourage elk to use forage on public lands more than private lands.

- Identify important wildlife habitats potentially impacted by prescribed burning and work with the BLM, USFS, and private landowners to ensure that planned prescribed fires benefit elk and elk habitat.
- Maximize security for elk by continuing to coordinate with BLM, USFS, and private landowners to implement a cooperative road management program designed to curtail off-road travel and designate walk-in hunting areas.

3.5.3.1.1 - *Forested Cover* - The project area contains a relatively high amount of forested area which provides elk hiding cover. Approximately 68% (6,623A.) of the project area (9,767 A.) is forested (Table 3.5.3.2.2.T1) which is higher than would be expected on the average for the Ranger District. Major wildfires have occurred frequently since 1988 and have removed large areas of elk hiding cover outside of, but not within the project area. Currently the forested area along roads, especially on major ridges, essentially screens the down slope habitat from the view of people.

Table 3.5.3.1.1.T1 - Forested cover for elk in the project area. ¹

Category	Current	Cover Remaining after Timber Harvest Project Implementation
Forested Cover	6623 A.	5,410 ²
Percent Forested Cover in Project Area	68%	55%

¹ Calculations based on TSMRS strata: 122-124, 222-224, 132-134, 142-144 and 232-234 (Gonzales, 2007.10.05.1428). Percent calculation based on 9,767 A. project area.

² Calculations based on proposed action (Ch.2, Table 2.1) – cover removed from SH (199 A.), ST (554 A.) and stand replacing prescribed burning outside goshawk nest and PFA habitat (2,332 A. X maximum of 15% = 350A.), special cuts woody draws/aspen SCNC (49A.), roads fuel breaks (11 A.), plus estimated non-site specific within other treated A. (50A.) for a total of 1,213A., 6623 – 1,213 = approximately 5,410 A. / 9,767 A.

Elk hiding cover is provided by vegetation capable of essentially hiding an adult elk from view of a human at a distance of equal or greater than 200 feet (Lyon and Christensen, 1992, P. 4). Security areas are any area that will hold elk during periods of stress because of geography, topography, vegetation, or a combination of those features (Lyon and Christensen, 1992, P. 5).

The existing ponderosa pine trees along roads on major divides, such as Beaver-Pumpkin, screen down slope stands from human view for most of the route and aid in maintaining elk security. Down slope stands viewed from the few vista point locations along divides also provide good forest hiding cover for elk. Similarly, trees along interior road provide good screening as well as hiding cover.

The issue of thermal cover for big game (elk, black bear, mountain lion, mule and white-tailed deer) was considered indirectly through the general evaluation of cover. All forest from pole through mature size class is potential thermal cover for these species. The concept of thermal cover while an emphasis area in wildlife analysis in the early 1980's, is generally viewed as less important than hiding cover today. Thermal cover will not be further discussed. The Custer Forest Plan does not have a standard for any type of cover for elk or other big game on the Ashland RD.

3.5.3 .1. 2 - *Roads* - Lyon and Christensen (2002, pp. 265 – 271) review the literature and provided the following summary on elk and roads. Of all the factors relating to logging, the construction of roads and subsequent vehicle traffic on those roads has proved to be the most significant modification to elk habitat. **The common recommendation from virtually all studies to this problem is to create the fewest possible roads, and to use standards that minimize roads width, cuts and fills as initial criteria of road design and location.** Reductions in habitat effectiveness cannot be prevented if forest roads remain open to any level of motorized traffic. The above information is interpreted here to mean road improvement to existing roads that result in increased travel seasonally or during wet weather would have a similar result approaching that of new roads.

Existing road conditions limit some motor vehicle access. Roads surfaced with aggregate are limited in the project area (e.g., Beaver Creek, E. Fork Otter Cr.). Other existing roads such as Beaver – Little Pumpkin Divide road or Sartin Draw (T1S, R47E, Sec.32) were once surfaced with aggregate, but are now badly rutted in places and difficult to drive when wet. Many roads surfaced with native soil materials are passable in dry conditions, but often impassible when wet except with 4X4 vehicles or 4-wheel ATVs. Road conditions are often wet or snow covered during the general big game hunting season. Several travel routes are 2-track roads accessible in dry weather or when the ground is frozen.

Effects from human activity on roads open to motor vehicle travel essentially occurs year-long (Table 3.5.3.1.2.T1). The Ranger District and project area potentially receive use by recreational visitors almost year long through a variety of hunting (rifle and archery), shooting, and trapping seasons. Therefore, year-long motor vehicle travel restrictions are the most effective in providing for security areas.

Existing Road Closures - The Ashland Ranger District does not have a Travel Plan, but gates and soil berms have been used to close several roads in approximately the past 20 years (Fig. 3.5.3.1.2.M2). Four gates blocking motor vehicle access installed in the past, two of which have often been closed and limiting public motor vehicle traffic over the approximately 20 years, are present. The public has generally followed the road closures in some areas (Pumpkin Cr and Holiday Spring) which helped to maintain elk security areas, and occasionally in other areas (Sartin Cr. and Green Cr.) which partially maintained elk security areas. Vehicles have bypassed soil berm road closures at other sites (e.g., Whitetail Creek).

Roaded and Unroaded Hunter Opportunity – Hillis et al (1991, P. 38) recommend at least 30% of an analysis unit provide for elk security. Elk security levels below 30% could result in a shift of animals to other areas such as adjacent public lands. The movement of elk from NFS lands reduces hunter opportunity and recreation use for the public and could result in resource conflicts on private lands. Elk security is based on at areas over 0.5 miles from roads open to motor vehicle travel (Hillis et al, 1991, P. 38). Approximately 3% of the project area is currently within the Unroaded Hunter opportunity area based on a GIS buffer out 0.5 miles out from exiting road locations (Table 3.5.3.1.2.T2). This analysis assumes no existing road travel restrictions.

Table 3.5.3.1.2.T1. Recreation and other annual activities typically occurring on the Ashland Ranger District, Custer National Forest, Montana.

Season	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Turkey - Hunting												
Deer – Archery												
Deer – Rifle												
Elk – Archery												
Elk – Rifle												
Black Bear - Hunting												
Grouse												
Bobcat – Trap / Hunt												
Mt. Lion												
P. Dog - Shooting												
Cattle Grazing												

Table 3.5.3.1.2.T2. Road and unroaded hunter opportunity for the project area. ¹

Hunter Opportunity Classification	Current (Existing Road Conditions)	Post- Project (Improved Road Standards)	Proposed Public Motor Vehicle Restrictions - A. (% Project Area)
Roaded	9,455A. (97%)	9,455A. (97%)	6,434 A. (66%)
Unroaded	312 A. (3%)	312 A. (3%)	3,333 A. (34%)
Totals:	9,767A. (100%)	9,767A. (100%)	9,767 A. (100%)

¹ Calculations based on a 9,767 A. project area (Gonzales, Sept. 27, 2007).

Road Density – Currently there are 2.12 miles of road open for public motor vehicle travel per square mile in the project area which exceeds the 1.0 mile recommended wildlife goal (Table 3.5.3.1.2.T2; Fig. 3.5.3.1.3.F1). The proposed action would through road “improvements” increase the road density slightly over the existing situation. The proposed mitigate would change from the existing road density from 2.12 miles/square mile to 0.77 miles / square mile and achieve the goal of less than 1 mile / square mile of road open to motor vehicle access (Fig. 3.5.3.1.2.M2). The mitigation would offset the removal of cover and upgrading of road surfaces and width and subsequent increased human access. Canfield (et al. 1999, P. 6.12) identify management techniques that reduce human disturbance on ungulate summer range including limiting open road densities to zero in scattered key areas and less than 1 mile per section elsewhere as well as reclaiming roads that are closed and re-establishment of native vegetation to help keep travel violations to a minimum.

Table 3.5.3.1.2.T2. Road density before and after proposed mitigation. ¹

Motor Vehicle Restriction Status	Miles of road open to public motor vehicle travel year-long	Miles of Road / Square Mile
Existing Situation	32.29	2.12
Proposed Motor Vehicle Road Restrictions	11.77	0.77

¹ Calculations based on a 9,767 A. or 15.26 square mile of Whitetail project area.

3.5.3.1.3 - Elk Vulnerability – According to Lyon and Christensen (2002, P. 575), hunter use of extensive road systems has been shown to increase the elk harvest significantly (Youmans 1991) and reduce the number of days required to harvest an allowable number of animals, i.e., reduction in Recreation Visitor Days (RVDs). In the project area an increase in or improvement of the road system also contributes to shifting elk off the NFS lands to private lands where animals are often not available to the general public.

Security areas (>0.5 miles from road open to public) are currently limited to 3% (312 A. / 9,767A.) of the project area (Map 3.5.3.1.3.M1), but under the proposed action would increase to 10% (Map 3.5.3.1.3.M2),. According to anecdotal reports by private ranchers and USFS personnel, elk typically move to rested pastures to avoid domestic cattle, but move out of project area at the beginning of hunting season. The movement of elk may be due to factors such as hunter activities and existing habitat on NFS lands.

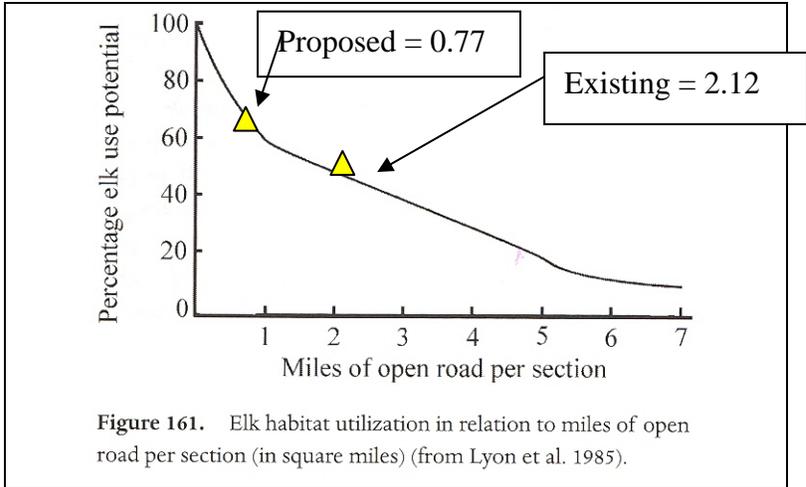


Fig. 3.5.3.1.3.F1. Elk habitat utilization in relation to miles of open road per square mile (Lyon and Christensen, 2002, P. 568).

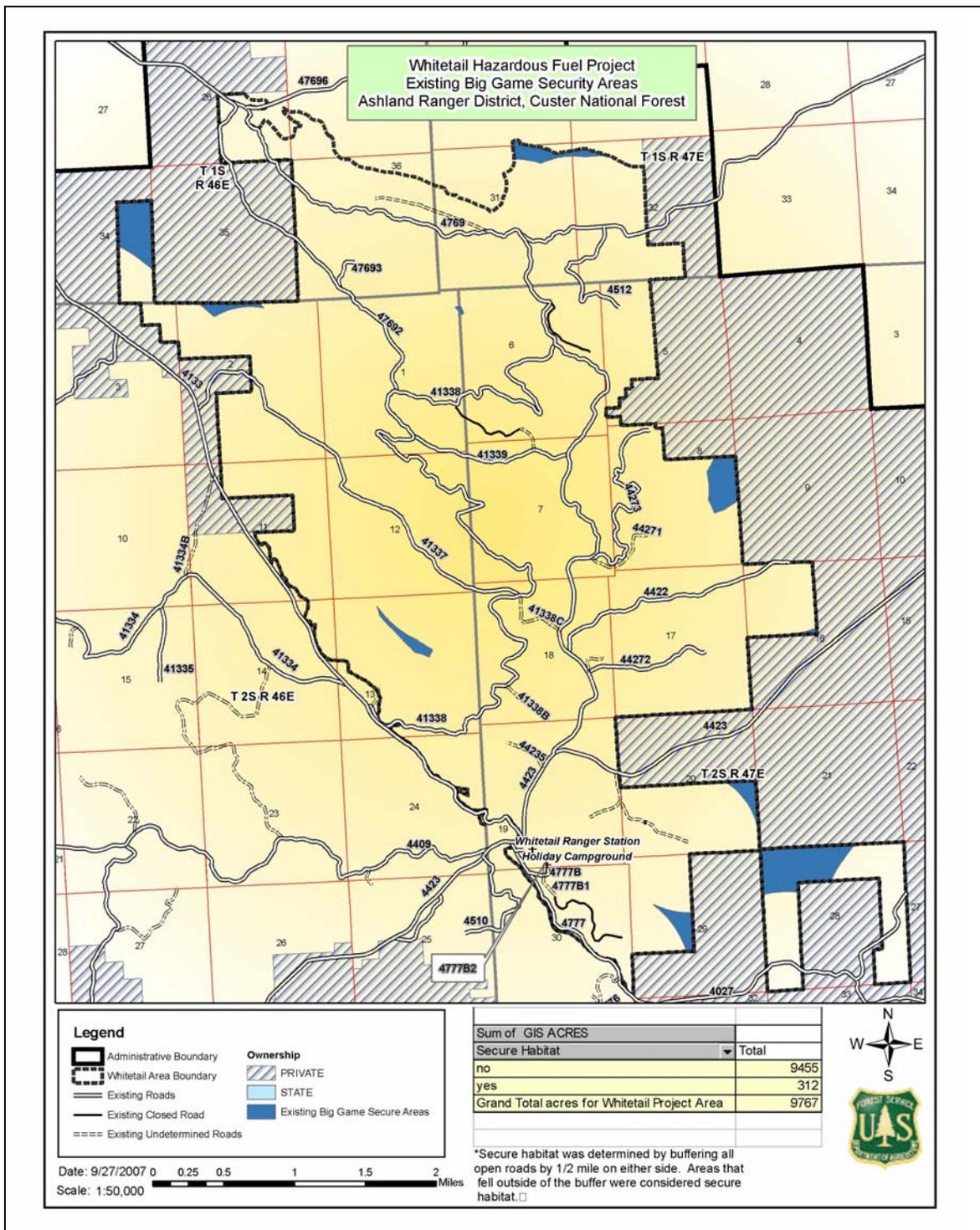


Fig. 3.5.3.1.2.M1. Roaded and unroaded hunter opportunity after proposed public motor vehicle travel restrictions on roads.

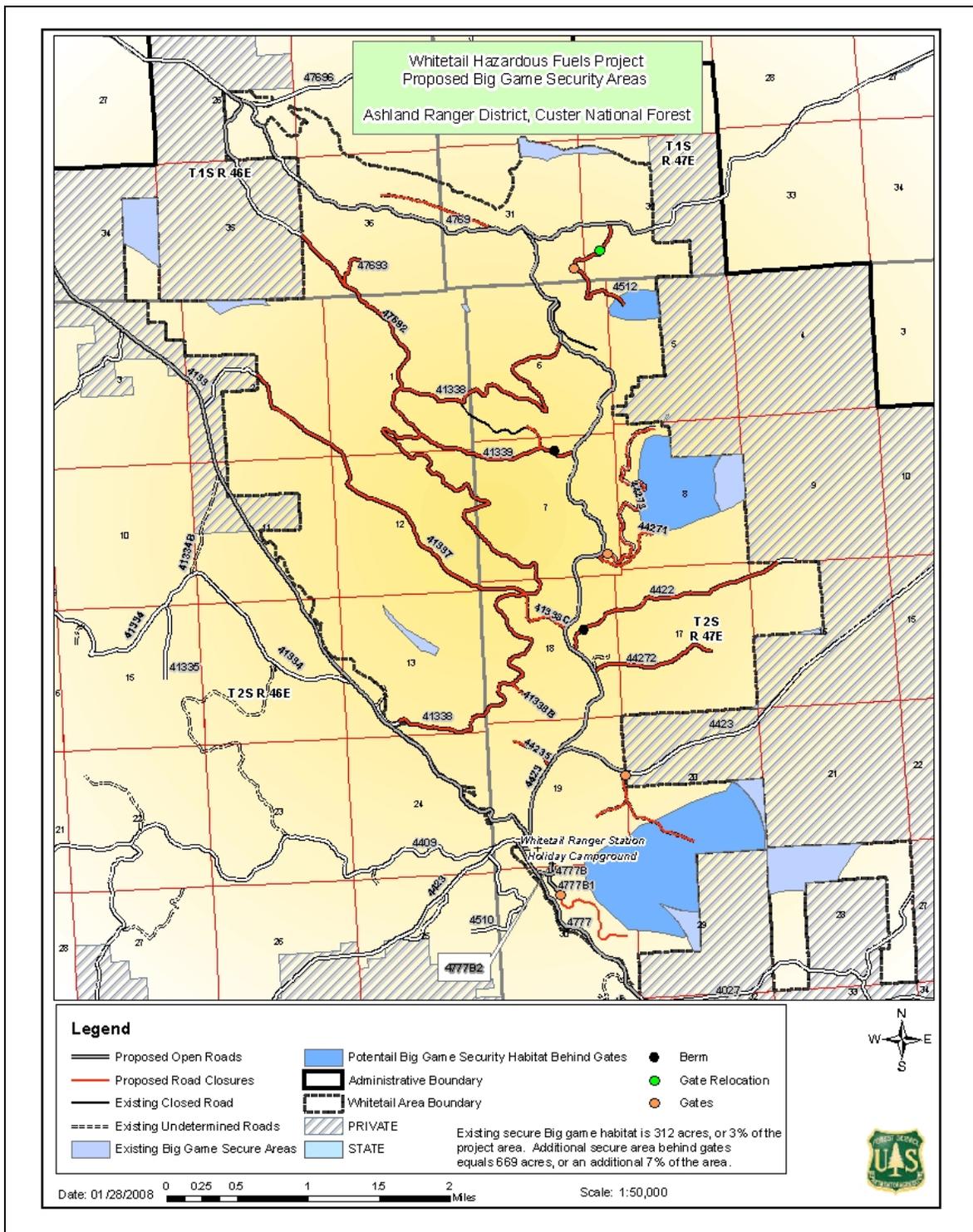


Fig. 3.5.3.1.2.M2. Proposed Action Roaded and unroaded hunter opportunity after proposed public motor vehicle travel restrictions on roads.

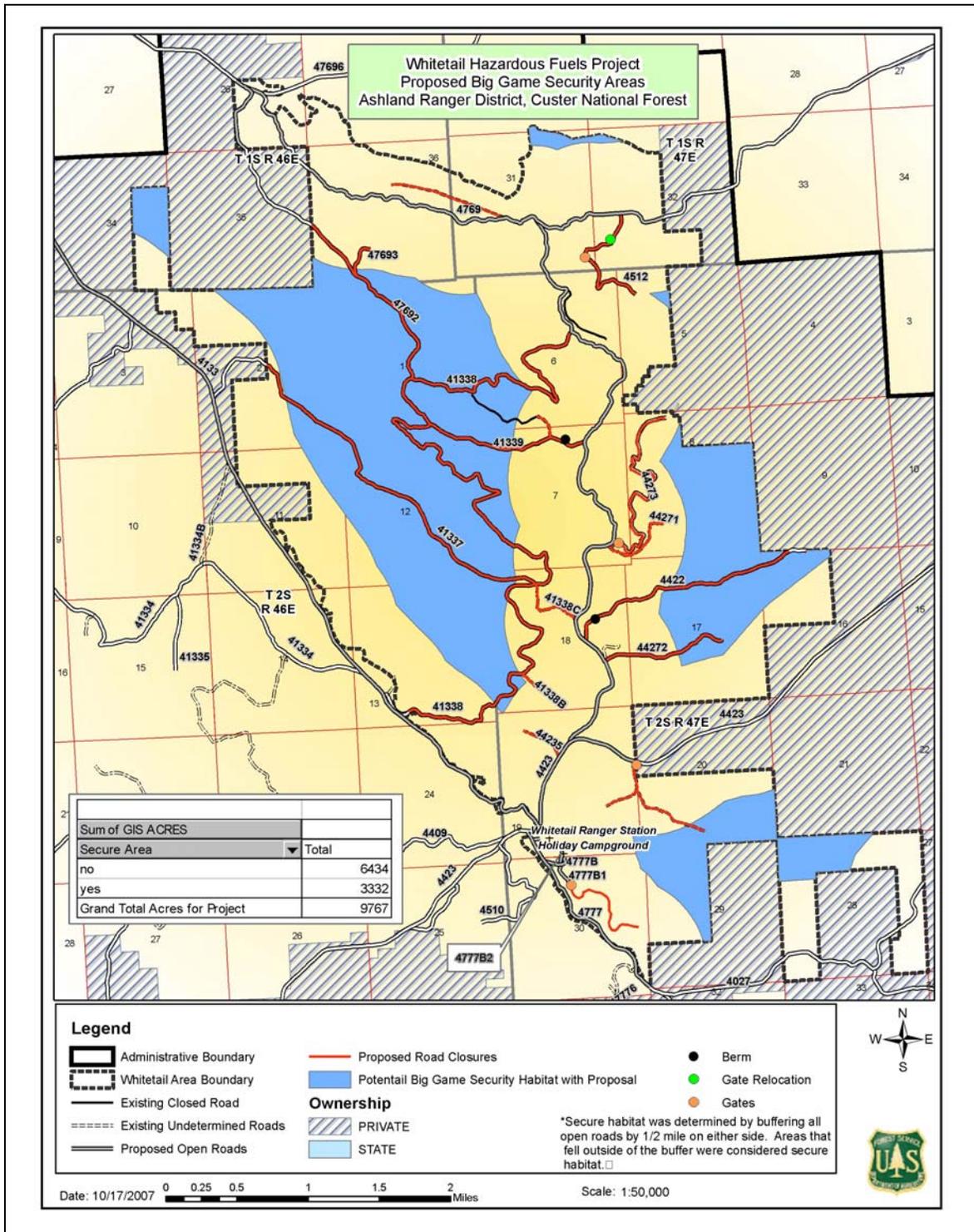


Fig. 3.5.3.1.2.M3. Roaded and unroaded hunter opportunity after proposed public motor vehicle travel restrictions on roads.

3.5.3.2 - Environmental Effects

3.5.3.2.1 Forest Cover – Cover would be removed as trees are harvested, slashed or killed by fire as part of project implementation. Areas managed to maintain and improve goshawk habitat are generally expected to also provide areas of elk hiding cover.

Timber Harvest – Under the proposed action, ST (12 TPA) and SH (20-24 TPA) would remove hiding cover for elk over the existing situation. It is expected hiding cover would return in the long-term in 20-25 years when viewed from a horizontal location and at approximately 40 – 50 years when viewed from an adjacent ridge top such as the Beaver Cr. - Pumpkin Cr. divide. Approximately 554 A. of ST and 199 A. of SH harvest (Chapter 2, Table 2.1) would occur in the project area, essentially all of which would be concentrated in areas of mature forest that currently offers elk hiding cover.

Non-Commercial Mechanical treatment - The proposed action would thin trees along roads to achieve Fuels goals and create wider tree-free clearing zones in many areas over the existing situation of narrow corridors. The enlarged non-forest corridors along roads open to motor vehicle travel would contribute to reduced screening cover and decreased elk cover in order to reduce the risk of wildfires.

Fuel Breaks - Fuel breaks decrease trees and screening cover and can improve hunter visibility from roads where topography is favorable such as along ridges. The proposed action would develop shaded fuel breaks would remove existing screening cover, create and maintain an open pine park like condition and improve the viewing of down slope habitat by hunters on roads such as on the Beaver Cr. – Pumpkin Cr. divide over the existing situation.

Prescribed fire – The proposed action would use prescribed fire to kill trees and result in some loss of cover within the landscape over the existing situation. Fire could cause parts of ponderosa pine trees needles to turn red, but may not necessarily result in mortality (Sieg et al. 2006). Under the proposed action post-burn conditions are expected to be more favorable to grazing animals such as elk in the short-term in terms of forage palatability over the existing situation.

3.5.3.2.2 - Roads – Currently many existing roads are little more than wheel-track trails accessible in dry weather or when the ground is frozen. The proposed action would “improve” some roads to facilitate timber harvest and would be expected to facilitate the post-project motor vehicle use of these roads. Lyon and Christensen (2002, P. 567) point out that roads that remain open to vehicle access constitute the single most significance negative modification of elk habitat by human activities.

3.5.3.2.3. Elk Vulnerability – Elk would be less available to the public if they are displaced from NFS lands to private. The MDFWP could have more difficulty in achieving harvest objectives and managing elk populations under general hunting because public hunter access is often limited and elk generally unavailable to the public on private lands.

3.5.3.2.4 - *Montana Elk management Plan* – This section describes how well the proposed action meets the Habitat Management Strategies identified in the Montana Elk Plan ((MDFWP, January, 2005, P. 389).

- *Special emphasis will be placed on strategies that encourage elk to use forage on public lands more than private lands.* The proposed action would apply prescribed burning and reintroduce fire to extensive areas of the project area over the existing situation. While forage is not considered limiting, forage quality would generally be improved, especially in approximately the next 8 years as plant nutrition of post-burn areas increases over the existing situation. Improved forage quality, especially in proximity to forested cover is expected to contribute to meeting this strategy. Van Dyke and Darragh (2005, P. 23) in a study of prescribed burning found that changes in elk use closely tracked changes in production and nutrition quality of plants in a study on the Custer NF in the Beartooth mountains. They concluded that increase in quantity and quality of forage was the primary cause for increased use of burned sites by elk. Elk increased use of sagebrush grassland burned sites 1 -2 years after burning, then reduced use of levels associated with preburn conditions over the next 3 - 10 years.
- *Identify important wildlife habitats potentially impacted by prescribed burning and work with the BLM, USFS, and private landowners to ensure that planned prescribed fires benefit elk and elk habitat.* Outside of goshawk nest stands and PFAs, prescribed fire could result in 0-15% of the forest being stand replaced (overstory trees killed by fire), but pockets of mortality are predicted not to exceed 15A. In these areas prescribed burning under the proposed action would maintain most hiding cover, but a mosaic of cover and small opening could result containing slightly less cover than the existing situation. Inside goshawk nest and PFAs mortality of overstory trees would be minimized for broadcast and negligible for pile and burn areas. Prescribed burning within woody draw / riparian areas would likely result in a minimal reduction in cover. As a design criteria, the treatment focus is on forested habitats and avoidance of sizable big sagebrush stands, but not individual scattered plants.
- *Maximize security for elk by continuing to coordinate with BLM, USFS, and private landowners to implement a cooperative road management program designed to curtail off-road travel and designate walk-in hunting areas.* The proposed action would improve the width, viewing area, and surface of the identified existing roads (see map referenced - Chapter 2) potentially decreasing elk security slightly from the existing 3% (Table 3.5.3.1.2.T1), but through year-long motor vehicle restrictions on road segments behind four gates increase to 10% elk security area (Fig. 3.5.3.1.2.M2). Temporary roads and associated motor vehicle traffic would result in short-term disturbance to elk for the life of the sale and associated activities (approximately 5-10 years). Obliteration of temporary roads would mitigate post-harvest human disturbance from vehicle travel on these

roads, though the resulting open non-forest corridor would tend to favor walk-in hunter travel.

USFS (March 2006, P. 2) summarizes research on the Starkey Project in Oregon where conditions are similar to the Whitetail project area. Some key finds of the Starkey Project were that elk avoid roads open to motorized traffic, and their avoidance increases as the rate of traffic increases. Similarly, if roads are left open after timber harvest, elk are more vulnerable to harvest by hunters. Access management and maintenance of security cover can mitigate this effect. Wisdom et al. (2004, P. 9) showed one pass per day by any of the four off-road activities (ATV riders, mountain bikers, horseback riders, and hikers) caused increased movement rates and flight response by elk. Elk movement rates and probabilities of flight were highest during ATV riding and lowest during horseback riding and hiking.

Motor vehicle restrictions on selected roads are recommended as a way to mitigate the loss of cover from commercial and non-commercial mechanical treatment, prescribed burning, especially increased viewing angle and seen area along roads. The restrictions would help achieve the intent of Hillis et al. (1991) of over 30% of the project area over 0.5 miles from a road open to public motor vehicle travel (Fig. 3.5.3.1.2.M3, Table 3.5.3.2.4.T2).

3.5.3.2.5 - Mitigation for Elk (Big Game) Security Reduction – According to Canfield et al. (1999, P. 6.14), managers of public lands have control over only a few of the potential variables that contribute to security, including retention of important vegetative cover, travel management, and enforcement of travel regulations. In the Whitetail project area two mitigation options are recommended. A road option would apply public motor vehicle restrictions on selected roads to meet the intent of Hillis et al. (1991) and maintain more elk security than the proposed action or existing situation. A recommended motor vehicle access restriction on all but major roads (Table 3.5.3.2.4.T1 and Fig. 3.5.3.1.2.M3) and a harvest prescription (see below) are proposed to mitigating the loss of vegetative hiding cover for elk and increased viewing areas from ridges by hunters. A second vegetation option would retain more mature trees in some harvest units than in the proposed action, but less than in the existing situation.

Option 1 - Proposed Motor Vehicle Restrictions – Several roads are recommended for public motor vehicle restriction yearlong (Table 3.5.3.2.4.T1) and others for public access (Table 3.5.3.2.4.T2). The primary travel routes would remain open for public motor vehicle travel and the majority of shaded fuel breaks are along these routes. Additional design criteria could include minimize road improvements to road width, surface. Public motor vehicle restrictions on roads would be implemented at the start of ground disturbing activities to insure effective and full mitigation of disturbance to elk and other wildlife.

Option 2 - Tree Retention – ST / SH harvest units – A second option to partly mitigate loss of cover is to modify prescriptions to retain cover by maintaining a spacing between

remaining tree crowns of at least 10 feet in harvest units consistent with meeting fuels management objectives, but retaining more trees than proposed action of traditional timber harvest prescriptions for ST (10 - 12/A.) or SH (20 - 24 T.A.). The emphasis would be placed on retaining cover in harvest units which could be seen from what will become the shaded fuel break along the Beaver – Pumpkin divide road. Similarly, along other upgraded roads left open to public motor vehicle access at any time of year. The mitigation is not intended to be applied within identified shaded fuel breaks located along major roads such as on the Beaver Cr. – Pumpkin Cr. Divide.

Table 3.5.3.2.4.T1. Roads proposed to remain open to public motor vehicle travel. ¹

Whitetail Fuels Treatment Project, Ashland Ranger District Custer National Forest Roads proposed to remain open, sum of miles - 08/02/2007		
Sum of GIS MILES		
ROUTE_NO	Route NAME	Total
4133	BEAVER CR	0.24
4133 Total		0.24
4423	E FK OTTER CR	1.20
4423 Total		1.20
4427	BEAVER PUMPKIN DIVIDE	4.80
4427 Total		4.80
4466	WHITETAIL ADMIN. SITE	0.06
4466 Total		0.06
4769	BEAVER STACEY	3.46
4769 Total		3.46
47692	47692	0.54
47692 Total		0.54
4777	SUICIDE PASS	0.98
4777 Total		0.98
4777B	HOLIDAY CAMPGROUND	0.19
4777B Total		0.19
4777B1	4777B1	0.18
4777B1 Total		0.18
4777B2	4777B2	0.12
4777B2 Total		0.12
Grand Total		11.77

¹ Source: GIS query (Gonzales, Aug. 2, 2007).

Table 3.5.3.2.4.T2. Roads proposed for public motor vehicle restrictions. ¹

Whitetail Fuels Treatment Project, Ashland Ranger District Custer National Forest Proposed Road Closures, sum of miles - 08/02/2007		
Sum of GIS MILES		
Route_No	Route NAME	Total
41337	41337	2.69
41337 Total		2.69
41338	41338	7.41
41338 Total		7.41
41338B	41338B	0.18
41338B Total		0.18
41338C	41338C	0.50
41338C Total		0.50
41339	41339	1.18
41339 Total		1.18
4422	OLD WHITETAIL R S	1.72
4422 Total		1.72
44235	44235	0.33
44235 Total		0.33
44271	44271	0.57
44271 Total		0.57
44272	44272	0.91
44272 Total		0.91
44273	44273	1.81
44273 Total		1.81
4512	STACEY SPRING	1.08
4512 Total		1.08
47692	47692	1.98
47692 Total		1.98
47693	47693	0.26
47693 Total		0.26
Grand Total		20.62

¹ Source: GIS query (Gonzales, Aug. 2, 2007).

3.4.4 - Wild Turkey (Local Interest)

Affected Environment – The wild turkey is addressed here under local interest and is present throughout the project area and utilizes the available habitat. Habitats include pine forest for cover and pine seed, woody draw / riparian habitats for cover and berry / seed production, and grasslands for forbs and insects. The areas burned by low-intensity fire in recent times have been minimal. Several ponderosa pine forest stands contain dense multi-layered under stories. Lehman et al. (2007, P. 278) found that within ponderosa pine forest in the Black Hills that wild turkey selected forage sites with less understory vegetation and visual obstruction and larger-diameter ponderosa pine. Ponderosa pine seed abundance varied among years, and pine seeds were most abundant in stands of 12 – 14 inches (30-35 cm) DBH. Lehman et al. (2007, P. 289) points out that the lack of protective cover and live trees for pine seed production made stand-replacing fire in ponderosa pine unsuitable for winter wild turkey habitat. They further point out that high-intensity prescribed fire, or fires that damage the canopy of mature trees, will remove this habitat and should be avoided.

Environmental Effects – Maintaining large diameter trees dispersed across the project area would provide for wild turkey roost trees. Wild turkey habitat would be improved by low intensity prescribed burning which would create a mosaic of burn intensity and resulting open stands for pine seed production interspersed with patches of small trees for cover. Understory shrubs and forbs are expected to respond positively and increase in ground canopy cover under mechanically thinned stands of pole size to mature ponderosa pine. Maintenance or enhancement of woody draws / riparian would potentially increase cover and food supply for wild turkey.

Cumulative Effects – Considering the past, present and reasonably foreseeable future actions of cumulative effects the proposed action would improve wild turkey habitat over the existing situation.

3.4.5 – Snags / Dead-Down Logs

Affected Environment – – The Custer Forest Plan did not identify a snag management standard. On the Ashland RD, fire killed snags have remained on thousands of acres of the landscape. On the District there have been numerous wildfires that have killed over story trees since 2000, but because of resource concerns and timber harvest economics, no salvage sales have occurred since 1989 Shiller and Chelsea Salvage Sales. Compared to other areas on the Ashland RD, the Whitetail project area has had negligible wildfires. From 1980-2006, 19 fires were suppressed in the analysis area (pers. com., B. Anderson, Feb. 01, 2008). In this project area the regional snag management recommendations (USFS, Jan. 2000, P. 6, VRU Cluster 1) are address as part of project design criteria WL-7 and silvicultural prescriptions. Site specific snag densities and sizes are not available for the project area.

Snag densities based on FIA samples in 1997 (Sandbak, 2008.02.25) are available for the Custer NF (Table. 3.4.5.1) and Ashland RD (Table. 3.4.5.2). Snag densities ≥ 10.0

inches dbh are 7.4 / A. for the Custer NF and 1.6 for the Ashland RD. Snag densities \geq 20 inches dbh are 0.4/ A. for the Custer NF and 0.1 / A. for the Ashland RD. Data indicates large diameter snags \geq 20 inches dbh are relatively rare on the landscape on the Ashland RD. Isolated large snags \geq 20 inches are often used as cone cache sites by red squirrels and tend to occur as remnants within stands of smaller diameter ponderosa pine forest.

Potential snags within forest stands are well distributed across the project area (Project file, Wildlife Map – Potential goshawk habitat, Jan. 2008). The map shows the spatial distribution of potential trees for snag replacement is indicated by the post-wildfire stands shown in existing mature forest with $>40\%$ crown cover.

Environmental Effects – All proposed actions treatments for intermediate treatment (CT, CT1 and prescribed burning) tend to promote large diameter snags because “thinning from below” is inherent in these prescriptions. In general, small understory trees are removed and larger overstory trees retained. In regeneration treatments (ST and SH) mature trees would be reduced, and many snags felled to meet safety guidelines. Some snags would remain and seed-trees or shelter wood trees could be retained to provide for snag replacement over time. CT units would generally retain more snags as well as mature trees for potential snag replacement than ST or SH. Non-commercial treatments including mechanical and prescribed burning would tend to retain large live trees during the mechanical phase and consume and create several snags during the prescribed burning phase.

The loss of large-diameter snags and over wood, which are important habitat elements for many wildlife and invertebrates species, could take decades to recover and thus represent some of the most important habitat elements to conserve during fuel reduction treatments (Pillod et al. 2006, P. Abstract). The proposed action would create fuel break areas on limited areas that would essentially be managed as snag free zones, though the majority of forested areas would provide for snag and cavity dependent wildlife. Areas managed for mature high-crown cover forest for dependent species, such as the goshawk, could retain higher snag densities because of a larger number of green trees from which to recruit snags. Prescribed burning could help in overwinter survival of cavity-dependent birds. Bateman and O’Connell (2006, P. 290) state that forest management that results in a mosaic of burned and unburned stands, as well as heterogeneity with these stands, could promote the overwinter survival of cavity-nesting birds. According to Farris and Zack (2005, P. 183 and P. 191), generally snags created by bark beetles, and/or fire decay fastest, and experience the greatest foraging and nesting use by woodpeckers. Larger snags tend to last longer than smaller diameter ones. Snags are an ephemeral resource on the landscape (e.g., half of all ponderosa snags could fall within 8 years of death). In the project area, low to moderate intensity fires would help to create snags over time and provide for cavity dependent wildlife habitat where suitable live trees > 9 inches are present.

Table. 3.4.5.1. Snags per acre on the Custer NF for all Ranger Districts based on FIA samples, 1997 (Sandbak, 2008.02.25).

Snags per Acre by Diameter Class					
Custer Forest	Snags per Acre	90% Confidence Interval - Lower Bound	90% Confidence Interval - Upper Bound	Total Number PSUs	Number Forested PSUs
5.0-9.9"	20.6	10.6	32.9	195	105
10.0-14.9"	5.2	2.7	8.2	195	105
15.0-19.9"	1.8	0.9	2.9	195	105
20.0-24.9"	0.4	0.2	0.7	195	105
25.0"+	0.0	0.0	0.1	195	105

Total Snags Greater or Equal to Specified Diameter					
Custer Forest	Snags per Acre	90% Confidence Interval - Lower Bound	90% Confidence Interval - Upper Bound	Total Number PSUs	Number Forested PSUs
5"+	28.1	16.2	42.4	195	105
10"+	7.4	4.3	11.1	195	105
15"+	2.2	1.2	3.5	195	105
20"+	0.4	0.2	0.7	195	105
25"+	0.0	0.0	0.1	195	105

Table. 3.4.5.1. Snags per acre on the Ashland Ranger District based on FIA samples, 1997(Sandbak, 2008.02.25).

Snags per Acre by Diameter Class					
Custer Forest District 4	Snags per Acre	90% Confidence Interval - Lower Bound	90% Confidence Interval - Upper Bound	Total Number PSUs	Number Forested PSUs
5.0-9.9"	2.1	0.0	5.2	71	46
10.0-14.9"	1.2	0.0	2.8	71	46
15.0-19.9"	0.3	0.0	0.9	71	46
20.0-24.9"	0.1	0.0	0.3	71	46
25.0"+	0.0	0.0	0.0	71	46

Total Snags Greater or Equal to Specified Diameter					
Custer Forest District 4	Snags per Acre	90% Confidence Interval - Lower Bound	90% Confidence Interval - Upper Bound	Total Number PSUs	Number Forested PSUs
5"+	3.7	0.6	7.7	71	46
10"+	1.6	0.1	3.6	71	46
15"+	0.4	0.0	1.0	71	46
20"+	0.1	0.0	0.3	71	46
25"+	0.0	0.0	0.0	71	46

Cumulative Effects – Considering the past, present and reasonably foreseeable future actions of cumulative effects the proposed action would remove some existing snags because of timber harvest activities and prescribed burning. These losses in snags are expected to be offset by the creation of snags from prescribed burning (5,924A.; 9,767 less RxB, NT). Since prescriptions from intermediate (CT, CT1, SC) harvest (964A.) and prescribed burning are designed to maintain the largest overstory trees. In regeneration (ST, SH) harvest areas (753A.) mature trees for potential snag recruitment are maintained as ST and SH trees. The proposed action and existing condition are expected to meet regional snag management recommendations (USFS, Jan. 2000, P. 6, VRU Cluster 1).

3.6 - Wildlife Fence Enclosure Structure

Affected Environment – The West Fork of Little Pumpkin Creek cattle / wildlife enclosure is approximately 2 acres in area and was established in 1964 and is located in T47E, T2S, Sec. 20, SW ¼ of the project area. The general location is about 0.5 miles east of Whitetail Cabin. The fence condition is poor. Digital photographs were taken of the area in 2003 (District file – 2620 Planning, W. Fork Little Pumpkin Enclosure). The enclosure / study photos provide a contrast in past and present understory trees.

Environmental Effects – The proposed action would maintain the ground cover and forest structure within and adjacent to the study plot area and provide for potential future data collection. See project design criteria WL-16.

Cumulative Effects – Considering the past, present and reasonably foreseeable future action of cumulative effects the proposed action would main the study integrity similar to the existing situation.

3.7 - Connectivity and Fragmentation

Affected Environment - Landscape connectivity is the degree to which sites are contiguous, and fragmentation the degree to which sites are separated. The degrees to which habitats within landscapes are connect or fragmented will be perceived differently by species. The project area contains a mosaic of ponderosa pine forest, green ash woody draws, aspen, and grasslands that is by nature fragmented. A mosaic of forest structure exists across the project area and includes single-storied and multi-storied stands within young and mature stands. Existing stands of mature forest with high-crown cover are limited by topography, site, and past activities and therefore provide relatively limited habitat for dependent wildlife species (Project file, Wildlife Map – Potential goshawk habitat, Jan. 2008). Fire activities on the landscape have been minimal in the last approximately 20 years.

Environmental Effects - Grassland areas could be effected in short-term, but would be maintained in the long-term through prescribe burning and treatment of minor areas of colonizing trees. Considering past, present and reasonably foreseeable future actions, the proposed action would maintaining the existing pattern of connectivity and fragmentation across the landscape for all but mature forest stands.

The proposed action would generally help maintain mature stands with high crown cover. and suitable habitat for the goshawk. Habitat loss has a much larger effect than habitat fragmentation on the distribution and abundance of grassland birds (Fahrig, 2002, p. 346) and is assumed to have a similar effect in the forest environments in the project area.

Cumulative Effects – Considering the past, present and reasonably foreseeable future action of cumulative effects the proposed action would generally maintain the existing mature ponderosa pine stands within goshawk nest and PFA habitat while maintaining about the same existing woody draw and grassland distribution compared to the existing situation. The proposed action would maintain the natural fragmentation of mature forest stands outside of goshawk nest and PFA habitat over the existing situation.

3.8 - SUMMARY AND CONCLUSION

Overview – The proposed action would treat approximately 85% (8,257 A.) of the 9,767 A. in the project area (Chap. 2, Table 2.1) and would tend to change or begin the change of areas of ponderosa pine forest with ladder fuels (understory tree layers) toward single story stands. Approximately 8% (753 A.) of mature forest in the project area would be converted (ST, SH) to seedlings/ saplings within about 10 years resulting in less elk and other wildlife cover. Approximately 8% (792 A.) would be thinned from below (CT1) to remove ladder fuels and generally maintain overstory trees for goshawk habitat and another 1% (116 A.) outside of PFAs thinned (CT) to a more open canopy cover and increased potential browse and forage. The proposed action would apply prescribed fire (NCBB, NCBJ, NCNS, and RXB) to about 64% (6,241) of the project area and improve elk forage quality.

Vegetation - The proposed action would move toward a landscape mosaic of single-storied and multi-storied forest stands that along with strategically placed shaded fuel breaks, would reduce, but not eliminate, the risk of high-intensity stand replacing wildfire and potential change in wildlife habitat. Overall, the proposed action is projected to result in smaller areas of higher intensity wildfire because of the mosaic of resulting ladder fuel / no ladder fuel and the average tree size between stands is less than the existing situation. Frequent low-intensity mixed-severity fires are desirable to maintain wildlife habitat and the proposed action would generally begin the process of restoring this type of fire frequency and intensity over the existing situation. In general, the proposed action would result in some short-term disturbance and temporary reduction in habitat, but maintain or improve habitat over the long-term for most species considered in the analysis over the existing situation.

Threatened, Endangered, and Sensitive - The proposed project would have no effect on the federally endangered black-footed ferret because the species is absent from project area (Sasse, 2007.11.01, Biological Assessment). USFS Northern Region Sensitive Species are discussed and determinations of impacts to species disclosed (Sasse, 2007.12.14, Sec. 3.4 and Table 3.4T1). The proposed action would have no impact on the bald eagle, plains spadefoot toad, and Baar's milkvetch. The proposed action could impact individuals or habitat, but will not likely contribute to a trend towards federal listing, or cause a loss of viability to the population or species for the Townsend's big-eared bat, pallid bat, spotted bat, fringed myotis, long-eared myotis, long-legged myotis, black-tailed prairie dog, burrowing owl, loggerhead shrike, great plains toad, northern leopard frog, greater short-horned lizard, milksnake, western hog-nosed snake, or heavy sedge.

Management Indicator Species (MIS) - MIS were considered and relative (+ / -) change in species / habitat summarized (Sasse, 2007.12.14, Sec. 3.5 and Table 3.5T1).

Goshawk (MIS) - The project area contains parts of 3-4 nest territories of the 14 identified on the Ashland RD. Design criteria and Timber Sale Contract "C" clauses would minimize disturbance to breeding / nesting goshawks at known or detected nests. The proposed action would help maintain goshawk habitat over the long-term and reduce, but not eliminate the risk of habitat loss to stand-consuming wildfire. The proposed action would meet habitat levels identified in regional goshawk information (Tidwell, July 17, 2007; Brewer, et al., May 2006).

Big Game (Elk, Mule deer, White-tailed deer, Black Bear, Mountain Lion) - The proposed treatments would also help reduce the risk and size of stand replacing wildfires on the landscape and resulting change in big game cover over the existing situation. Fuel breaks along major road would result in the long-term cover reduction within 200 feet of the main roads and reduce screening cover to forest stands down slope. Timber harvest would result in a reduction of hiding cover within in the proposed action compared to the existing condition. Prescribed burning would have a minor reduction in cover, but improve forage and browse quality and quantity over the existing condition.

Hunter Opportunity - Hillis et al (1991, P. 38) recommend at least 30% of an analysis unit provide for elk security. Elk security levels below 30% could result in a shift of animals to other areas such as adjacent private lands. The movement of elk from NFS lands reduces hunter opportunity and recreation use for the public and could result in resource conflicts on private lands. Elk security is based on at areas over 0.5 miles from roads open to motor vehicle travel (Hillis et al, 1991, P. 38). The proposed action would increase the existing unroaded hunter opportunity to 10% over the existing condition of 3%. The change would occur because road segments behind four existing metal pipe gates which had been periodically been kept closed, would become year-long motor vehicle road restrictions for public access (Sasse, 2008.01.30, Fig. 3.5.3.1.2). The motor vehicle restrictions on the road segments behind the four gates would help move toward the 30% unroaded level (Hillis et al. 1991). Additional identified Wildlife Management Recommendations for public motor vehicle access (Table 3.5.3.1.2.T1) are not part of

this proposal, but are being considered under a separate ongoing Ashland RD Travel Plan NEPA analysis proposed action (2007).

The Whitetail Project proposed action would help maintain big game security and is intended to help increase the chance of elk staying on public lands and available for recreationists and avoid conflicts on private lands. The proposed action would accomplish this because it is designed to minimize new road construction, reconditioning and reconstruction, and limit the spatial and temporal impact of temporary roads to those needed for project activities public. Temporary roads would be restored to contour and therefore not contribute to a long-term increase in public motor vehicle access.

Wild Turkey (Local Interest Species) – The proposed action would improve wild turkey habitat by increasing pine seed production and understory shrubs and forbs and riparian woody draw vegetation over the existing situation.

Wildlife Fence Exclosure Structure/ Vegetation Monitoring Site – The proposed action includes design criteria WL-16 which would provide for the maintenance of the existing condition, study integrity, and allow for future data collection.

Conclusions - Fuels treatment that meets the needs / habitat objectives of USFS sensitive, MIS, Key, local interest wildlife, and the Montana State Elk Plan would maintain and enhance wildlife habitat, and maintain study integrity at a wildlife vegetation monitoring exclosure. The proposed action would result in a trade-off between fuel treatments to reduce wildfire risk and loss of some existing big game screening cover over the existing condition. While improving existing roads to all-weather year-long travel could reduce big game security areas, these effects are minimized through limited improvement to existing and avoidance of creating new system roads. The proposed action would maintain the wildlife exclosure vegetation monitoring site and maintain options for long-term data collection. The proposed action would help avoid or minimize impacts to wildlife and habitat and at a landscape level help move toward a sea of open canopy ponderosa pine around islands of mature forest with higher percent crown canopy stands (goshawk) and move toward Wildlife Desired Conditions.

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