

APPENDIX C
Biological Evaluation

Report

**Biological Evaluation for
Intermountain Region 4
Sensitive Species
Cottonwood II Vegetation Management Project
on the Big Piney Ranger District
Bridger-Teton National Forest**

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Introduction

This Biological Evaluation (BE) was prepared to evaluate and disclose the environmental impacts of the proposed action for vegetation management strategies to manage vegetation resources in the North and South Cottonwood Creeks drainages on the Big Piney Ranger District, B-TNF.

The Big Piney Ranger District is proposing to implement vegetation management in the North and South Cottonwood Creeks drainages over the next 3 to 5 years. The need for vegetation management in this area has previously been identified and studied in the *Bridger-Teton Land and Resource Management Plan* implemented in 1990 (Forest Service 1990), in the *Cottonwood Plan Implementation Study* (CPIS) (Forest Service 1993), conducted from 1991 to 1993, and in the *Cottonwood/Maki Environmental Assessment* conducted from 1999 to 2003 (Forest Service 2003). Each effort included extensive public and Forest Service interdisciplinary input, as well as use of the best data available on Forest resources. Management opportunities, practices, standards and guidelines, and mitigation have been developed to help achieve desired resource conditions. These are the basis for this proposal and for further site specific analysis of effects.

The Cottonwood Creek watershed is approximately 25 miles northwest of Big Piney, Wyoming, in the Green River drainage, on the east slope of the Wyoming Range. The analysis area is approximately 48,541 acres within this watershed and includes the tributary creeks of North and South Cottonwood Creek, including Nylander, Ole, Hardin, Irene, Lander, Eagle, and Bare Creeks. Lander Peak and Bare Mountain are within this area, as is Soda Lake. The treatment area within the analysis equals 30,894 acres. The legal description includes portions of: T32N, R115W; T32N, R116W; T33N, R114W; T33N, R115W; T34N, R115W.

Existing and past uses of this area are detailed in the CPIS and other studies. Forest Roads 125 and 050, as well as numerous collector roads, access the area. There are approximately 69 miles of open roads. Many roads have been closed by gating or rehabilitation. The area is used extensively for dispersed camping, hunting, snowmobiling, and other recreational pursuits. There have been approximately 2,064 acres of timber harvest and 600 acres of wildfire disturbance in the last 50 years. These areas are currently in various stages of forest re-growth, with young trees beginning to restore a forested appearance and wildlife hiding cover. Most areas have achieved sufficient regeneration and tree growth to be considered wildlife cover under *B-TNF Land and Resource Management Plan* (Forest Plan) standards. In addition, many acres were partial cut in the first half of the 20th century for railroad ties and currently consist of multi-storied forested stands with subalpine fir understory. Permitted and regulated grazing of sheep and cattle occurs on grazing allotments located throughout the area. Important habitat for elk, deer, moose, Colorado River cutthroat trout, and many other species of wildlife is present and utilized. Approximately 70 percent of the area is forested and 30 percent is sagebrush/grasslands. The main tree species present is lodgepole pine, with significant amounts of Engelmann spruce, aspen, and subalpine fir

and minor amounts of Douglas-fir and whitebark pine also present. Seventy-nine percent of acres suitable for timber harvest in the analysis are more than 100 years old.

In the Forest Plan, the various areas of National Forest lands are categorized into desired future condition management units (DFC's), based on areas of similar topography, land and resources. The desired future land or resource condition would achieve a set of compatible multi-resource goals and objectives. DFC's are delineated by the Forest Plan. Each DFC has its own management direction which is designed to meet current and future resource management objectives. Within the analysis area, there are four designations used. These are briefly described below. DFCs that relate to wildlife, fish, and vegetation occur under the forested vegetation and wildlife resources. These follow.

Forested Vegetation

Desired future conditions 1B and 10 apply to the Cottonwood II Vegetation Management Project. The DFC timber prescriptions for vegetation are summarized below. For a full description of these DFCs, refer to the *Bridger-Teton National Forest Land and Resource Management Plan* (Forest Service 1990).

Desired Future Condition 1B, Vegetation: Timber Prescription. A full range of biologically appropriate silvicultural practices is used to emphasize production and use of sawtimber and other wood by-products. Timber harvest is scheduled.

Aspen Management Guideline—Aspen should be managed for its value as wildlife habitat, emphasizing browse and cover for big-game species, and for providing seasonal colors.

Desired Future Condition 10, Vegetation: Timber Prescription. Silvicultural practices including scheduled timber harvest emphasize achieving desired wildlife habitat conditions while developing long-term, overall big-game hiding cover values. Utilization of firewood and other products is encouraged in ways compatible with maintaining wildlife values.

Aspen Management Guideline—Aspen should be managed for its value as wildlife habitat and for providing seasonal colors while emphasizing its value as habitat for selected management indicator species.

Wildlife Resources

The DFC timber prescriptions and guidelines for fisheries and wildlife are summarized below. For a full description of these DFCs, refer to the *Bridger-Teton National Forest Land and Resource Management Plan* (Forest Service 1990).

Desired Future Condition 1B, Fisheries and Wildlife

Fisheries and Wildlife Prescription—Habitat is provided for existing populations of game and fish, but hunter-success and recreation-day objectives identified by the Wyoming Game and Fish Department may decrease. A use-attainability study may be

needed for a specific stream segment to determine if fishery-beneficial use is being protected to an adequate level.

Big-Game Habitat Guideline—Sufficient habitat should be provided to maintain desired populations and distribution of big game species. For example:

- Elk Calving Areas—About 30 percent of the brush/grassland-rangeland type should be maintained in a brush/forb type, emphasizing the aspen or conifer/brush ecotone.
- Mule Deer Winter Ranges—About 75 percent of the brush/grassland-rangeland type should be maintained in a brush type with about 55 percent a mature age class.
- Moose Winter Ranges—About 75 percent of the brush/grassland-rangeland type such as serviceberry and mountain mahogany-should be maintained in a brush type with about 30 percent in a mature age class. About 95 percent of the willow/grass range should be maintained in a willow type.
- Elk Winter Ranges—About 50 percent of the brush/grassland should be maintained in a brush type with about 30 percent in a mature age class.
- Bighorn Sheep Winter Ranges—About 75 percent of the brush/grassland type should be maintained in grass.

Desired Future Condition 10, Fisheries and Wildlife

Fisheries and Wildlife Prescription. Groups of species are emphasized, such as early- or late-succession-dependent species, in order to increase species richness or diversity. Habitat is managed to achieve the game and fish populations, harvest levels, success, and recreation-day objectives identified by the Wyoming Game and Fish Department and agreed to by the Forest Service.

Proposed Action

The Proposed Action was developed in response to issues from initial public scoping, changes in resource demand since the CPIS, and recently identified resource issues. The Proposed Action is also designed to improve Forest resource conditions as identified in the CPIS. Table 1 shows vegetation treatments by treatment area that would occur under the Proposed Action. Table 2 shows the acreage and percent of each treatment area to be affected by vegetation treatments.

TABLE 1
Vegetation Treatment Areas, Methods, and Extent under the Proposed Action

Treatment Area	Proposed Acres Treated			Treatment Method ^b					
	DFC 1B ^a	DFC 10	Total	CC	TH	SW	S	GS	Aspen
South Cottonwood	581	22	603	276	123	85	109	10	0
Halverson (Lower North Cottonwood)	177	0	177	41	0	40	30	40	26
McDougal Gap	64	40	104	64	30	10	0	0	0
Sjhoberg	97	0	97	20	34	10	0	0	33
Nylander	60	0	60	0	60	0	0	0	0
Sub Totals (Harvest)	979	62	1041	402	247	145	139	50	58
Aspen Burn									1,058
Total	979	62	1041	402	247	145	139	50	1,116

^a Desired Future Condition 1B – Substantial commodity resource development with moderate accommodation of other resources; Desired Future Condition 10 – Simultaneous development of resources, opportunities for human experiences, and support for big game and a wide variety of wildlife species

^b CC- Clearcut; TH – Thinning; SW – Shelterwood; S – Salvage; GS – Group Selection; Aspen – Aspen Treatment

Proposed Action activities are anticipated to take place over a 5- to 10-year period and include the following:

- 1,116 acres of aspen treatments including 58 acres of conifer removal
- 581 acres of partial-cut treatments
- 402 acres of regeneration harvest
- 1 mile of road relocation and trailhead improvement in the Nylander Creek drainage
- 1 mile of road reconstruction in the South Cottonwood Creek drainage
- Culvert replacement and stream-crossing improvement work on timber haul roads

These activities are described in greater detail in the following text.

Aspen Treatments

Approximately 1,116 acres of aspen stands would be treated to regenerate healthy aspen and remove conifers that are growing into the stands and replacing the aspen component. The primary treatment would be prescribed fire, facilitated by some mechanical treatment to increase ground fuels that are needed to provide a fuel bed for better burning. Aspen regeneration through commercial harvest (removal) of encroaching conifers would occur on approximately 58 (5 percent) of these acres. Treatment areas where conifer removal would occur include Halverson and Sjhoberg. Slash would be treated with prescribed burning or piling and burning. Some of the areas of aspen identified above could be treated using Knutson-Vanderberg (KV) funds adjacent to areas of harvesting. Elk use these areas for spring calving because of the mixture of sagebrush and aspen, along with

the edge effect they offer. These areas also provide forage for elk during their transition from winter feeding grounds. The proposed treatment is intended to promote aspen regeneration from root suckering that would provide increased cover and feed for elk calves, mule deer fawns, and other wildlife that utilize aspen habitat.

TABLE 2
Proposed Action Treatment Areas and Treatment Percentage in the Cottonwood II Analysis Area

Treatment Area	Total Acres	Treatment Type		Percent of Treatment Area Treated
		Harvest	Burn	
South Cottonwood	15,811	603	414	6.4
Halverson (Lower North Cottonwood)	4,556	177	55	5.1
McDougal Gap	4,548	104	0	2.3
Sjhoberg	2,379	97	291	16.3
Nylander	3,600	60	298	10.0
Total	30,894	1,041	1,058	6.8 percent of all treatment areas

Partial-Cut Treatments

Partial-cut treatments are proposed on approximately 581 forested acres to thin overstocked conifer forests while maintaining a forested appearance. The objective is to leave the healthiest trees of diverse species while reducing losses caused by insects and disease and allowing for the salvage of wood products. These proposed treatments would take place in stands where tree growth is greatly reduced or where mortality of trees exceeds growth. The remaining trees would have improved utilization of resources available to support tree growth on the site, while still providing habitat for forest-dependent wildlife species. Approximately 3 to 10 thousand board-feet (MBF) would be removed per acre, dependent on the site and numbers of healthy trees required to be left to provide a forested appearance and habitat. Slash from harvesting would be treated by piling slash concentrations (35 percent of the area), lopping and scattering along with whole tree harvesting (50 percent of the area), or hand piling (15 percent of the area).

Silvicultural methods used to achieve the partial-cut treatment include group selection, sanitation salvage, thinning, and shelterwood. Group selection would occur in the South Cottonwood and Halverson treatment areas on 50 acres. Group selection would occur in uneven-aged stands with a diverse canopy cover. Trees would be removed in groups up to 2 acres in size, with all other trees on the site retained. At least 60 percent of trees in the entire stands would be retained. A few trees and snags would be retained in the larger groups and Engelmann spruce regeneration would be encouraged where trees are removed.

Shelterwood harvest would occur on 145 acres in all treatment areas except Nylander. This silvicultural option is best utilized where mature, healthy overstory trees are present in sufficient density to help regenerate the site following harvest. Approximately 40 to 50 percent of the healthiest overstory trees would remain following treatment, with Engelmann spruce and Douglas-fir favored as leave trees. Snags would be left standing to provide additional habitat and stand diversity. The density of leave trees would be sufficient to maintain a forested appearance, provide wildlife habitat, protect the watershed, and provide seed sources for stand regeneration. Most understory, damaged, and diseased trees would be removed in the harvest.

A total of 139 acres in the South Cottonwood and Halverson treatment areas would be treated using a sanitation salvage silvicultural method. This harvest technique would focus on stands with mature and over-mature trees, where there is significant tree mortality or damage. Standing dead with sound wood, severely damaged, and insect infested trees would be removed, with approximately 50 to 80 percent of the healthiest overstory trees retained. Snags and healthy understory trees would be retained to maintain a forested appearance and structure.

Commercial thinning would occur on 247 acres in all treatment areas except Halverson. Suitable stands for this silvicultural technique are those where healthy, but less than mature, trees exist in dense stands. Trees left standing would be scattered throughout the treatment area, at approximately 20- to 25-foot spacing, with a target residual basal area of 40 to 60 percent of the original stand basal area. This residual density would allow for some variance in selecting healthy leave trees to provide a diverse site. Lodgepole pine would be targeted for removal and some clumps of un-thinned trees and snags would be left. Conifer cutting would be heavier in scattered aspen patches to favor aspen regeneration. Most Douglas-fir and Engelmann spruce, which comprise approximately five percent of the stands, would be left. Understory trees would be removed to reduce fuel density, yet still retain stand structure, a forested appearance, and healthy trees. Slash tops would be yarded to a landing area and concentrations of slash would be piled by hand or small equipment and then burned.

Regeneration Harvest

Harvesting trees using regeneration harvests is proposed on approximately 402 acres to provide for regeneration of declining lodgepole pine and mixed conifer forests and to enhance age class diversity across the landscape. This treatment entails removing most merchantable trees through a commercial timber sale on the 402 acres. Regeneration of healthy new stands would be accomplished by planting with lodgepole pine or Englemann spruce or providing for natural regeneration, depending on site conditions. KV funds would be used for tree planting, surveys, and site preparation activities to achieve natural regeneration. Individuals and groups of healthy seed trees, snags, and groups of healthy non-merchantable trees would be left for seed, habitat, and diversity, where they are available. Openings created through harvest would range in size from 5 to 20 acres. Age class diversity in the drainage created through harvesting is important to reduce losses caused by insects and disease and would be designed to reflect historically occurring conditions.

Additional uses of KV funds would be to treat noxious weeds, survey partially cut areas, reduce dwarf mistletoe adjacent to harvest areas, and treat other insect and disease conditions adjacent to harvest areas.

Approximately 13.8 miles of temporary roads and skid trails would be constructed, over a several year period, to carry out silvicultural activities. Roads would only be constructed as needed to access a treatment unit and then closed immediately after treatment. The amount of temporary roads open in any given year is not expected to exceed the Forest Plan road density standards. However, if the situation occurs where the length of open temporary roads does exceed the Forest Plan standard while they are open, the roads would be gated and locked. This would meet the intent of the Forest Plan standard to protect wildlife habitat from disturbance. The temporary roads would be closed, obliterated, and the habitat restored immediately after they are no longer required. No new permanent roads would be constructed, except for the Nylander re-location as described below, to complete the treatments as part of the Proposed Action.

Road Relocation and Trailhead Improvement: Nylander Creek Treatment Area

The Proposed Action includes timber haul road relocation and end-of-road trailhead improvements. Approximately 1 mile of the existing Nylander Road, which is to be used as a timber haul road for tree thinning units, would be re-located out of the riparian area to the dry ridge area to the east. The relocation would reduce road-related sediment delivery into Nylander Creek. The existing road, which is easily rutted, difficult to maintain, and contributes sediment directly to Nylander Creek, would be reclaimed. The re-located road would end at an existing dispersed camping area, which would be managed to include trailhead facilities. A low-standard road beyond this point, which crosses boggy, wet soils, would be closed.

Road Reconstruction: South Cottonwood Treatment Area

Reconstructing the South Cottonwood Road from Hidden Basin to just short of the South Cottonwood Creek crossing (approximately 1 mile) would provide safe access for log trucks, livestock haulers, and recreation traffic. Currently the road is narrow, with no turnouts.

Culvert Replacement and Stream-Crossing Improvement

Culverts would be replaced and stream crossings improved to compensate for potential adverse effects to the Colorado River cutthroat trout from implementation of the Proposed Action (timber harvest). The increased amount of habitat created by improving fish passage or preventing upstream migration of undesirable fish will result in an overall positive effect. Culvert replacement is also needed because of road design, access, and increased flows expected from the Proposed Action.

The 1998-99 road and stream-crossing inventory and a July 2, 2004, field review were used to identify potential culvert replacements and stream-crossing improvements along the timber haul routes. All culverts along haul routes to be used for this project were evaluated for replacement or improvements during timber sale design. Culverts would be designed to either act as fish barriers where genetically pure populations of Colorado

River cutthroat trout (CRCT) occur upstream, or to allow passage of fish, as identified in the inventory and survey. Twelve culverts and two bridges have been identified as needing improvements.

Sensitive Species

Sensitive species are those species for which population viability is a concern as evidenced by a significant existing or predicted downward trend in population number or density, or a similar downward trend in habitat capability that would reduce a species existing distribution. Sensitive species are managed under authority of the National Forest Management Act and are administratively designated by authority of the Regional Forester. U.S. Department of Agriculture regulations and Forest Service Manual direction provide for habitat protection in an attempt to prevent species population or habitat declines to the point of need for listing as threatened or endangered.

A sensitive species is defined as those plants and animal species identified by the Regional Forester for which population viability is a concern as evidenced by:

- 1) significant current or predicted downward trends in population numbers or density or
- 2) significant current or predicted downward trends in habitat capability that would reduce a species existing distribution (FSM 2670.5).

The Forest Service objective for sensitive species management is to “develop and implement management practices to ensure that species do not become threatened or endangered because of Forest Service actions” (FSM 2670.22). There are numerous sensitive species that do or could occur within the Cottonwood II Vegetation Management Project analysis area.

Sensitive Plant Species

Forest Service sensitive plant species with populations that are known to occur on the Big Piney Ranger District are listed in Table 3 along with suitable habitat. Those species that are likely to occur within the project analysis area are specifically noted and given further analysis. The Bridger-Teton National Forest is located within Forest Service Region 4 (FSR4), but it is adjacent to Forest Service Region 2 (FSR2). Some of the sensitive species listed for FSR2 also occur on the Bridger-Teton National Forest. Only those FSR2 sensitive species that are also listed as sensitive for FSR4 are considered in this EIS Biological Evaluation (BE).

TABLE 3

Plants that are Known or Believed to Occur on the Big Piney Ranger District with Notation for Species that are Known or Expected to Occur within the Project Analysis Area

Common Name	Scientific Name	Federal Status*	Occurs or Likely Occurs in Project Analysis Area	Habitat
Pink agoseris	<i>Agoseris lackschewitzii</i>	USFS R4 Sensitive	No	Wet montane and subalpine wet meadows with saturated soils (9,600-10,600 feet).
Sweet-flowered rock jasmine	<i>Androsace chamaejasme</i> ssp. <i>carinata</i> /A. <i>lehmanniana</i>	USFS R4 Sensitive	No	Montane rock crevices and rocky soils derived from limestone or dolomite. May occur in clearings or beneath shrub cover in leaf litter (8,500-10,800 feet).
Soft aster	<i>Aster mollis</i> / <i>Symphotrichum molle</i>	USFS R2 & R4 Sensitive	Possible	Sagebrush grasslands and mountain meadows on deep, calcareous soils at the edge of aspen or pine woodlands (6,400-8,500 feet).
Payson's milkvetch	<i>Astragalus paysonii</i>	USFS R4 Sensitive	Yes	Disturbed areas and recovering burns, clear cuts, and road cuts on sandy soils with low cover of herbs and grasses (6,700-9,600). Early succession.
Wyoming tansymustard	<i>Descurainia torulosa</i>	USFS R2 & R4 Sensitive	No	Sparsely vegetated sandy slopes at base of cliffs of volcanic breccia or sandstone (8,300-10,000 feet).
Boreal draba	<i>Draba borealis</i>	BTNF Sensitive	No	Moist, north-facing limestone slopes and cliffs and shady streambanks (6,200-8,600 feet).
Narrowleaf goldenweed	<i>Ericameria discoidea</i> var. <i>linearis</i> (<i>Haplopappus macronema</i> var. <i>linearis</i> / <i>H. m.</i> var. <i>canescens</i>)	USFS R4 Sensitive	No	Semi-barren, whitish clay flats and slopes, gravel bars, and sandy lakeshores (7,700-10,300 feet).
Payson's bladderpod	<i>Lesquerella paysonii</i>	USFS R4 Sensitive	Yes	Rocky, sparsely-vegetated slopes, often with calcareous soils (6,000-10,300 feet).
Creeping twinpod	<i>Physaria integrifolia</i> var. <i>monticola</i>	USFS R4 Sensitive	Yes	Barren, rocky, calcareous hills and slopes (6,500-8,600 feet).
Greenland primrose	<i>Primula egaliksensis</i>	USFS R2 & BTNF Sensitive	No	Wet meadows along streams and calcareous montane bogs (6,600-8,000 feet).
Weber's saw-wort	<i>Saussurea weberi</i>	USFS R4 Sensitive	No	Alpine talus and gravel fields, often on limestone (10,200-11,200 feet).

USFS R4 = United States Forest Service Region 4; USFS R2 = Region 2. BTNF = Bridger-Teton National Forest.

Payson's Milkvetch

Payson's milkvetch belongs to the Fabaceae or Pea Family. There are 36 known occurrences of this perennial milkvetch in Wyoming, with 30 observed as late as 1992. Payson's milkvetch is an early succession perennial plant that primarily occurs on disturbed sites such as burned areas, road cuts, blow downs, and clear cuts. It prefers sandy soils with low cover of forbs and grasses at mid-elevation. (Fertig and Marriot 1993). Payson's milkvetch is a regional endemic to east-central Idaho and western Wyoming. Known occurrences in Wyoming are restricted to the Bridger-Teton National Forest (B-TNF) on the Big Piney, Kemmerer, Grey's River, and Jackson Ranger Districts. Most populations are small and are unlikely to persist for long periods of time without some form of disturbance. Declines in populations of this species are likely a result of fire suppression in western National Forests (Fertig 2000a).

No occurrences are currently found within designated special management areas, although one population occurs within the proposed Fall Creek Special Botanical Area on the B-TNF. All other occurrences are on National Forest lands that receive no special management (Fertig 2000a).

Payson's milkvetch is threatened primarily by succession, which makes habitats unsuitable for long-term persistence. The loss of populations originally surveyed in the 1950s are a result of forest succession (Lorain 2000). This species requires periodic disturbances to create new habitat and to keep competing late-seral species or weeds under control. Most populations are very small and probably are unable to persist over long periods of time without some form of disturbance. With long-term fire suppression on federal lands, this species currently is found to be doing best in human-disturbed sites, such as road cuts and recovering clearcuts (Fertig 2000a). Although Payson's milkvetch is a seral species that tolerates and seems to require a certain amount of disturbance, plants apparently need a minimum of 15 years following disturbance to enter and become established in a disturbed area. Old skid trails, grown-over logging roads, and clearcuts that were broadcast burned are where the majority of new sightings have been found (Lorain 2000). This species occurs within the analysis area along Deadline Ridge.

Payson's Bladderpod

Payson's bladderpod belongs to the Brassicaceae or Mustard Family. This bladderpod is endemic to eastern Idaho, western Montana, and western Wyoming where it is found at high elevations from 6000 to 10300 feet. In Wyoming, Payson's bladderpod is found in Lincoln, Sublette, and Teton Counties (Fertig *et al.* 1994). Most of the 33 known populations in Wyoming are large and at high elevations where there are few threats to their survival (Moseley 1996).

Payson's milkvetch mostly occurs on ridgelines and less so on slopes in openings in sagebrush and forest stands. This species grows on gravelly, skeletal soils with carbonate sedimentary parent material or bedrock. It is found in open plant communities with low cover of forbs, grasses, and few shrubs. Most populations occur above 8000 feet (Moseley 1996).

Most of the ground cover on sites with Payson's bladderpod is exposed rock and soil, which may indicate that this species lacks the competitive ability to survive in closed communities and requires natural surface disturbance to reduce competition and maintain open soil. At such high elevations, disturbance usually comes from a combination of wind and water erosion, frost heaving, and/or pocket gopher excavations (Moseley 1996). Threats to the continued survival of this plant are currently believed to be minimal. Although no populations of this species are currently known from the analysis area, it does occur on the Big Piney Ranger district (RD) and suitable habitat exists within the analysis area.

Creeping Twinpod

This species is another member of the Brassicaceae Family. It is endemic to the west-central mountains of western Wyoming and to adjacent eastern Idaho, where it is found on barren, rocky, calcareous hills and slopes at elevations between 6500 and 8600 feet (Fertig *et al.* 1994). Creeping twinpod has similar habitat requirements as its relative Payson's bladderpod, and they frequently occur together (Moseley 1996). Creeping twinpod is usually found growing in association with big sagebrush (*Artemisia tridentata*) and low beardtongue (*Penstemon humilis*). Populations of this species grow very near the analysis area on the Big Piney RD. Unknown occurrences are likely to grow within the analysis area in suitable big sagebrush sites.

Sensitive Wildlife and Fish Species

Wildlife and fish species have been designated as Sensitive by the Intermountain Region of the Forest Service (Region 4) and could possibly occur in the Big Piney RD. Region 4 sensitive wildlife and fish species, their general habitat preferences, and their known or expected occurrence within the analysis area are listed in Table 4. Species that are not known or expected to occur in the analysis area and for which suitable habitat is not present are not discussed further in this BE.

TABLE 4
Forest Service, Region 4 Sensitive Wildlife and Fish Species, Suitable Habitat, and Known or Expected Presence in the Analysis Areas

Common Name Scientific Name	General Habitat Requirements	Known or Expected Presence in the Analysis Area
Spotted Frog <i>Rana pretiosa</i>	Fish-free, spring fed creeks and ponds.	Habitat is present in the analysis area.
Peregrine falcon <i>Falco peregrinus</i>	Far ranging flier, lives, roosts in /on cliffs.	Habitat is not present in the analysis area.
Common Loon <i>Gavia immer</i>	Breeds in lakes greater than 9 acres.	Habitat is not present in the analysis area.
Trumpeter Swan <i>Cygnus buccinator</i>	Breeds in remote marshes, lakes, and ponds 5-10 acres or larger.	Habitat is not present in the analysis area.
Harelequin Duck <i>Histrionicus histrionicus</i>	Undisturbed, low gradient, meandering mountain streams.	Habitat is not present in the analysis area.

TABLE 4

Forest Service, Region 4 Sensitive Wildlife and Fish Species, Suitable Habitat, and Known or Expected Presence in the Analysis Areas

Common Name Scientific Name	General Habitat Requirements	Known or Expected Presence in the Analysis Area
Boreal Owl <i>Aegolius funereus</i>	High elevation spruce-fir forests.	Habitat is present in the analysis area.
Flammulated Owl <i>Otus flammeolus</i>	Breeds in mature open canopied aspen and Douglas-fir or mixed coniferous/deciduous forests.	Habitat is present in the analysis area.
Great Gray Owl <i>Strix nebulosa</i>	Mature coniferous and mixed coniferous forests interspersed with small clearings.	Foraging habitat is present in the analysis area.
Northern Goshawk <i>Accipiter gentilis</i>	Mature coniferous and mixed coniferous and aspen forests interspersed with small clearings.	Foraging and probably nesting habitat is present in the analysis area. No observations during two-year survey.
Three-Toed Woodpecker <i>Picoides tridactylus</i>	Mature conifer and mixed conifer forests; capitalizes on dead standing timber left by stand replacing fires.	Habitat is present in the analysis area.
Spotted Bat <i>Euderma maculatum</i>	Caves, roosts in rock crevices on steep cliff faces.	Habitat is not present in the analysis area
Western Big-Eared Bat <i>Plecotus townsendii</i>	Hibernates in caves, rock outcrops, and mine shafts; roosts in hollow trees and snags.	Potential roosting habitat is present in the analysis area; no known hibernacula present; no observations.
Wolverine <i>Gulo gulo</i>	Generalist, utilizes a variety of habitats spanning all elevations; needs large roadless areas (36-250 mi ²).	Habitat is present in the analysis area. Species is not known to be present in the area.
Fisher <i>Martes pennanti</i>	Mature and old growth forest, closed canopy coniferous forests at mid- to lower elevations; may be limited by snow depth.	Habitat is present in the analysis area. Species is not present and no historical accounts for the area.
Colorado River Cutthroat Trout <i>Oncorhynchus clarki pleuriticus</i>	Lakes and streams; cool, clear, well oxygenated streams; gravel for spawning; spawning habitat is present in analysis area	Species and habitat are known in the analysis area although less widely dispersed due to habitat modification, competition, and hybridization.
Snake River Fine Spotted Cutthroat Trout <i>Oncorhynchus clarki behnkei</i>	Lakes and streams; cool, clear, well oxygenated streams; gravel for spawning; spawning habitat is not present in the analysis area	Native on the B-TNF but not native to the analysis area basin (Behnke 2002). Its presence in the Green River basin is a result of stocking.

The following is documentation of effects and conclusions for determining effects. None of the following species have been documented within or are expected within the analysis area and will not be discussed further:

- Common loons and trumpeter swans require lake habitat, which is not present in the treatment areas. The closest trumpeter swans have been confirmed breeding on lakes in the Upper Green area and Gros Ventre area.

- Harlequin ducks require low gradient streams with woody debris and dense, shrubby riparian areas. Existing streams would provide marginal harlequin duck habitat. The closest breeding harlequins are found in Pine Creek, which empties into Fremont Lake in the Pinedale Ranger District.
- Townsend's big-eared and spotted bats will forage in a variety of habitats, but require cliffs, caves, abandon buildings, or mine shafts for roosting. This type of roosting habitat is not found in the analysis area. They may also roost under loose bark of trees. In Wyoming, the known distribution of Townsend's big-eared bat averages 7000 feet elevation and known distribution of spotted bats averages less than 4000 feet elevation. The analysis area elevation ranges from 7975 to 12,000 feet. Additionally, in Wyoming, spotted bats are only known to use juniper shrublands and sage-brush grasslands, whereas Townsend's big-eared bats use a variety of habitat types including dry coniferous forests.
- Peregrine falcon will forage in a variety of habitats, but require large cliffs for nesting. Peregrines most commonly nest on large cliffs under 9500 feet in elevation, and closely associated with open water, wetlands, and riparian habitat. No cliffs are found in or near the analysis area.
- Snake River fine spotted cutthroat trout (SRCT) are a sensitive species on the B-TNF and are native to the Snake River system, upstream of Shoshone Falls (Behnke 2002). SRCT are not native to the Green River basin or the analysis area. There is a long history of propagation and widespread stocking of the SRCT, and their presence in the analysis area is a result of stocking. The SRCT compete within and may hybridize with the native CRCT (native to the analysis area).

Suitable habitat is known or likely to exist within the analysis area for spotted frog, boreal owl, flammulated owl, great gray owl, northern goshawk, three-toed woodpecker, western big-eared bat, wolverine, fisher, and Colorado River cutthroat trout. However, the proposed project treatments are limited to specific types of habitats. Other types of habitat would not be impacted by any of the proposed treatments. Only those species with the potential to be directly or indirectly impacted by project treatments will be discussed further.

Spotted Frog

Potential habitat exists within the analysis area for spotted frogs and spotted frogs have been documented at several locations. Spotted frog habitat primarily includes oxbow ponds (without fish) with emergent sedges (*Carex* sp.) located in wet meadows at the edge of lodgepole pine forest. Spotted frogs can move considerable distances from water after breeding, often frequenting mixed conifer and subalpine forests, grasslands, and shrub lands of sagebrush and rabbitbrush.

Riparian areas provide critical breeding, foraging, and over-wintering habitats for amphibians such as spotted frogs. These areas also provide migratory or dispersal corridors. Timber harvest or fire can impact habitat through direct destruction and/or fragmentation.

If watersheds and the riparian/wetland areas within watersheds are in properly functioning condition, spotted frog habitat should be protected. Therefore, those

watersheds currently not functioning, or functioning at risk, are probably not providing suitable habitat for spotted frogs should they occur. Wetlands, ephemeral ponds, and intermittent streams and a minimum 300-foot-wide buffer should be protected from management impacts. Larger buffers may be necessary depending on adjacent habitat and magnitude of threats (Patla 2000).

In addition to spotted frogs, boreal toads and leopard frogs may be present in the analysis area. Both species are “species of special concern” in Wyoming. Protection of wetlands, ephemeral ponds, intermittent streams, and a minimum 300 foot buffer from management impacts should also protect boreal toads (Found on B-TNF and on adjacent BLM land) and leopard frogs and their habitat.

A section of Nylander Creek would be moved out of the riparian zone as part of the project. Sediment produced during this removal may impact spotted frogs if they inhabit downstream areas. This impact would be of relatively short duration. New suitable habitat might be created as the stream is rehabilitated following road removal. Temporary roads, timber harvest, and prescribed burns would all result in short-term increases in water temperature and sediment. Spotted frogs are present in drainages downstream of treatment sites. Both of these factors could lead to degraded spotted frog habitat and reduced productivity for a period of 1 to 5 years following treatment.

However, road relocation, road construction, and treatments would result in short-term higher water temperatures and sediment loads that **“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.”**

Boreal Owl

This species has been documented in the analysis area (Wyoming Natural Diversity Database 2004). All breeding sites were between 6900 and 8500 feet elevation (Clark 1994). According to the Wyoming Game and Fish Department Wildlife Observation System database (WGFD WOS), boreal owls were also located at the southern end of the Big Piney RD near La Barge Guard Station (Kemmerer Ranger District). The boreal owl prefers high elevation spruce-fir forests or aspen for foraging and nesting. Nesting habitat structure consists of forests with a relatively high density of large trees, open understory, and multi-layered canopy. The boreal owl is a secondary cavity nester that is generally associated with mature and old spruce-fir forests. As a secondary cavity nester, boreal owls rely on woodpeckers (mainly northern flickers in this area) to excavate snags and decaying trees, which they subsequently use for nesting and roosting. Owls were detected in multi-layered stands with high structural complexity, usually close to small wet meadows with complex perimeters (Clark 1994). Boreal owls primarily prey on small mammals, particular red-backed voles. These species inhabit montane stands of coniferous, deciduous, and mixed trees. No survey work has been done for boreal or great gray owls within the analysis area, but suitable habitat exists.

Boreal owl habitat in aspen forests would be directly affected by the proposed treatments, resulting in habitat loss. The relatively small size of the treatment areas relative to other available habitat should limit potential impacts to a few individual owls rather than at the population level. No other indirect impacts are expected. As a secondary cavity nester,

boreal owls may benefit if additional large diameter snags are created by the prescribed burns.

Boreal owl habitat may be both adversely and beneficially affected by the treatments that **“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.”**

Flammulated Owl

This owl prefers ponderosa pine habitat, but will also utilize Douglas-fir, aspen, and/or limber pine. Douglas-fir, aspen, and limber pine are present within the analysis area. Flammulated owls are secondary cavity nesters that primarily feed on nocturnal lepidopteron moths, which they glean from the foliage. Two key habitat features that are likely to limit flammulated owl populations are availability of nest cavities and prey availability/foraging habitat. Preferred species are beetles, grasshoppers, and moths (McCallum 1994a). Nesting territory occupancy has been highly correlated with high percentages of old growth ponderosa pine and Douglas-fir (Linkhart and Reynolds 1997). In other areas, nesting territories were highly correlated with aspen stands (Marti 1997).

Threats to this species are mostly from habitat modifications such as timber or fuelwood removal and fire suppression ((McCallum 1994b). Snag and other dead timber removal as sawtimber and fuelwood will reduce available habitat.

Flammulated owls have not been documented on the Big Piney RD, but no survey work has been done. Although no surveys have been done, they are suspected to occur within the analysis area. Forest Plan snag management guidelines should be followed to minimize potential impacts to this species. Douglas-fir and aspen stands in the analysis area are proposed for treatment.

Flammulated owl habitat in aspen forests would be directly affected by the proposed treatments, resulting in habitat loss. The relatively small size of the treatment areas relative to other available habitat should limit potential impacts to a few individual owls rather than at the population level. Indirect effects would be similar to those described for boreal owls. The creation of smaller openings and thinned conifer stands may benefit foraging flammulated owls.

Flammulated owl habitat may be both adversely and beneficially affected by the treatments that **“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.”**

Great Gray Owl

This species has been documented in the analysis area (Wyoming Natural Diversity Database 2004). In the adjacent Greys River drainage, great gray owls were mainly found between 6500 and 7800 feet elevation in lodgepole pine stands close to wet meadow complexes (Clark 1994). The great gray owl uses mixed coniferous forests usually bordering small openings or meadows. Semi-open areas, where small rodents are abundant, near dense coniferous forests for roosting and nesting, is optimum habitat for the great gray owls. Broken top snags, stumps, dwarf-mistletoe platforms, or old hawk

and raven nests are used for nesting. Great gray owls are likely present in the analysis area.

While there are no documented sightings of great gray owls in the Big Piney RD, suitable habitat is apparently present throughout the analysis area. The Maki EA (Forest Service 2004) notes that any removal of timber reduces potential nesting sites and foraging habitat for this species. While substantial areas of similar suitable habitat likely exist in the analysis area, some habitat loss would occur. Therefore, while it is likely that this habitat loss would affect individual birds or pairs, no adverse effects at the population level would be expected. Any owls that happen to be present in or near treatment areas would be disturbed by human activity and displaced from the immediate area around treated sites.

Great gray owl habitat may be adversely affected by the treatments that **“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.”**

Northern Goshawk

In the 1980s this species was documented in the analysis area but recent surveys have not found it (Wyoming Natural Diversity Database 2004). Goshawks tend to select stands with relatively large-diameter trees and high canopy closure for nesting (Siders and Kennedy, Daw et al. 1998). In south-central Wyoming and northeastern Utah, nest tree species were mainly lodgepole pine and aspen, but Douglas fir, Engelmann spruce, and subalpine fir are also used (Squires and Ruggiero 1996, USFS unpublished data). Goshawks selected moderate slopes (1 to 34 percent) for nesting, but showed no preference for aspect (Squires and Ruggiero 1996). Nest sites are often close to a perennial water source.

Goshawks exhibit high nest site fidelity and may maintain several alternative nest sites within a territory. They typically return to their breeding territories in late-March or April and lay eggs in May. The chicks hatch by mid-June, fledge by late-July, and are generally independent by early September. Goshawks prey upon a variety of small and medium sized mammals (for example, red squirrels, snowshoe hares) and birds (woodpeckers, grouse, jays, etc.), which they hunt from perches. Stands with pole size diameter trees and larger tend to be suitable for hunting (Hayward et al. 1990). All habitat needs for goshawk are present within the analysis area. Minimal survey work has occurred for northern goshawks.

Suitable, but apparently unoccupied, goshawk nest sites within aspen and conifer stands would likely be lost as a result of the proposed treatments. The Maki EA (Forest Service 2004) notes that any removal of timber reduces potential nesting sites and foraging habitat for this species. While substantial areas of similar suitable habitat likely exist in the analysis area, some habitat loss would occur. Therefore, while it is likely that this habitat loss would affect individual birds or pairs, no adverse effects at the population level would be expected. Any goshawks that happen to be present in or near treatment areas would be disturbed by human activity and displaced from the immediate area around treated sites.

Northern goshawk may be adversely affected by the treatments that **“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.”**

Three-Toed Woodpecker

This species has been documented in the analysis area (Wyoming Natural Diversity Database 2004). These woodpeckers require snags in coniferous forests for nesting, feeding, perching, and roosting. In Wyoming forests, the three-toed woodpecker is found in only large, unbroken stands of mature spruce-fir and lodgepole pine. Snags with DBH of 12 to 16 inches and heights of 19.6 to 39.4 feet are preferred (USFS 1991). This woodpecker forages on insects (primarily bark beetles), mainly in dead trees, but will also feed in live trees. The three-toed woodpecker is primarily associated with recent coniferous forest burns and bark beetle infestations in lodgepole pine and spruce-fir habitats (Hoffman 1997, Hutto and Young 1999). They excavate a new cavity annually for nesting. In the Greater Yellowstone Ecosystem, Hoffman (1997) found that three-toed woodpeckers preferred to nest in moist, coniferous forests in relatively gentle terrain. Minimal survey work has occurred for three-toed woodpeckers, but they are known to be present within the analysis area.

Habitat for this species is apparently widespread within the analysis area, including many of the treatment sites. The treatments would remove a relatively small proportion of this habitat from the analysis area. Any woodpeckers that happen to be present in or near treatment areas would be disturbed by human activity and displaced from the immediate area around treated sites.

Three-toed woodpecker habitat may be adversely affected by the treatments that **“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.”**

Wolverine and Fisher

The wolverine is the largest terrestrial member of the weasel family. Its range extends from the Arctic islands southward to the central Rocky Mountains, but its present status in the southern part of its range is uncertain (it may be extinct in Colorado). Wolverines are mammals of heavy forest but they may range past treeline into alpine tundra or inhabit subalpine rock piles. They are solitary animals, using 56 to 73 square miles of territory (females-males). Lack of human disturbance is an important component for wolverine habitat.

Wolverines inhabit high mountain forests of dense conifers, primarily in true fir (*Abies*) cover types as well as subarctic-alpine tundra. They are widespread and move extensively in search of food but occur in low densities. They are difficult to observe so frequency of sightings may not reflect population size. Maintenance of wolverine populations is dependent on large areas free from land-use activities that permanently alter their habitat (Ruggiero et al. 1994). They seasonally move between higher and lower elevations in search of food. In the winter, a large part of their diet includes big game carrion (Banci 1994), but they also feed on a variety of small mammals and birds (Hash 1987). In central Idaho, Copeland and Hudak (1995) reported that wolverines preferred mature montane

forest in association with subalpine rock and scree habitats. Home range sizes of wolverines in central Idaho ranged from 80 to 700 square kilometers.

Fishers primarily prey upon small mammals such as red-backed voles, red squirrels, and snowshoe hares, but larger species such as beaver are also taken occasionally. Fishers are boreal weasels closely associated with conifer forests, especially those dominated by spruce-fir and containing complex physical structure near the ground. Due to their denning and foraging needs, they prefer old growth or late successional forests but may also inhabit talus fields above treeline. They tend to avoid open spaces, as a result of predation pressures, and are rarely found below the lower elevational limit of trees (Powell and Zielenski 1994).

There are no documented sightings of fishers on the B-TNF, either historic or recent. In addition, the analysis area does not contain any observations of fishers. However, no formal surveys have been conducted. Potential habitat exists. Threats to these species are mostly from habitat modification such as timber removal and road building. Both fishers and wolverines require secure areas relatively free of human activity.

No known occurrence of wolverine or fisher has been documented in the analysis area. The proposed action will have **“no impact”** on habitat, individuals, or populations of these species.

Colorado River Cutthroat Trout

CRCT were historically distributed throughout the headwaters of the Green and Colorado Rivers as far south as the San Juan River; they perhaps occupied portions of the lower reaches of large rivers in winter (Trotter 1987). CRCT are currently limited to a few small headwater streams of the Green and upper Colorado Rivers in Colorado, Utah, and Wyoming. CRCT are present within the analysis area. CRCT population decline is related to hybridization with introduced rainbow trout; displacement by introduced brook trout; competition with other established populations of non-native salmonids; and habitat alteration/fragmentation from overgrazing by livestock, logging, roads, and water diversion for irrigation (CRCT Task Force 2001).

CRCT seem to have adapted better to small streams, lakes, and ponds rather than large rivers. They tend to be most abundant in higher elevation streams with cobble-boulder substrates. They prefer cold, clean waters and can be found in higher gradient (> 4 percent) streams. A good balance of pools to riffles is important to CRCT persistence and the species appears to be well adapted to conditions created by active beaver colonies (Trotter 1987). Behnke (2002) supports the previous description by stating that habitat for CRCT generally includes cool, clear streams (often headwaters), well-vegetated streambanks for cover and bank stability, and instream cover in the form of deep pools, boulders, and logs.

The land management impacts within the Cottonwood II analysis area have likely led to the currently suppressed population conditions seen in the local populations of CRCT. The Proposed Action is expected to result in short-term disturbances to the aquatic system and thus CRCT and their habitat. These short-term disturbances would most likely result in inputs of sediment into the streams. The degree of disturbance from the

input of sediments would be greatly minimized by the project design features that include mitigation measures for sediment. However, the long-term benefits of the Proposed Action should lead to a reduction in chronic sediment inputs. The Proposed Action would improve CRCT access to other potentially important habitats within the Cottonwood Creeks drainages that are currently unavailable. Overall, the expected effects (benefits) to CRCT habitat and passage from the Proposed Action would provide a better opportunity for the recovery of the local CRCT populations than that of the existing condition.

CRCT habitat is present within the analysis area. Sedimentation from activities proposed in the project **“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.”** However, the implementation of the project design features and mitigation measures should result in long-term benefits to the local populations and the species.

Table 5 summarizes determinations for wildlife and fish species.

TABLE 5
Determinations for Wildlife and Fish Species

Common Name <i>Scientific Name</i>	General Habitat Requirements; Presence or Absence	Determination
Spotted Frog <i>Rana pretiosa</i>	Fish-free, spring fed creeks and ponds. Habitat is present in the analysis area and spotted frogs have been found at several locations.	“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species”
Peregrine Falcon <i>Falco peregrinus</i>	Far ranging flier, lives, roosts in /on cliffs. Habitat is not present in the analysis area.	“no impact”
Common Loon <i>Gavia immer</i>	Breeds in lakes greater than 9 acres. Habitat is not present in the analysis area.	“no impact”
Trumpeter Swan <i>Cygnus buccinator</i>	Breeds in remote marshes, lakes, and ponds 5-10 acres or larger. Habitat is not present in the analysis area.	“no impact”
Harelequin Duck <i>Histrionicus histrionicus</i>	Undisturbed, low gradient, meandering mountain streams. Habitat is not present in the analysis area.	“no impact”
Boreal Owl <i>Aegolius funereus</i>	High elevation spruce-fir forests. Habitat is present in the analysis area.	“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species”
Flammulated Owl <i>Otus flammeolus</i>	Breeds in mature open canopied aspen and Douglas-fir or mixed coniferous / deciduous forests. Habitat is present in the analysis area.	“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species”
Great Gray Owl <i>Strix nebulosa</i>	Mature coniferous and mixed coniferous forests interspersed with small clearings. Foraging habitat is present in the analysis area.	“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species”
Northern Goshawk <i>Accipiter gentilis</i>	Mature coniferous and mixed coniferous and aspen forests interspersed with small clearings. Foraging and probably nesting habitat is present in the analysis area. No	“may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species”

TABLE 5
Determinations for Wildlife and Fish Species

Common Name Scientific Name	General Habitat Requirements; Presence or Absence	Determination
	observations during two-year survey.	
Three-Toed Woodpecker <i>Picoides tridactylus</i>	Mature conifer and mixed conifer forests; capitalizes on dead standing timber left by stand-replacing fires. Habitat is present in the analysis area.	"may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species"
Spotted Bat <i>Euderma maculatum</i>	Caves, roosts in rock crevices on steep cliff faces. Habitat is not present in the analysis area.	"no impact"
Western Big-Eared Bat <i>Plecotus townsendii</i>	Hibernates in caves, rock outcrops, and mine shafts; roosts in hollow trees and snags. Potential roosting habitat is present; no known hibernacula present; no observations.	"no impact"
Wolverine <i>Gulo gulo</i>	Generalist, utilizes a variety of habitats spanning all elevations; needs large roadless areas (36-250 mi ²). Habitat is present in the analysis area. Species is not known to be present in the area.	"no impact"
Fisher <i>Martes pennanti</i>	Mature and old growth forest, closed canopy coniferous forests at mid- to lower elevations; may be limited by snow depth. Habitat is present in the analysis area. Species is not present and no historical accounts for the area.	"no impact"
Fine Spotted Cutthroat Trout <i>Oncorhynchus clarki spp.</i>	Lakes and streams; cool, clear, well oxygenated streams; gravel for spawning; spawning habitat is not present in the analysis area	"no impact"
Colorado River Cutthroat Trout <i>Oncorhynchus clarki pleuriticus</i>	Lakes and streams; cool, clear, well oxygenated streams; gravel for spawning; habitat is present in the analysis area	"may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species".

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