PROJECT DESIGN FEATURES – WILDLIFE

Table 1 outlines the recommended management actions to help prevent potential detrimental effects on wildlife species and habitat:

Table 1. Wildlife Habitat and Species	
1.	Management activities within ¼ mile of any known goshawk nest would be restricted from March 1 through August 31 unless surveys confirm that goshawks are not nesting or within the area. • Purpose: To retain goshawk use in the project area. Goshawks are highly sensitive to disturbance from the nesting through the fledging period.
2.	If an active goshawk nest is discovered within a stand prior to or during treatment activities work should be halted and the wildlife biologist would be notified immediately to determine steps to resolve the situation. • Purpose: To retain the stand in suitable condition for goshawk use. Goshawks are highly sensitive to disturbance from the nesting through the fledging period.
3.	Treat existing aspen clones within the proposed treatment areas to remove all coniferous trees within one conifer tree length from the aspen. • Purpose: To retain aspen on the landscape and to create habitat diversity that improves wildlife species diversity in the area.
4.	Maintain an average of at least 2 snags, where available, per acre that are greater than or equal to 12" diameter, which are greater than 75 feet from roads and/or private property, and are not a safety hazard during project implementation. • Purpose: Snags are essential for both primary and secondary cavity users.
5.	Restrict mechanized equipment within 50-feet of wet areas: seeps, springs, wet meadows, and riparian corridors. • Purpose: To help maintain habitat security for wildlife and maintain habitat in these areas.
6.	If temporary road is constructed, decommission all temporary roads within 6 months of unit completion. Where readily available, spread logging slash across decommissioned temporary roads in areas easily accessed by motorized vehicles to deter vehicle use. • Purpose: To help maintain habitat security for wildlife and deter motorized use. The longer the roads are open the less secure these areas are for wildlife. Once the roads are closed they can begin growing vegetation.
7.	If an active raptor nest is found during unit layout, it would be protected and buffered from planned activities. • Purpose: To protect and maintain raptor use in the project area.
8.	If an active raptor nest is discovered within a treatment unit, the Contract Administrator would seek cooperation from the contractor to delay work activities in this area until the young have fledged. • Purpose: To protect and maintain raptor use in the project area.
9.	If fawns and/or calves are found in active treatment units from the third week of May through the first week of July), individuals implementing the activity (Forest Service/contractor) would coordinate options with the project leader or District wildlife biologist to work in other areas within the vicinity until the young are removed from the area. • Purpose: To protect fawns and calves and reduce impacts to deer and elk populations.
10.	No pre-commercial thinning would be allowed to occur in the project area. • Purpose: To protect and maintain lynx habitat and to comply with standards and guidelines in the LCAS (2000) and NRLMD (2007).

BIOLOGICAL EVALUATION and ASSESSMENT

for

THREATENED, ENDANGERED, SENSITIVE

and

MANAGEMENT INDICATOR SPECIES/KEY SPECIES

for

BEARTOOTH FRONT STORM DAMAGE CLEAN-UP
AND
FUELS REDUCTION PROJECT 2008

Beartooth Ranger District

Carbon and Stillwater Counties, Montana

Prepared By:

__/s/ Thomas Whitford_____ **_____8/29/2008_____**
Thomas Whitford – Forest Biologist **Date**

Reviewed By:

__/s/ Mark Slacks_____ **_____9/3/2008_____**
Mark Slacks – Environmental Coordinator **Date**

Project Summary:
The Beartooth District is proposing fuel treatments that clean-up damaged trees (wind thrown, broken topped or root sprung) from a November 11, 2007 storm event. The fuel treatments are designed to improve the ability of firefighting personnel to suppress wildfires, protect infrastructure, use existing roads as fire control lines, and increase effectiveness of aerial fire retardant use.

Purpose and Need: The purpose of the project is to clean-up hazardous fuels created by a 2007 storm event, reduce fire hazard and maintain or improve stand health. Proposed activities by geographic area are detailed in Tables 1 and 2 on the following pages. Numbered footnotes within these tables correspond to treatment types described below.

Table 1. Proposed Benbow Area Units.

Unit number	Unit acres	Proposed treatments	Treatment Method	Comment
1	66	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine and hand	North end may not be operable for machinery due to riparian area. Heavy storm damage to unit.
2	30	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
3	75	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
54	35	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
55	1	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
56	15	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
57	18	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
58	28	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine and hand	South end may not be operable for machinery due to riparian area.
59	20	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
60	89	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
TOTAL BENBOW ACRES = 377				

Table 2. Proposed Main Fork Area Units.

Unit number	Unit acres	Proposed treatments	Treatment Method	Comment
41	37	Remove and salvage windfall and wind-damaged trees along US Highway 212 [1].	Machine	
42	10	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
43	33	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
44	17	Thin remaining live trees in Parkside Campground [2].	Machine	
45	40	Thin remaining live trees in Greenough Lake Campground and recreation site [2].	Machine	
46	6	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
47	87	Remove and salvage windfall and wind-damaged trees [1]. Thin remaining live trees [2].	Machine	
48	8	Remove and salvage windfall and wind-damaged trees in MK Campground [1]. Thin remaining live trees in MK Campground [2].	Machine	
TOTAL MAIN FORK ACRES = 238				

The following descriptions correspond to numbered end notes in the "Proposed treatments" column in Tables 1 and 2:

Treatment 1: Windfall and wind-damaged trees would be removed using ground-based commercial timber harvest equipment where such trees are concentrated or scattered. Equipment used could include skidders, low-angle cable-logging systems, feller bunchers, and/or forwarders. Due to variability in wind damage, topography, equipment operability considerations, and current road locations, this treatment would vary in each unit. Merchantable trees would be salvaged and sold as commercial timber. Remaining slash and non-merchantable down and damaged material would either be removed or piled and burned onsite. Piles would be burned under prescribed conditions under an approved burn plan.

Treatment 2: Trees would be thinned to create a shaded fuel break. After thinning, there would be an average 10 foot spacing between remaining individual tree crowns. Tree spacing between remaining boles would be approximately 20' to 30' between remaining individual trees. In material less than 5" DBH, bole spacing would be 15' to 25'. Thinning would be accomplished by hand crews or using mechanized equipment. While cut biomass would be utilized for forest products where possible, the majority of these areas contain non-merchantable size timber.

In machine operable ground, slash would be machine piled to leave $\leq$ 10 tons to the acre. Any cut merchantable trees could be sold as commercial timber. Remaining slash and non-merchantable down and damaged material would either be removed or piled and burned onsite. Piles would be burned under prescribed conditions under an approved burn plan.

In areas not machine operable, or where it would not be possible to utilize biomass for forest products: 1) Tree boles 6" and greater would be bucked to 6 foot lengths and left in place; 2) All material down to a 3" top would be handpiled; 3) Remaining material would be bucked to lie flat on the ground; and 4) Piles would be burned under prescribed conditions under an approved burn plan.

National and Regional Direction: The Northern Region Overview was prepared in October 1998 in response to the Forest Service Natural Resource Agenda. This Overview recognized that ponderosa pine forest systems, aspen, and sagebrush are at risk to being lost due to their high departure from a more natural state. It also recognized the opportunity for using vegetation management and prescribed fire to improve the health of these ecosystems.

The National Fire Plan was developed in August 2000 in response to the large wildland fires in the interior West. The Ten-year Comprehensive Strategy was developed in response to the National Fire Plan. As it relates to this project, these two documents direct the Forest Service to: 1) prioritize hazardous fuels reduction where the negative impacts of wildland fire are greatest; 2) prevent invasive species and restore watershed function and biological communities through short-term rehabilitation; and 3) restore healthy, diverse, and resilient ecological systems to minimize uncharacteristically severe fires on a priority watershed basis through long-term restoration.

The Healthy Forests Restoration Act of 2003 (HFRA) established procedures for Federal agencies conducting environmental analysis for authorized hazardous-fuel-reduction projects on Federal land. The proposed Beartooth Front Storm Damage Clean-up and Fuels Reduction Project is designed under the requirements of HFRA and for the purpose of responding to the 10-year Comprehensive Strategy. Specifically, project activities were identified in the CWPP/PDM and CWPP and portions of these project areas were identified as WUI. While HFRA procedures do not apply to activities proposed on State of Montana lands, treatments proposed on DNRC lands in the West Fork Rock Creek would address needs identified in the CWPP/PDM.

Affected Environment and Environmental Consequences: The National Forest Management Act (NFMA) requires forests to "provide for diversity of plant and animal communities and tree species consistent with the overall multiple use objectives of the planning area". To accomplish this, NFMA directs that an evaluation of diversity be done "in terms of its prior and present condition" and "consider how diversity will be affected by various mixes of resource outputs and uses". The Act also requires forests to "maintain viable populations of all native and desired non-native wildlife vertebrate species in the planning area". The Act defines a viable population as one having "the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area".

The Endangered Species Act requires forests to "manage habitat for all existing native and desired non-native plants, fish, and wildlife species in order to maintain at least viable populations of such species", conduct activities and programs "to assist in the identification and recovery of threatened and endangered plant and animal species" and to avoid actions "which may cause a species to become threatened or endangered".

On the Custer National Forest, all of the species considered in this document occur over a geographical area encompassing several states. Because their distribution is so large, the viability of the species is not tied to actions occurring only on a small portion of their natural range such as the Custer National Forest. Therefore, one could argue that viability at the Forest scale is not an issue. Even so, it is recognized that adverse actions occurring within a small portion of the range, if extended out to their entire range, could lead to problems in species viability over time. Therefore, it is important to assess how the actions within a portion of a species range contribute to the viability across the range.

To address this, activities are evaluated in terms of their effect on habitat, at the project level, landscape level, and planning unit, if needed. At the project and forest level, the analysis focuses upon the likelihood of the species or its habitat "persisting" within the analysis area over time. A qualitative rating of persistence is made based upon demographic, habitat, and environmental factors.

- Demographic: Life history, population, distribution, birth and death rates, sex ratios, and dispersal potentials within the landscape.
- Habitat: Amount, quality, and distribution of habitat
- Environment: Disturbance regimes likely within the landscape, successional pathways, and vulnerability to catastrophic events.

Demographics, habitat, and environmental factors rarely function independently. The loss of habitat or increases in disturbance (natural or manmade) could result in changes in population levels, distribution, or demographics. However, at any given point in time, one of the factors may be dominant in determining the likelihood of species persistence within the analysis area. For example, prior to wolves being released in the Greater Yellowstone Area (GYA), although adequate prey base and habitat existed, wolf numbers were extremely low. Most wolves were thought to be dispersing individuals and no information on the existence of den sites existed. There simply were not enough wolves in the GYA to form breeding pairs. However, since the release, wolf numbers in the GYA have steadily increased. The issue of wolf persistence changed from the number of wolves to wolf mortality. As wolf numbers continue to increase, eventually, wolf mortality issues will subside and prey base and habitat issues will determine wolf distribution and abundance within the GYA. Table 3 shows the persistence analysis process being used for this analysis.

Table 3. Criteria used to identify whether persistence factors are low, moderate, or highly favorable.

Factor	Feature	Low Persistence	Moderate Persistence	High Persistence
Demographic	Population Distribution *(Province to Domain Scale)*	Species is endemic to a section (unit within the National Hierarchical Framework). Single disturbances could affect major portions of species range	Species is endemic to one or more provinces. Disturbances could affect portions of a species range.	Species is well distributed across one or more domains. Disturbances would not likely affect substantial portions of a species range.
	Isolation *(Landscape to Province)*	Populations are isolated and do not interact with other populations.	Populations are distributed such that interaction between populations is possible (See example 1 above).	Populations are well distributed in such a way that dispersal not disrupted.
	Survival *(Landscape to province scale)*	Mortality, particularly human caused, is a big factor in affecting species survival.	Mortality, particularly human caused, has an effect on species persistence, but does not threaten survival	Mortality, particularly human caused, is not a factor affecting species persistence.
	Reproduction *(Landscape to province scale)*	Species has low natural reproductive potential.	Species has a moderate natural reproductive potential.	Species has a high natural reproductive potential.
Habitat	Quality *(Landtype to landscape scale)*	Habitat parameters such as tree size and snag size meet minimum requirements. Small changes in structure at the stand level results in habitat rendered unsuitable.	Habitat parameters exceed minimum levels however, small changes renders habitat minimally suitable.	Habitat parameters easily exceed suitability requirements such that small changes do not render habitat unsuitable or minimally suitable.
	Quantity *(Landtype or landscape scale)*	The amount of habitat barely meets minimum requirements for establishment of territories or to provide for dispersal. Small changes in the amounts of habitat render areas unsuitable.	The amount of habitat exceeds minimum amounts, however, small changes in the amount of habitat renders areas minimally suitable or unsuitable.	The amount of habitat greatly exceeds minimum levels such that small disturbances do not render habitat minimally suitable or unsuitable.

Table 3. Criteria used to identify whether persistence factors are low, moderate, or highly favorable.

Factor	Feature	Low Persistence	Moderate Persistence	High Persistence
	Distribution *(Landtype or landscape scale)*	Habitat is distributed across the landscape at maximum juvenile dispersal distances. Pockets of isolated habitat exist. Minor disturbances likely result in increased population isolation.	Habitat is distributed across the landscape within maximum juvenile dispersal distances. Pockets of isolated habitat are rare. However, minor disturbances likely result in increased population isolation.	Habitat is distributed across the landscape at optimum levels for juvenile dispersal and few if any isolated patches exist. Minor and even major disturbances are not likely to result in substantial population isolation across the planning area.
Environmental	Disturbance Extensiveness	Fire hazards (fuel loads, tree densities, tree species composition) and other hazards are extensive and contiguous across the planning area.	Fire hazards and other hazards are not extensive or contiguous across the analysis area. Areas of high hazard are broken by vegetation of lesser hazard or by natural features.	Hazards are not extensive and contiguous. Landscapes are diverse, reflecting natural conditions.
	Historical comparison of disturbances	Disturbances are outside historical levels, in terms of their size, severity or intensity, and are likely wide spread across the analysis area.	Disturbances outside historic levels are not likely, however, management strategies and successional trends lead to a high likelihood of disturbances outside historic levels across a large portion of the landscape within the next 10-20 yrs.	Disturbances outside historic levels are possible but not likely because vegetation within the management area has been managed within historic levels as well.

The persistence rating is a qualitative rating and as such, is not a precise determination. Of greater importance is the change in persistence and the rationale for that change. An increase in persistence from a low to a moderate indicates that habitats are less isolated, or that the amount or quality of habitat is improved, or that the risks to existing habitat are reduced.

Determination of Effects for Species Potentially Present in the Project area: The habitat, presence and determination of effects for Federally threatened and endangered species are summarized in Table 4. The habitat, presence, and determination of effects for USFS sensitive species are summarized in Tables 5. The habitat, presence, and description of effects for other Management Indicator Species and "Key species" are shown in Table 6. Table 7 displays the habitat, presence, and description of effects for wildlife species of local public concern. The rationale for the determination of effects for those species with suitable habitat within the project area and within the cumulative effects analysis areas (Lynx Analysis Unit or 6th Code HUC) is discussed thereafter.

Table 4. Threatened, Endangered, or Proposed Wildlife Species Considered for Analysis

Species[1]	Suitable Habitat w/in Project Area	Species Documented w/in Cumulative Effects Area	No Action Determination of Effect[2]	Proposed Action Determination of Effect[2]	Basic Habitat Description[3]
Canada Lynx (*Lynx Canadensis*)	Yes	No	NE	NLAA	Spruce/fir, high alpine, and habitats with high horizontal cover
Gray Wolf (*Canis lupus*)	Yes	Yes	NE	NJ	Remote, well connected forested generalist

[1] Federally listed species based on USFWS website, May 10, 2008, Listed Species by National Forest. The determination of effects for federally listed species (threatened or endangered) is limited to: (1.) No effect; (2) May effect - Not likely to adversely affect; (3) * May effect - Likely to adversely affect; and (4) Beneficial effect. * = Considered a trigger for a significant action. Options in determination of effects for proposed federally listed species are: (1.) No effect; (2.) Not likely to jeopardize the continued existence of the species or result in destruction or adverse modification of proposed critical habitat; (3.) Likely to jeopardize the continued existence of the species or result in destruction or adverse modification of proposed critical habitat.

[2] The determination is based on the presence of suitable habitat.

[3] Montana Natural Heritage Database. 2008. http://www.mtnhp.org/animalguide/

Table 5. Region 1 Sensitive Species considered for Analysis.

Species[1]	Suitable Habitat w/in Project Area	Species Documented w/in Cumulative Effects Area	No Action Determination of Effect[2]	Proposed Action Determination of Effect[2]	Basic Habitat Description[3]
American peregrine falcon *(Falco peregrinus anatum)*	No	No	N/A	N/A	Cliff habitat over 200' high with suitable ledges for nest construction
Baird's sparrow *(Ammodramus bairdii)*	No	No	N/A	N/A	Prefers native prairie but structure is more important so may nest in tame grasses
Bald Eagle (*Haliaeetus leucocephalus*)	No	No	N/A	N/A	Nesting structure near a large water-body (lake or river) to provide sufficient forage
Black-backed woodpecker (Picoides arcticus)	No	No	N/A	N/A	Primary habitat is recently burned forested areas, secondary habitat is spruce/fir forests
Blue-gray gnatcatcher *(Polioptila caerulea)*	No	No	N/A	N/A	Open stands of juniper and limber pine with intermixed sagebrush
Burrowing owl *(Athene cunicularia)*	No	No	N/A	N/A	Open grasslands, nesting and roosting in burrows dug by mammals or owls
Grizzly Bear (*Ursus horribilis*)	Yes	Yes	NI	MIIH	Remote, well connected forested generalist
Greater sage grouse *(Centrocercus urophasianus)*	No	No	N/A	N/A	Sagebrush with intermixed grasslands
Harlequin duck *(Histrionicus histrionicus)*	No	Yes	NI	NI	Inhabit fast moving, low gradient clear mountain streams
Loggerhead shrike *(Lanius ludovicianus*	No	No	N/A	N/A	Grassy pastures that are well grazed, nest in shrubs or small trees, preferably thorny such as hawthorn
Long-billed curlew *(Numenius americanus)*	No	No	N/A	N/A	Open grasslands or prairie usually near water
Long-eared myotis *(Myotis evotis)*	No	No	N/A	N/A	Use a variety of habitats but are strongly associated with coniferous forests
Long-legged myotis *(Myotis volans)*	No	No	N/A	N/A	Primarily a coniferous-juniper forest bat found at moderate elevations (≥6000 ft) but may also inhabit riparian cottonwood bottoms and desert areas
Pallid bat *(Antrozous pallidus)*	No	No	N/A	N/A	Arid deserts and grasslands with rock outcrops
Spotted bat *(Euderma maculatum)*	No	No	N/A	N/A	Desert to montane coniferous forests
Townsend's big-eared bat	No	No	N/A	N/A	Cave and cave-like structures along with forested foraging habitat

Species[1]	Suitable Habitat w/in Project Area	Species Documented w/in Cumulative Effects Area	No Action Determination of Effect[2]	Proposed Action Determination of Effect[2]	Basic Habitat Description[3]
(Corynorhinus townsendii)					
Black-tailed prairie dog *(Cynomys ludovicianus)*	No	No	N/A	N/A	Relatively flat grasslands with diggable soils, throughout the central plains
White-tailed prairie dog *(Cynomys leucurus)*	No	No	N/A	N/A	Xeric sites with mixed stands of shrubs and grasses from the Bighorn Basin in Montana to Utah
Wolverine *(Gulo gulo)*	Yes	Yes	NI	NI	Remote subalpine and spruce/fir forested areas

[1] Species listed as sensitive on the 2004 Forest Service Northern Region Sensitive Species List (Threatened and Endangered Species and Species of Concern Resource Guidance website). Options in determination of effects: (1) No impact; (2) May impact individuals or Habitat, but is not likely to cause a trend to Federal listing or loss of viability; (3) Likely to result in a trend to Federal listing or loss of viability; and (4) Beneficial impact. There would be "no impact" to sensitive species determined to be absent from the project area and not included in this table.

[2] The determination is based on the presence of suitable habitat.

[3] Montana Natural Heritage Database. 2008. http://www.mtnhp.org/animalguide/

Table 6. Custer National Forest Habitat Indicator Species (MIS) and Key Wildlife Species Considered for Analysis.

Species	Suitable Habitat w/in Project Area	Species Documented w/in Cumulative Effects Area	No Action Description of Effect[3] + = Positive 0 = Neutral - = Negative	Proposed Action Description of Effect[3] + = Positive 0 = Neutral - = Negative	Basic Habitat Description[4]
MIS[1]					
Northern goshawk *(Accipiter gentilis)*	Yes	No	0	0	Mature forest generalist
White-tailed deer (*Odocoileus virginianus)*	Yes	Yes	0	0	Grassland to montane conifer forest
Ruffed grouse *(Bonasa umbellus)*	Yes	Yes	0	0	Primary habitat includes dense early seral staged forests dominated by aspen, secondary habitat includes other dense deciduous or conifer woodland areas
Western kingbird *(Tyrannus verticalis)*	No	No	N/A	N/A	Open or partially open country with scattered trees, including agricultural lands
Bullock's (Northern) oriole *(Icterus bullockii)*	No	Yes	0	0	Open deciduous woodland and riparian areas
Yellow warbler *(Dendroica petechia)*	Yes	Yes	0	0	Brushy riparian especially with willows
Ovenbird *(Seiurus aurocapillus)*	Yes	Yes	0	0	Mid-late successional, closed-canopied deciduous or deciduous/conifer forests with limited understory
Spotted (Rufous-	No	No	0	0	Shrubby riparian areas, woody draws, and

Species	Suitable Habitat w/in Project Area	Species Documented w/in Cumulative Effects Area	No Action Description of Effect[3] + = Positive 0 = Neutral - = Negative	Proposed Action Description of Effect[3] + = Positive 0 = Neutral - = Negative	Basic Habitat Description[4]
sided) towhee *(Pipilo erythrophthalmus)*					woodland undergrowth
Brewer's sparrow *(Spizella Breweri)*	No	No	N/A	N/A	Strongly associated with sagebrush, but also uses other areas with scattered shrubs and short grasses
Sharp-tailed grouse *(Tympanuchus phasianellus)*	No	No	N/A	N/A	Mosaic of dense grass and shrubs with forbs for nesting, woody riparian areas in winter
Yellowstone Cutthroat trout	Yes	Yes	See Aquatics Section	See Aquatics Section	Upper Yellowstone and Upper Snake River drainages
Largemouth bass *(Micropterus Salmoides)*	No	No	0	0	Warm freshwater areas with beds of aquatic vegetation that have been stocked (exotic species in Montana)
KEY SPECIES [2]					
Elk *(Cervus Canadensis)*	Yes	Yes	0	0	Grassland to forested alpine areas
Golden eagle *(Aquila chrysaetos)*	No	No	N/A	N/A	Open hilly to mountainous areas
Merlin *(Falco columbarius)*	No	No	N/A	N/A	Patchy shrub/grassland habitats with large trees to support nesting (secondary nester)
Mule deer *(Odocoileus hemionus)*	Yes	Yes	0	0	Rugged grassland to forested alpine areas
White-tailed deer	Yes	Yes	0	0	Grassland to montane conifer forest
Bighorn sheep *(Ovis canadensis canadensis)*	No	No	N/A	N/A	Remote, steep, rugged terrain, such as mountains, canyons, and escarpments where precipitation is low and evaporation is high
Pronghorn antelope *(Antilocapra americana)*	No	No	N/A	N/A	Rolling grasslands to mixed sagebrush shrublands
Sharp-tailed grouse	No	No	N/A	N/A	Mosaic of dense grass and shrubs with forbs for nesting, woody riparian areas in winter
Yellowstone cutthroat trout	Yes	Yes	See Aquatics Section	See Aquatics Section	Upper Yellowstone and Upper Snake River drainages

[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] The determination is based on the presence of suitable habitat.

[4] Montana Natural Heritage Database. 2008. http://www.mtnhp.org/animalguide/

Table 7. Wildlife Species of Local Public Concern Considered for Analysis.

Species[1]	Suitable Habitat w/in Project Area	Species Documented w/in Cumulative Effects Area	No Action Description of Effect[2] + = Positive 0 = Neutral - = Negative	Proposed Action Description of Effect[2] + = Positive 0 = Neutral - = Negative	Basic Habitat Description[3]
Moose (*Alces alces*)	Yes	Yes	0	0 See white-tailed deer, mule deer and elk section for effects	Variable: summer, mountain meadows, river bottoms, wet areas; winter, willow flats, mature coniferous forests. Willows are an important habitat component.
Pine martin (*Martes Americana*)	Yes	Yes	0	0 See goshawk section for effects	Boreal preferring mature conifer or mixed wood forests. Uses deadfall and snags as den sites.

[1] The Wildlife Species of Local Public Concern are based on public comments received during the public scoping period (January 2008).
[2] The determination is based on the presence of suitable habitat.
[3] Montana Natural Heritage Database. 2008. http://www.mtnhp.org/animalguide/

Current Wildlife Habitat Conditions

The Beartooth Front Storm Damage Clean-up and Fuels Reduction project area, here after referred to as project area, (Figure 1) is located in the Main Rock Creek and Little Rocky Creek drainages. These drainages support land of varied topography with elevations ranging between 5500 to 8000 feet. They each have a variety of forested and non-forested plant communities. The forest stands in Main Rock Creek are primarily mature to pole sized lodgepole pine stands. Spruce/lodgepole and spruce/sub-alpine fir stands are located along the riparian corridor with occasional aspen stands throughout the drainage. The Little Rocky Creek drainage area is dominated by dry site lodgepole pine and Douglas-fir stands with intermixed grassy meadows and aspen stands.

The diversity of forest stand structure in the project area is decreasing due to the current successional pathway and disturbance patterns. This has led to a gradual elimination of the more open, fire maintained stands of larger diameter coniferous trees and healthy aspen stands. Lack of low-intensity fire disturbance has resulted increased tree density in the overstory; abundant tree regeneration and shrub development in the understory on wet sites; little tree regeneration or shrub development in the understory on dry sites; and a buildup of ground fuels (both larger diameter and litter layers). This has resulted in pole to mid aged/sized contiguous tree stands that are more prone to stand replacing fire because of increased fuel loading. The 6th code HUC or Lynx Analysis Unit will be used for cumulative effects analysis area for each of the areas.

Federally Threatened and Endangered Species

Canada lynx

Population and Habitat Status

Table 7. Canada Lynx; Population and Habitat Status.

Canada Lynx Activity	Project Within Lynx Analysis Unit (LAU)	Foraging Habitat	Denning Habitat
Occasional reported sightings	Yes	Yes	Yes

The project is located within the Rock Creek and Rosebud Lynx Analysis Units (LAU) both of which are thought to support potential lynx habitat (Table 7). The Rock Creek LAU supports 68426 acres of potential lynx habitat and the Rosebud LAU supports 58016 acres of potential lynx habitat. Most of the available lynx habitat is comprised of Douglas fir, lodgepole pine, spruce and subalpine fir habitat types. The analysis area supports numerous pole to mature lodgepole or Douglas-fir forest stands with limited understory development. Table 8 summarizes the number of acres of potential lynx habitat proposed to be treated by LAU.

Table 8. Effects of treatments on Canada lynx habitat by LAU.

LAU Name	Acres of Lynx Habitat	Treatment Acres	Percent Change
Rock Creek	68426	194	0.3
Rosebud	58016	25	0.04

The presence and abundance of snowshoe hare and other prey species in the analysis areas are not known. However snow track surveys conducted during the winter of 2003 thru 2007 in Main Rock Creek and West Fork Rock Creek indicate that snowshoe hare densities are low in these drainages. Table 9 summarizes horizontal cover measurements taken within the project area in proposed treatment areas with what was thought to provide the highest levels of horizontal cover. Survey locations were random and followed Region One guidance for determining horizontal cover (Bertram and Claar 2008). A common characteristic of all of the stands found in the project area, except for the Spruce dominated sites, is that they supported poorly developed understories that lacked horizontal cover and had little to no forage base for snowshoe hares. This may explain why snowshoe hare numbers are low throughout the project area.

Table 9. Horizontal cover by treatment unit within LAUs.

LAU Name	6th Code HUC	Unit Number/Random Point Number	Dominant Overstory Tree Species/Understory Species	% Horizontal Cover[1]
Rock Creek	Main Rock Creek	41/03	LPP Pole/Needle Litter	22
		41/04	LPP Pole/Needle Litter	35
		41/11	LPP Pole/Needle Litter	32
		42/01	Spruce/Riparian	85[2]
		43/02	LPP Pole/Needle Litter	56[2]
		44/01	Spruce/Riparian	64[2]
		47/03	LPP Pole/Needle Litter	40
		48/01	Spruce-Subalpine fir/grass	28
		47/05	LPP Pole/Needle Litter	18
		46/02	Spruce/grass	50[2]
		45/03	LPP Pole/Needle Litter	16
Rosebud	Little Rocky Creek	59/01	LPP Pole/Needle Litter – Dry Site	26
		59/02	Douglas-fir/Needle Litter – Dry Site	50[2]

[1] Followed Region One guidance for determining horizontal cover (Bertram and Claar 2008).
[2] Site provides adequate summer snowshoe hare habitat where cover values should be greater than or equal to 48% (Bertram and Claar 2008).

Forested stands scattered throughout the project area provide adequate horizontal cover for snowshoe hares which are the primary prey species for Canada lynx. Forested stands with horizontal cover values greater than or equal to 48% are thought to provide the best summertime habitat for snowshoes hares and lynx. Blowdown timber from the November 7, 2007 storm event created additional snowshoe habitat within the Rock Creek and Rosebud Lynx Analysis Units. Approximately 5,162 acres of blowdown occurred in the Rock Creek LAU with 238 acres (5%) proposed for salvaging. About 9,652 acres of blowdown occurred in the Rosebud LAU with 377 acres (4%) proposed for salvaging. However a small percentage of the proposed salvage would occur in potential lynx habitat (Table 8).

Unconfirmed sightings of lynx have been reported on rare occasions on the District, but none in the project area. Winter track surveys for lynx have been conducted in the project area during the winters of 2003 thru 2007. No lynx sign was detected with these surveys. The project area is located in "Core Habitat" that was outlined in the Northern Rockies Lynx Management Direction FEIS 2007. The existing persistence rating for Canada lynx in the project area is low, due to habitat features and the lack of snowshoe hares.

Direct, Indirect, and Cumulative Effects Analysis

Tables 10 and 11 outline applicable standards and conservation measures from the Canada Lynx Conservation Assessment and Strategy 2000. Table 12 outlines the applicable standards and guideline from the Northern Rockies Lynx Management Direction (NRLMD) FEIS 2007. All standards and conservation measures are met. Individual lynx that could potentially occur in the project area may be displaced due to timber salvage activity. However, the likelihood of displacement is minimal since lynx have not been confirmed to use the area, the area's snowshoe hare population is low, and large acreage's of continuous suitable snowshoe hare habitat is lacking in the area. No mortalities or indirect effects are anticipated. Project activities will not occur during winter months and thus no increase in areas of compacted snow would take place. Negative changes to lynx habitat would be limited. However removal of downed trees and some canopy would stimulate understory development (increase horizontal cover) and stimulate the forage base for snowshoe hares. About 0.3 percent of the available lynx habitat within the Rock Creek LAU and 0.04 percent in the Rosebud LAU would be affected by the proposed project. No adverse effects to the prey base are expected. Within the cumulative effects analysis area two small scale hazardous fuels projects have or are scheduled to occur in the near future. These projects, Grizzly Peak I and II, impact about 0.01% of the available potential lynx habitat in the Rock Creek LAU. In July 2008, the Cascade Wildfire burned approximately 10,200 acres in the West Fork Rock Creek drainage. Approximately 5,700 acres of potential lynx habitat (8%) were damaged by the wildfire in the Rock Creek LAU. Known cumulative effects are well under the 15% and 30% thresholds as described in the LCAS (2000) and NRLMD (2007) (see Tables 10-12).

Table 10. Canada Lynx Conservation Assessment and Strategy Standards; Conservation Measures Applicable to All Programs and Activities (LCAS, 7-2 to 5).

Standards	Pre-Treatment	Post-Treatment	Compliance
Programmatic Planning			
Conservation measures will generally apply only to lynx habitat on federal lands within Lynx Analysis Units (LAUs)	Completed	N/A	Yes
Lynx habitat will be mapped using criteria specific to each geographic area to identify appropriate vegetation and environmental conditions; refer to glossary and description for each geographic area in LCAS	Completed	N/A	Yes
To facilitate project planning, delineate LAUs; LAUs should be at least the size of area used by a resident lynx and contain sufficient year-round habitat	Completed	N/A	Yes
LAU boundaries will not be adjusted for individual projects, but must remain constant	Maintained	Maintained	Yes
Prepare a broad-scale assessment of landscape patterns comparing historical and current ecological processes and vegetation patterns, such as age-class distributions and patch size characteristics; in the absence of guidance developed from such an assessment, limit disturbance within each LAU: if more than 30% of lynx habitat within a LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of vegetation management by federal agencies	Current situation maintained	Current situation will be maintained	Yes
Project Planning			
Within each LAU, map lynx habitat; identify potential denning and foraging habitat (hares, squirrels, etc.), and topographic features important for lynx movement (major ridge systems, prominent saddles, and riparian corridors); identify non-forest	Completed	Analyzed	Yes

vegetation (meadows, shrublands, grasslands, etc.) adjacent to and intermixed with forested lynx habitat, providing habitat for alternate lynx prey species			

Table 11. Canada Lynx Conservation Assessment and Strategy Standards; Conservation Measures to Address Risk Factors Affecting Lynx Productivity (LCAS, 7-4 to12).

Standards	Pre-Treatment	Post-Treatment	Compliance
Timber, Wildland Fire, and Recreation Management			
Within each LAU, maintain denning habitat in patches generally larger than five acres, comprising at least 10% of suitable lynx habitat	Maintained	Maintained	Yes
Management actions shall not change more than 15 percent of lynx habitat within a LAU to an unsuitable condition within a 10 year period	Maintained	Maintained	Yes
Maintain habitat connectivity within and between LAUs	Maintained	Maintained	Yes
On projects where over-snow access is required, restrict use to designated routes	N/A, no over-snow access	N/A, no over-snow access	Yes
Design burn prescriptions to regenerate or create snowshoe hare habitat (e.g., regeneration of aspen and lodgepole pine)	Incorporated	Incorporated	Yes
Design burn prescriptions to promote response by shrub and tree species that are favored by snowshoe hare.	Incorporated	Incorporated	Yes

Table 12. Northern Rockies Lynx Management Direction FEIS Standards and Guidelines to Assess Risk Factors Affecting Canada Lynx (ROD, Attachment 1 pages 2-4).

Standards	Pre-Treatment	Post-Treatment	Compliance
Vegetation Management			
Standard VEG S1 – No more that 30% of lynx habitat within an LAU can be in a stand initiation stage that does not provide winter snowshoe hare habitat.	Maintained	Maintained	Yes
Standard VEG S2 – Timber management projects shall not regenerate more than 15 percent of lynx habitat on NFS lands within a LAU in a 10 year period	Maintained	Maintained	Yes
Standard VEG S5 – Precommercial Thinning	N/A, no precommercial thinning	N/A, no precommercial thinning	Yes
Standard VEG S6 – Vegetation management projects that reduce snowshoe hare habitat in multi-story stands or late succession forest may occur only: within 200 feet of developed sites, for research studies, or for incidental removal during salvage harvest. Timber harvest is allowed in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover.	Maintained	Maintained	Yes

Determination of Effects

I have determined implementation of the proposed Federal Action **MAY AFFECT, BUT IS NOT LIKELY TO ADVERSELY AFFECT THE CANADA LYNX OR THEIR HABITAT.** My determination is based on the following rationale: 1) impacts to lynx habitat would be low; 2) the project is in compliance with the LCAS and NRLMD standards and guidelines; 3) a positive change in prey habitat would likely occur; 4) lynx have not been reported in the area; 4) only 9% of the total blowdown is proposed for salvaging leaving over 14,000 acres of new denning and foraging habitat; and 5) the project is small in scale where less than 2% of the cumulative effects analysis area (LAUs) would received vegetation treatments.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

None necessary; project activities are in compliance with LCAS and NRLMD standards and guidelines.

Gray Wolf

Population and Habitat Status

Table 13. Gray Wolf; Population and Habitat Status.

Wolf Activity	Den Site	Rendezvous Site
Two packs known to use the Beartooth Mountains	None	None

As shown in Table 13, wolves have been reported sporadically on and adjacent to the District. At least two packs, the Rosebud and Moccasin Lake packs, utilize the Beartooth Mountains portion of the District (Trapp 2007). Occasional wolves that are probably not associated with these packs have also been reported on the Beartooth Unit. On the Big Timber District, Gallatin National Forest, packs occur in the East Boulder and West Boulder areas, and wolves have been reported in the Crazy Mountains. Wolf activity has been reported in the project and cumulative effects area (Table 13). Den and rendezvous sites have not been identified. Suitable prey within and adjacent to the project area and within the cumulative effects analysis area consists mainly of elk, mule deer and white-tailed deer. The existing persistence rating for wolves in the project area is low, due to habitat features.

Direct, Indirect, and Cumulative Effects Analysis

Direct effects may involve temporary displacement of wolves when project activities occur. No adverse indirect effects are anticipated due to the small scale of operations. No measurable cumulative effects are expected with this project due to the scale where less than 2% of the analysis area would be treated. Other federal actions are not anticipated. This proposed action will have no adverse effects on the low persistence rating.

Determination of Effects

I have determined implementation of the proposed Federal Action **WOULD NOT JEOPARDIZE THE CONTINUED EXISTENCE OF THE GRAY WOLF OR THEIR HABITAT.** My determination is based on the following rationale: 1) wolves in the project area are designated as nonessential experimental population; 2) den and rendezvous sites are not known to occur in the area; 3) the project is temporary and small in scale(<2% of cumulative effects analysis area); and 4) impacts to wolf habitat and prey are low.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

None necessary, adverse effects are not anticipated.

Forest Service Sensitive Wildlife Species

Grizzly Bear

Population and Habitat Status

Table 14. Grizzly Bears; Population and Habitat Status.

Bear Management Unit	Sub-unit	Visual Sightings	Den Sites	Mortality
N/A	N/A	None	None	None

The project area is within the Grizzly Bear Management Area outside the Primary Conservation Area and is over 10 miles east of the Yellowstone Grizzly Bear Recovery Zone (Table 14). The project area is predominantly comprised of Douglas fir and lodgepole pine ranging from young to mature in age. Mature whitebark pine stands are also present at the higher elevations.

Most of the project area is heavily used by recreationists because the area has numerous campgrounds, trailheads and cabin sites (see Recreation Section). Grizzly bears may move through the area in the future as the GYA population grows and expands, but limited grizzly bear activity has been documented in the project area (Schwartz et al. 2005). The existing persistence rating for grizzly bears in the project area is low, due to habitat features.

Direct, Indirect, and Cumulative Effects Analysis

Direct effects are not anticipated but wandering grizzly bears may be temporary displaced while project activities take place. Mortalities are not anticipated. Food storage orders are in place on the District. Indirect effects are not anticipated. The project will result in very little ground disturbance. Changes in open road and total road density will not occur. Changes in core and security areas will not occur. The project is not located within the Primary Conservation Area (MS1 and 2). Table 15 outlines applicable conservation and management plans with there goals, standards, guidelines, and incidental take statements for grizzly bears. In July 2008, the Cascade Wildfire burned approximately 10,200 acres in the West Fork Rock Creek drainage. Approximately 2,200 acres of potential grizzly bear habitat, whitebark pine forest, were damaged by the wildfire in the Rock Creek LAU. The stand initiation stage within the burned area will provide additional foraging habitat in the future. Overall effects would be similar to those listed above under the gray wolf section. This proposed action will have no adverse effects on the low persistence rating.

Table 15. Grizzly Bear – Applicable Plan Goals, Standards, Guidelines, and Incidental Take Statements.

Standards	Pre-Treatment	During-Treatment	Post-Treatment	Compliance
Forest Plan Standards				
Custer N.F. Standards	Project area is not	N/A.	N/A.	Yes

address Management Situation I, II, and III areas.	within Management Situation I, II or III areas			
Incidental Take Statements				
None				
Other Plan Standards				
Grizzly Bear Recovery Plan (1993)				
1. Maintain and improve habitat	N/A	Habitat conditions would be maintained.	Habitat conditions would be maintained.	Yes
2. Minimize grizzly-human conflict potential	Special Food Order 98-08-02-04 is in effect on the Beartooth District.	Food storage orders are followed by District personnel implementing the project.	N/A	Yes
3. Resolve grizzly-human conflict	N/A	Current situation would be maintained	N/A	Yes
Grizzly Bear Management Plan for Southwestern Montana 2002-2012				
Goal: To manage for a recovered grizzly bear population in southwestern Montana and to provide for a continuing expansion of that population…	N/A	Current situation would be maintained	N/A	Yes
Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests FEIS (2006)				
Goal: Manage grizzly bear habitat within the Primary conservation Area…	Project is outside the PCA	Habitat conditions would be maintained.	Habitat conditions would be maintained.	Yes
Guideline 3: Outside the PCA in areas identified as suitable for grizzly bears emphasize proper sanitation techniques including food storage orders and information/education…	Special Food Order 98-08-02-04 is in effect on the Beartooth District.	Food storage orders are followed by District personnel implementing the project. Orders are posted at recreation areas. "Bear Aware" education program.	N/A	Yes
Guideline 4: inside and outside the PCA in areas identified as suitable for grizzly bears maintain the productivity of four key grizzly bear food sources…emphasize maintaining and restoring whitebark pine stands.	N/A	Habitat conditions would be maintained.	Habitat conditions would be maintained.	Yes

Determination of Effects

I have determined implementation of the proposed Federal Action **IS MAY IMPACT INDIVIDUALS OR HABITAT, BUT IS NOT LIKELY TO CAUSE A TREND TO FEDERAL LISTING OR LOSS OF VIABILITY.** My determination is based on the following rationale: 1) The project area is located outside the Primary Conservation Area; 2) Den sites are not known to occur in the area; 3) impact to grizzly bear habitat is considered low; 4) the food storage orders are in place; 5) the project is in compliance with Forest Plan Standards and conservation plan standards, goals, and guidelines; 6) No road construction, reconstruction, or maintenance would occur; and 7) the project is small in scale where less than 2% of the cumulative effects analysis area would received vegetation treatments.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

None necessary with food storage orders compliance.

Harlequin Duck

Population and Habitat Status

Table 16. Harlequin Duck; Population and Habitat Status.

Harlequin Duck Activity	Known sightings	Nesting Habitat	Foraging Habitat
Yes, outside project area	Yes, outside project area	Yes, outside project area	Yes, outside project area

Harlequin ducks are known to occur in the upper portion of the West Fork Rock Creek drainage within the Beartooth Wilderness Area near Quinnebaugh Meadows (Table 16). No breeding pairs are known to occur with in the project area. Harlequin ducks inhabit fast moving, low gradient, clear mountain streams (MTNHP 2008). Harlequin ducks are most often found where "banks are covered with a mosaic of trees and shrubs with a significant positive correlation with overhanging vegetation" (Diamond and Finnegan 1996). Harlequin ducks return to the previous years breeding sites the majority of the time (MTNHP 2008). The existing persistence rating for harlequin ducks in the project area is low, due to habitat features.

Direct, Indirect, and Cumulative Effects Analysis

No adverse direct, indirect or cumulative effects are anticipated with the proposed project. If Streamside Management Zone guidelines and Best Management Practices are followed the project will have no impacts on potential harlequin duck habitat. In July 2008, the Cascade Wildfire burned approximately 10,200 acres in the West Fork Rock Creek drainage. This wildfire impacted about 19 acres of potential harlequin duck habitat. Measurable cumulative effects are not anticipated. The proposed action would not likely reduce the existing persistence rating within the cumulative effects area for harlequin ducks.

Determination of Effects

I have determined implementation of the proposed Federal Action **WILL HAVE NO IMPACT.** My determination is based on the following rationale: 1) implementation of Best Management Practices; 2) implementation of Streamside Management Zone guidelines; 3) the project will not effect overhanging bank

vegetation; and 4) the project is small in scale where less than 2% of the cumulative effects analysis area would received vegetation treatments.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

Implement SMZ guidelines and BMPs to maintain riparian habitat and corridors. Implement wildlife project design features.

Wolverine

Population and Habitat Status

Table 17. Wolverine; Population and Habitat Status.

Wolverine Activity	Known sightings	Denning Habitat	Foraging Habitat
Yes, outside project area	Yes, outside project area	Yes, outside project area	Yes

Wolverines are thought to occur in the upper reaches of most of the drainages within the Beartooth Mountains including the Rock Creek and Rosebud Creek Drainages (Table 17). Wolverines are limited to alpine tundra, and boreal and mountain forests (primarily coniferous), especially large wilderness areas (MTNHP 2008). When inactive, wolverines occupy dens in caves, rock crevices, and under fallen trees (MTNHP 2008). Their primary "habitat requirement appears to be large, isolates tracts of wilderness or roadless areas supporting a diverse prey base (Banci 1987). Wolverines are generally solitary and wide-ranging and occur at relatively low densities (Hornocker and Hash 1981). Wolverine are opportunistic feeders but small to medium sized rodents and carrion make up a large portion of their diet (MTNHP 2008). The existing persistence rating for wolverines in the project area is low, due to habitat features.

Direct, Indirect, and Cumulative Effects Analysis

Direct effects may involve temporary displacement of wolverine when project activities occur. Indirect effects are not anticipated due to the small scale of operations. No measurable cumulative effects are expected with this project due to the scale where less than 2% of the analysis area would be treated. In July 2008, the Cascade Wildfire burned approximately 10,200 acres in the West Fork Rock Creek drainage. The stand initiation stage within the burned area will provide additional foraging habitat in the future. This proposed action will have no adverse effects on the low persistence rating.

Determination of Effects

I have determined implementation of the proposed Federal Action **NEUTRAL BUT MAY HAVE A POSITIVE EFFECT ON FORAGING HABITAT AND PREYBASE**. My determination is based on the following rationale: 1) Den sites are not known to occur in the project area; 2) only 9% of the total blowdown is proposed for salvaging leaving over 14,000 acres of new denning and foraging habitat; 3) the project is temporary and small in scale (<2% of cumulative effects analysis area); and 4) impacts to wolverine habitat and prey are low.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

Implement SMZ guidelines and BMPs to maintain riparian habitat and corridors. . Implement wildlife project design features.

Management Indicator Species and Key Wildlife Species

Northern goshawk

Population and Habitat Status

Table 18. Northern Goshawk; Population and Habitat Status.

Northern Goshawk Nests	Known sightings	Nesting Habitat	Foraging Habitat
No	No	Yes	Yes

The project area is thought to support potential goshawk habitat (Table 18). Northern goshawks prefer nesting in mature, unlogged or lightly managed, forest habitats with relatively closed canopies (greater than 60%), typically on the lower 1/3 of north, east, and west aspects with less than 30% slope, greater than 30 acres in size, and within 600 feet of water (Bull and Hohmann 1994). Two known nest sites on the Beartooth Ranger District are located in Douglas fir and lodgepole pine stands with greater that 50 percent canopy closure. Most literature sources state that goshawks require open water within a ¼ mile of nest trees (Bull and Hohmann 1994, Reynolds 1992)) but nests on the Forest have been found over two miles from water sources. Goshawks use a variety of habitats for foraging but prefer mid to late succession forest and rarely use grassland openings (Reynolds 1992), except for foraging along their edges. Home range sizes vary from around 3,000 to 9,000 acres depending upon quality of habitat and available prey, with an average of 6,000 acres.

Squires and Reynolds (1997) confirmed that areas with high canopy closure, big trees, open forest floor, and moderate slopes are the most "typical" nest stands. However, he also indicated that goshawks are not restricted to nesting in these stands and could use stands with lower canopy cover as well. Reich (2004) cautioned against using habitat data where known goshawks are nesting to extrapolate a definition of good nesting habitat. Goshawks exhibit high site fidelity and may use lower quality habitat but not produce young. Goshawks will nest in stands of various sizes. Larger tends to be better, but not at the expense of having suitable nesting habitat distributed across the landscape. It is important to provide nesting habitat across the landscape, outside of known territories.

Based on the existing condition, the analysis area currently provides low to moderately suitable habitat for goshawks. The habitat is low to moderate quality for several reasons, but is primarily linked to the mid-aged forested stands that provide few large trees capable of supporting a goshawk nest and where most of the area occurs at elevations non typical of supporting goshawks. No goshawks are known to occupy the project area. Approximately 89 acres of potential goshawk nest habitat (mature forest) in Main Rock Creek, and 315 acres in Little Rocky Creek blew down or was wind damaged. The proposed activities would not affect the existing potential nesting habitat in the area. The proposed salvage treatment would help move the existing habitat towards the desired balances (Reynolds et al. 1992) for post-fledging areas by creating more open areas for foraging habitat. Due to the small scale of the project, the existing persistence rating for northern goshawk is low to moderate due to habitat features.

Direct, Indirect, and Cumulative Effects Analysis

The analysis area is currently unoccupied by goshawks but suitable habitat is present in the area. Based on current habitat conditions, the area supports two elements typically found within a goshawk home range. These

elements include potential nest stands and foraging habitat. No adverse direct or indirect effects are anticipated with the salvage treatments. The proposed project would not modify any of the previously stated goshawk habitat elements except for foraging habitat. The capacity to support additional prey numbers and/or species could increase as a result of the proposed project. However due to small scale of the proposed project, this possible change would be insignificant. In July 2008, the Cascade Wildfire burned approximately 10,200 acres in the West Fork Rock Creek drainage. Approximately 3,000 acres of potential goshawk habitat (8%) were damaged by the wildfire in the cumulative effects analysis area. The stand initiation stage within the burned area will provide additional foraging habitat in the future. This proposed action will have no adverse effects on the low to moderate persistence rating.

Determination of Effects

I have determined implementation of the proposed Federal Action **MAY IMPACT INDIVIDUALS, BUT IS NOT LIKELY TO CAUSE A TREND TO FEDERAL LISTING OR LOSS OF VIABILITY.** My determination is based on the following rationale: 1) impacts to potential goshawk habitat would be low; 2) no negative change in prey base would occur; 3) the proposed action would make the project area less vulnerable to stand replacement wildfire; 4) goshawk have not been reported in the area; and 5) the project is small in scale where less than 2% of the cumulative effects analysis area would receive vegetation treatments.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

If an active goshawk nest is discovered within or near a treatment area prior to or during treatment activities work should be halted and the District wildlife biologist would be notified immediately to determine steps to resolve the situation. Implement other wildlife project design features.

White-tailed deer, Mule Deer, and Elk

Population and Habitat Status

Table 19. Big Game; Population and Habitat Status.

Big game Activity	Seasonal Range	Calving or Fawning Habitat
Yes	Yes	Yes

White-tailed deer, mule deer and elk, hereafter referred as big game, are semi-migratory in the Beartooth Area and their home ranges provide yearlong habitat. The critical season for big game is winter. Preferred winter range habitat consists of dense, pine growth interspersed with riparian, meadows and hardwood draws. Shrubs constitute the major portion of the winter diet of big game. Primary winter forage species include chokecherry, snowberry, sagebrush and aspen. Dry grasses and forbs will also be consumed based on their availability. Big game are opportunistic and utilize existing agricultural land where available. Thickets and topography add hiding and thermal cover for big game. Riparian areas and sagebrush stands provide high quality fawning, calving, and forage habitats. Open roads have been shown to cause disturbance to large game, especially during hunting seasons. The Custer National Forest uses juxtaposition of open roads to assess security cover and vulnerability to direct impacts. Effective elk security cover is described as: elk hiding cover modified by open roads. The greater the density of open roads within an area, the less effective is the hiding cover in providing security. Another estimate of vulnerability is the quantity and distribution of hiding cover. Hiding cover is defined as: vegetation capable of hiding 90 percent of a standing adult deer or elk from the view of a human at a distance equal to or less than 200 feet (USFS 1986).

Most of the project area offers suitable year-round habitat for deer but elk typically move to higher elevations during the summer months (Table 19). The existing roads within the project area receive heavy use during the summer months and moderate to low use the rest of the year. No new road construction is proposed with this project. The persistence rating for big game is moderate in the project area due to habitat conditions.

Direct, Indirect, and Cumulative Effects Analysis

Treatment activities would have short-term impacts that include temporary displacement of big game. Big game would generally use the treatment areas when humans have left for the day. The activities associated with proposed action have the potential to directly impact a few fawns or adults due to increased human presence and noise and possibly fawn or calf abandonment. Calve/fawn abandonment should not be an issue due to mitigations requiring that active treatment areas will be inspected for the presence of fawns and calves. If any are found, individuals implementing the activity will coordinate options with the project leader to work in other areas within the vicinity until the cow or doe has had time to remove the young from the area. No indirect effects are anticipated. Long-term habitat improvement is expected from increased grass, forb and browse production in treated areas and the lowered risk of stand replacement wildfire. In July 2008, the Cascade Wildfire burned approximately 10,200 acres in the West Fork Rock Creek drainage. The stand initiation stage within the burned area will provide additional big game foraging habitat in the future. The proposed action would not likely reduce the existing persistence rating within the project area in the long-term for elk or deer.

Determination of Effects

I have determined implementation of the proposed Federal Action would have a ***neutral*** effect on white-tailed deer, mule deer and elk. My determination is based on the following rationale: 1) the proposed action would temporarily increase the amount of human related activities and associated noise throughout the project area but over the long-term forage would be improved; 2) the proposed action would make the project area less vulnerable to stand replacement wildfire; 3) implementation of the project design features; and 4) the project is small in scale where less than 2% of the cumulative effects analysis area would received fuel treatments.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

Active treatment areas will be inspected for the presence of fawns and calves. If any are found, individuals implementing the activity will coordinate options with the District wildlife biologist. Implement other wildlife project design features.

Ruffed Grouse

Population and Habitat Status

Table 20. Ruffed Grouse; Population and Habitat Status.

Ruffed Grouse Activity	Nesting Habitat	Drumming Logs
Yes	Yes	Yes

The Breeding Bird Survey (BBS) trend data suggests that ruffed grouse are declining at a non-significant rate from 1966 through 2000 and from 1980 through 2000 across North America as well as within Montana (Sauer et al. 2005). Presently ruffed grouse occupying the Beartooth RD seem to be stable. Ruffed grouse are found in dense, brushy, mixed-conifer and deciduous tree cover, often along stream bottoms. In the winter they eat deciduous tree buds and shrubs and in the summer they have a mixed diet of insects, green plants and berries.

Adult birds spend most of their lives within two square miles and males are generally found within ½ mile of their drumming logs (MTNHP 2008). Aspen and deciduous shrubs are important habitat components in the analysis area (Table 20). The persistence rating for ruffed grouse within the project area is high, primarily due to habitat features.

Direct, Indirect, and Cumulative Effects Analysis

Treatment activities would have short-term impacts that include temporary displacement of ruffed grouse. Grouse would generally use the treatment areas when humans have left for the day. The activities associated with proposed action have the potential to directly impact nests and adults due to increased human presence and noise and possibly could lead to nest or drumming log abandonment. This should not be an issue due to the project mitigation which requires that active treatment areas to be inspected for the presence of active nests and drumming logs. If any are found, individuals implementing the activity will stop work within 300 feet of the area until July 1. No indirect effects are anticipated. Long-term habitat improvement is expected from increased grass, forb, shrub and aspen production in treated areas and lower risk of stand replacement wildfire. When all project design measures are implemented, there should be no cumulative impacts to ruffed grouse or their habitats. In July 2008, the Cascade Wildfire burned approximately 10,200 acres in the West Fork Rock Creek drainage. This wildfire impacted about 19 acres of potential ruffed grouse habitat. Measurable cumulative effects are not anticipated. The proposed action would not likely reduce the existing persistence rating within the cumulative effects area for grouse.

Determination of Effects

I have determined implementation of the proposed Federal Action would have a ***neutral*** effect on ruffed grouse. My determination is based on the following rationale: 1) the proposed action would temporarily increase the amount of human related activities and associated noise throughout the project area but over the long-term, forage and nesting cover would be improved; 2) the proposed action would make the project area less vulnerable to stand replacement wildfire; 3) if all proposed project design measures are followed, there would be little risk to altering nesting behaviors or success within the project area; and 4) the project is small in scale where less than 2% of the cumulative effects analysis area would received fuel treatments.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

Active treatment areas will be inspected for the presence of active ruffed grouse nests and drumming logs. If any are found, individuals implementing the activity will stop work within 300 feet of the area until July 1. Implement other wildlife project design features.

Bullock's Oriole, Yellow Warbler and Ovenbird

Population and Habitat Status

Table 21. Bullock's Oriole, Yellow Warbler and Ovenbird; Population and Habitat Status.

Bird Activity	Nesting Habitat	Foraging Habitat
Yes	Yes	Yes

The analysis for these three species is combined because they have similar habitat requirements. They are linked to riparian habitats and deciduous woodlands (Table 21). Bullock's oriole is an open deciduous woodland generalist that forages by gleaning insects, especially caterpillars, from trees and shrubs (MTNHP

2008). The Custer NF has assigned this species as the riparian tree indicator (USFS 1986). The yellow warbler is tied more directly to riparian woodlands, especially those with willows (MTNHP 2008), and is therefore the Forest indicator for shrub components of riparian systems. Ovenbirds use mid to late succession, closed canopied deciduous forests with poorly developed understories. Yellow warblers forage on insects, especially caterpillars, and spiders. They take most food items from the leaves and bark. They are also known to occasionally fly-catch and eat small fruits or probes in flowers. Threats to these species include reduction of riparian habitat in combination with nest parasitism by brown-headed cowbirds.

The 1966 through 2000 Montana survey-wide BBS data for these species suggest that both of these species have an increasing population trend (Sauer et al. 2005). The yellow warbler is believed to have a significantly increasing trend. The LandBird 2002 through 2004 surveys conducted on the District detected Bullock's orioles, yellow warblers and ovenbirds. As stated in the ruffed grouse section, suitable habitat is located in the project area, riparian habitat and numerous aspen and cottonwood stands are located in the project and cumulative effects analysis area. The persistence rating for Bullock's orioles, yellow warblers and ovenbirds in the project area is high, due to habitat factors.

Direct, Indirect, and Cumulative Effects Analysis

The activities associated with proposed action have the potential to directly impact nests and adults due to increased human presence and noise and possibly could lead to nest abandonment. Most (90+ %) of the existing habitat for these species in the analysis area will not be impacted by the project. However, the aspen and deciduous shrub habitat that is treated would benefit from the proposed vegetation treatments. In July 2008, the Cascade Wildfire burned approximately 10,200 acres in the West Fork Rock Creek drainage. This wildfire impacted about 19 acres of riparian habitat. Measurable cumulative effects are not anticipated. No change in the existing persistence rating is expected with the proposed action.

Determination of Effects

I have determined implementation of the proposed Federal Action would have a ***neutral*** effect on Bullock's orioles, yellow warblers and ovenbirds. My determination is based on the following rationale: 1) the proposed action would temporarily increase the amount of human related activities and associated noise throughout the project area but over the long-term forage and nesting cover would be improved; 2) the proposed action would make the project area less vulnerable to stand replacement wildfire; 3) this activity could have short-term adverse impacts on nesting activities, but is not believed to be substantial due to the small area affected and duration of expected impact. There would be little risk to altering nesting behaviors or success within the project area; 4) Opening the tree canopy would help to stimulate deciduous shrub growth and improve habitat for all three species; and 5) the project is small in scale where less than 2% of the cumulative effects analysis area would received fuel treatments.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

Implement SMZ guidelines and BMPs to maintain riparian habitat and corridors. Implement other wildlife project design features.

Snags Habitat

Current Condition

The Custer Forest Plan did not identify a snag management standard. On the Beartooth RD, fire killed snags have remained on thousands of acres of the landscape. On the District there have been several wildfires that have killed over story trees since 2000, but because of resource concerns and timber harvest economics, no salvage sales have occurred. The most recent wildfire occurred in July 2008; the Cascade Wildfire burned approximately 10,200 acres in the West Fork Rock Creek drainage. 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 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 22) and Beartooth RD (Table 23). Snag densities $\geq$ 10.0 inches dbh are 7.4 / A. for the Custer NF and 12.7 for the Beartooth RD. Snag densities $\geq$ 20 inches dbh are 0.4/ A. for the Custer NF and 0.8 / A. for the Beartooth RD. Data indicates large diameter snags $\geq$ 20 inches dbh are relatively rare on the landscape on the Beartooth RD. Snag density estimates for the three 5th Code HUCs where the proposed treatment areas occur are displayed in Table 24 (Lundberg, 2008.09.30). Again large snags are limited in the affected 5th Code HUCs.

Direct, Indirect, and Cumulative Effects Analysis

The proposed action is likely to remove some existing snags that were created (wind damaged trees) by the November 11, 2007 storm event. However many of the wind damaged trees do not have commercial value due to fracturing so they would remain on the landscape to provide snag habitat. 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.

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. The proposed action and existing condition are expected to meet regional snag management recommendations (USFS, Jan. 2000, P. 6, VRU Cluster 1).

Determination of Effects

I have determined implementation of the proposed Federal Action would have a ***neutral*** effect on snag habitat. My determination is based on the following rationale: 1) the proposed action would meet the regional snag management recommendations; 2) the proposed action has a project design feature that would maintain existing snag habitat in the projects area; 3) some of the proposed treatments would create additional snag habitat and 4) the project is small in scale where less than 2% of the cumulative effects analysis area would received fuel treatments.

Recommendations for Removing, Avoiding, or Compensating Adverse Effects

Implement the snag project design feature and follow the regional snag management recommendations.

Table 22. 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 23. Snags per acre on the Beartooth Ranger District based on FIA samples, 1997(Sandbak, 2008.02.25).

Snags per Acre by Diameter Class					
Custer Forest District 2	**Snags per Acre**	**90% Confidence Interval - Lower Bound**	**90% Confidence Interval - Upper Bound**	**Total Number PSUs**	**Number Forested PSUs**
5.0-9.9"	37.5	19.4	58.9	95	49
10.0-14.9"	8.9	4.5	14.3	95	49
15.0-19.9"	3.0	1.3	5.0	95	49
20.0-24.9"	0.7	0.2	1.2	95	49
25.0"+	0.1	0.0	0.3	95	49

Total Snags Greater or Equal to Specified Diameter					
Custer Forest District 2	**Snags per Acre**	**90% Confidence Interval - Lower Bound**	**90% Confidence Interval - Upper Bound**	**Total Number PSUs**	**Number Forested PSUs**
5"+	50.1	29.1	74.8	95	49
10"+	12.7	7.2	19.0	95	49
15"+	3.8	1.8	6.0	95	49
20"+	0.8	0.3	1.3	95	49
25"+	0.1	0.0	0.3	95	49

Table 24. Snags per acre in the Rock Creek, West Fork Rosebud and Little Rocky Creek drainages based on FIA samples, 1997(Lundberg, 2008.09.30).

Snags per Acre by Diameter Class – Rock Creek

Custer Forest District 2	Snags per Acre	90% Confidence Interval - Lower Bound	90% Confidence Interval - Upper Bound	Total Number PSUs	Number Forested PSUs
5.0-9.9"	16.6	0.0	44.5	21	11
10.0-14.9"	4.5	0.0	10.4	21	11
15.0-19.9"	1.4	0.0	3.5	21	11
20.0-24.9"	0.7	0.0	2.0	21	11
25.0"+	0.0	0.0	0.0	21	11

Snags per Acre by Diameter Class – West Fork Rosebud Creek					
Custer Forest District 2	Snags per Acre	90% Confidence Interval - Lower Bound	90% Confidence Interval - Upper Bound	Total Number PSUs	Number Forested PSUs
5.0-9.9"	77.1	0.0	189.5	15	6
10.0-14.9"	5.5	0.0	15.0	15	6
15.0-19.9"	0.0	0.0	0.0	15	6
20.0-24.9"	0.0	0.0	0.0	15	6
25.0"+	0.3	0.0	1.2	15	6

Snags per Acre by Diameter Class – Little Rocky Creek					
Custer Forest District 2	Snags per Acre	90% Confidence Interval - Lower Bound	90% Confidence Interval - Upper Bound	Total Number PSUs	Number Forested PSUs
5.0-9.9"	116.4	0.0	270.4	12	4
10.0-14.9"	25.6	0.0	74.0	12	4
15.0-19.9"	2.4	0.0	6.3	12	4
20.0-24.9"	0.7	0.0	2.9	12	4
25.0"+	0.0	0.0	0.0	12	4

Consultation

Verbal concurrence with effects determinations for Gray wolf and Canada lynx was received from Lou Hanebury of the U.S. Fish and Wildlife Service on July 24, 2008. A Biological Assessment for the Beartooth Front Storm Damage Clean-up and Fuels Reduction Project 2008 was submitted to Mark Wilson of the U.S. Fish and Wildlife Service, State Office, Helena MT. on July 24, 2008. A concurrence letter is pending.

References

Banci, V. 1987. Ecology and behavior of wolverine in the Yukon. Vancouver: University of British Columbia; 178 page Thesis.

Bertram, T. and J. Claar. 2008. Horizontal Cover - Interim Guidance for Assessing Multi-storied Stands Within Lynx Habitat. 3 pages.

Bull, Evelyn L. and J.H.Hohmann. 1994. Breeding biology of northern goshawks in northeastern Oregon. Studies in Avian Biology No. 16:103-105, 1994.

Diamond, S. and P. Finnegan. 1996. Harlequin duck ecology on Montana's Rocky Mountain Front. (Unpublished Report). Rocky Mountain District, Lewis and Clark National Forest, Choteau, MT. 42 pages.

Hornocker, M.G. and H.S. Hash. 1981. Ecology of the wolverine in northwestern Montana. Canadian Journal of Zoology 59:1286-1301.

MTNHP 2008. Montana Natural Heritage Database on the internet at http://www.mtnhp.org/animalguide/.

Reel, S., L. Schassberger, and W. Ruediger. 1989. Caring for our natural community: Region 1 – Threatened, Endangered, and Sensitive Species Program. USDA Forest Service, Northern Region. Missoula, MT. 321 pages.

Reich, R. M., S. M. Joy, and R. T. Reynolds. 2004. Predicting the location of northern goshawk nests: modeling the spatial dependency between locations and forest structure. Ecological Modeling 176: 109-133.

Reynolds, R. T., R. T. Graham, M. H. Reiser, R. L. Bassett, P. L. Kennedy, D. A. Boyce, Jr., G. Goodwin, and E. L. Fisher. 1992. Management recommendations for the northern goshawk in the southwestern United States. U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station, Ft. Collins, Colorado. General Technical Report RM-217.

Ruediger, Bill et al. 2000. Canada Lynx Conservation Strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication #R1-00-53, Missoula, MT. 142 pp.

Sauer, J. R., J. E. Hines, and J. Fallon. 2005. The North American Breeding Bird Survey, Results and Analysis 1966 - 2005. Version 6.2.2006. *USGS Patuxent Wildlife Research Center*, Laurel, MD

Schwartz,C.S., M.A. Haroldson and K.W. West. 2005. Yellowstone grizzly bear investigations, Annual report of the interagency grizzly bear study team. U.S. Geological Survey, Bozeman, MT, USA. 90pp.

Squires, J. R., and R. T. Reynolds. 1997. Northern Goshawk. No. 298. In The birds of North America. The Academy of Natural Sciences, Philadelphia, Pennsylvania, and The American Ornithologists' Union, Washington, DC, USA.

USDA Forest Service. 2007. Northern Rockies Lynx Management Direction Record of Decision. March 2007. National Forests of Montana, and parts of Idaho, Wyoming, and Utah. 67 pages.

USFS Department of Agriculture (USDA), Forest Service (FS). 1986. Custer National Forest Plan. Billings. Montana.