

Kilgore Gold Exploration Project

Wildlife Report

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For:
Dubois Ranger District
Caribou-Targhee National Forest

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Introduction

The purpose of this report is to provide an analysis of effects for the two alternatives (no action and action) of the Kilgore Gold Exploration Project to wildlife resources. Information that applies to multiple wildlife species are addressed first; these are design features, relevant laws, regulation, and policy; and methodology. Information that applies to individual wildlife species follows; these are issues and concerns, resource indicators and measures, spatial and temporal context, affected environment, environmental consequences, compliance with relevant laws, regulation, and policy; and summary of conclusions.

Design Features

The following design features are required by law or regulation:

- If personnel camp on the forest, the food storage order (Occupancy and Use Order #04-15-117) for grizzly bear conservation must be followed: When personnel are asleep at the camp or away, all bear attractants (food, garbage, coolers, toiletries, dish soap, dishes, cutlery, and cookware) will need to be unavailable to bears. A recreational trailer with windows and doors closed, the bed of a pick-up with a closed topper, the cab of a truck with doors and windows closed, a fully-enclosed utility trailer, or certified bear-resistant containers are acceptable for storing attractants. Certified bear-resistant coolers are not bear-resistant unless the cooler is closed with two Master locks or locking carabiners. Grills used for cooking should either be secured or burned off for one hour and have drip trays wiped. Propane stoves would need to be burned off and kept clean. Garbage should be routinely removed from the camp. Compliance with the food storage order will be checked during site inspections
- The Allan Canyon Northern Goshawk nest territory is in the project area. Project activities, which include new road construction, road use, and drilling; may only occur within the Allan Canyon goshawk nest area and post-fledging family area from October 1 to February 28 (USDA 1997). This affects Road ND569A and drill sites 18-4, 18-5, and 18-6 and Road ND14 and drill sites 18-1 and 18-2.
- Surveys will occur for Boreal and Great Gray Owls in the project area. If a Boreal or Great Gray Owl nest is located, vegetation may not be removed for road construction within a 30-acre or 20-acre buffer, respectively, around the nest (USDA 1997).

The following design feature was generated from public comment:

- Sumps will have one low-angle side to allow for wildlife egress or ingress. All other sides, which are generally vertical, will be fenced with orange construction fencing. The fencing should prevent animals from falling in, but if they do, they may be able to reach the gently-graded side with no fencing.

Relevant Laws, Regulation, and Policy

Land and Resource Management Plan

The 1997 Revised Forest Plan for the Targhee National Forest provides forest-wide standards and guidelines for wildlife on pages III-15 to III-23, subsection direction for wildlife for the Centennial Mountains Subsection on page III-44, and management prescription direction for wildlife for management prescription area 5.1.4(b) beginning on page III-139.

The 1997 Revised Forest Plan for the Targhee National Forest was amended with the Northern Rockies Lynx Management Direction (NRLMD) in 2007. This plan amendment addresses the inadequate regulatory mechanisms which contributed to the listing of the Canada lynx as threatened under the Endangered Species Act in 2000. The Dubois District of the Targhee National Forest is in a secondary lynx area (USFWS 2005).

Federal Law

Endangered Species Act

Section 7 of the Endangered Species Act (ESA) outlines procedures for federal agency cooperation to conserve federally-listed species and designated critical habitat. Federal agencies must consult on agency actions that may affect a listed species. Species that are listed in the project area are Canada lynx and grizzly bear.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 prohibits the killing, taking, or possessing of native birds, nests, or eggs. One of the nation's first environmental laws, its purpose was to prevent the killing of millions of birds annually to supply the fashion hat trade. There are approximately 150 migratory bird species present on the Dubois District of the Caribou-Targhee National Forest.

Bald and Golden Eagle Protection Act

This act prohibits the take (killing or disturbing), possession, sale, or transport of any live or dead Bald or Golden Eagle or their parts or eggs. This law was established in 1940. The U.S. Fish and Wildlife Service provided national Bald Eagle management guidelines in 2007 to provide management direction for federal agencies to comply with the act. Both Bald and Golden Eagles are present on the Dubois Ranger District of the Caribou-Targhee National Forest.

Executive Orders

Executive Order 13186

Executive Order (EO) 13186, signed by President Clinton in 2001, outlined the responsibilities of federal agencies to protect migratory birds. The EO directs federal agencies to "ensure that environmental analyses of Federal actions required by the NEPA [National Environmental Policy Act] or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern." In addition, the EO stated that agencies will "support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by

avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.”

Other Guidance

Region 4 Direction for Sensitive Species

This direction comes from the Forest Service Manual in section 2670. The regional forester designates sensitive species based upon several criteria such as species distribution, ability to disperse, abundance, population trend, habitat trend and vulnerability, and life history and demographic characteristics. All candidate species for the ESA are sensitive species. An analysis of direct, indirect, and cumulative effects of agency actions, with a determination of impact, is required through the NEPA process. At least 14 sensitive species are present on the Dubois District of the Caribou-Targhee National Forest.

Methodology

First, the presence of wildlife species in or near the project area was determined. Sources for this determination included range maps, suitable habitat modeling, structured survey results, and species observations from the Idaho Natural Heritage Program, radio-collar data from the Colorado Lynx Reintroduction Program, the Greater Yellowstone Wolverine Program, and the Interagency Grizzly Bear Study Team, the Idaho Department of Fish and Game annual gray wolf report, and recent relevant peer-reviewed scientific literature or technical documents. In situations where species presence was not documented, the presence of habitat, the effectiveness of any survey work, and knowledge of species life history was used to determine if species presence was possible. If species presence was documented outside of the project area but not within, the mobility of the species and the presence of the species’ habitat inside the project area was used to determine if species presence was possible.

Second, the environmental consequences (direct, indirect, and cumulative effects) to those species that were determined to be present or possibly present were considered. Habitat needs, primary conservation issues, known responses to the action, and known conflicts with the action for present or possibly present species were determined from peer-reviewed scientific literature or technical documents. The cumulative effects analysis considered past, present, and future; on-going agency and non-agency actions in the project area.

Wildlife Species Analyzed

This report analyzes effects of the alternatives on four categories of wildlife species. The first category are species listed as endangered, threatened, and proposed; under the Endangered Species Act. The second category are sensitive species, which are designated by the regional forester with direction to maintain viable populations throughout their geographic range. The third category are migratory birds, especially species of concern. The fourth category contains species that require analysis due to comments received during scoping (i.e., elk). A list of these species, with status, habitat, presence and determinations for the action alternative; is provided below. For those species with a determination other than “no effect,” “no impact,” or “neutral,” further analysis follows.

Category 1 Species	Status	Habitat	Presence	Determination
Canada lynx (<i>Lynx canadensis</i>)	Threatened	Preferred habitat is late-seral spruce-fir forest, but multi-layer, mature lodgepole pine and dense regenerating forests are also used.	May be present during movements, but habitat suitability low	Not likely to adversely affect (NLAA)
Grizzly bear (<i>Ursus arctos</i>)	Threatened	Habitat generalist, but areas with calorie-rich food resources and secure habitat are preferred	May be present, but density is low	Not likely to adversely affect (NLAA)
Category 2 Species	Status	Habitat	Presence	Determination
American Three-toed Woodpecker (<i>Picoides tridactylus</i>)	Sensitive	Mature and old-growth conifer forests characterized by disturbance (burns, floods, wind-throw, avalanche, disease, and drought)	One detection in 2013 at the edge of the project 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 (MIIH)
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Sensitive, bird of conservation concern (BCC), MIS	Large lakes, reservoirs and rivers in both summer and winter. Primary prey are fish and waterfowl. Nest trees must be large old-growth trees to support 1000-pound nests. Winter habitat may include uplands.	May be present for purposes of travel or winter upland foraging	No impact (there is no mechanism by which this project would impact Bald Eagle travel or winter upland foraging)
Bighorn sheep (<i>Ovis canadensis</i>)	Sensitive	Summer and winter ranges are arid or semi-arid, open or semi-open, and in steep, rugged, mountainous terrain. Winter ranges are windswept or in low-snow areas, on south, southwest, and southeast-facing slopes; and may be at lower elevations. Summer ranges may include alpine meadows or high-elevation plateaus.	Not present because there is no suitable habitat	No impact
Boreal Owl (<i>Aegolius funereus</i>)	Sensitive, MIS	There are three types of habitats that are important for Boreal Owls. These are mature mixed conifer or	May be present	MIIH

		aspen stands with natural or woodpecker-created cavities for nesting; cool, moist forested stands for summer roosting; and mature, mesic, usually spruce-fir forests for foraging.		
Boreal toad (<i>Anaxyrus boreas</i>)	Sensitive	Suitable boreal toad habitat contains breeding sites (ponds, lakes, oxbows, streams, flooded meadows, etc.), nearby summer upland sites (forests, sagebrush steppe, meadows), and over-winter sites (beaver dams, root channels, underground cavities under rocks or trees, banks, squirrel middens, rodent burrows, crevices in dried aquatic areas, and muskrat tunnels).	Not documented within the project area, overall, species does not appear to be well-distributed	No impact
Columbia spotted frog (<i>Rana luteiventris</i>)	Sensitive, MIS	Suitable spotted frog habitat includes aquatic areas (springs, streams, beaver dams, lakes, ponds, marshes, meadows, and oxbows) and the riparian or overland migration corridors between these habitats.	Presence documented within the project area	MIIH
Columbian Sharp-tailed Grouse (<i>Athene cunicularia</i>)	Sensitive	Habitat is shrub/grass/forb habitats for breeding and brood rearing, and riparian areas and deciduous hardwood shrub habitats in winter.	Not present, no suitable habitat	No impact
Common Loon (<i>Gavia immer</i>)	Sensitive, MIS	Breeding habitat are lakes at least 24 hectares in size, with an abundance of small fish and small nesting islands, and irregular shorelines.	Not present, no suitable habitat	No impact
Fisher (<i>Martes pennanti</i>)	Sensitive, MIS	Strongly associated with mature forest (late-successional coniferous forest in the Rocky Mountains) with a high canopy closure, understory vegetation, and large-diameter downed woody debris; often near riparian areas	Considered rare, may not be within geographic range	No impact

Flammulated Owl (<i>Otis flammeolus</i>)	Sensitive, BCC, MIS	Suitable nesting habitat is primarily mature Douglas fir and/or ponderosa pine stands or late-seral aspen stands with a shrub understory.	This species may be rare; it has only been documented once on the Dubois District	No impact
Gray wolf (<i>Canis lupus</i>)	Sensitive, MIS	Habitat generalist in Rocky Mountain forested and non-forested areas, primary prey in the Greater Yellowstone Ecosystem is elk	May be present	MIIH
Greater Sage-Grouse (<i>Centrocercus urophasianus</i>)	Sensitive	Large expanses of sagebrush steppe	Not present, no suitable habitat	No impact
Great Gray Owl (<i>Strix nebulosa</i>)	Sensitive, MIS	In southeast Idaho, nest in mid- to late-successional (mature and older) Douglas fir stands with herbaceous understories near to natural meadows and small clear-cuts. Foraging habitats are natural meadows, small forest openings, recent clear-cuts, and open mature and older forests.	May be present	MIIH
Harlequin Duck (<i>Histrionicus histrionicus</i>)	Sensitive, MIS	Breeding habitat is swift riparian streams that are medium-sized streams or rivers	Not present, no suitable habitat	No impact
Monarch butterfly (<i>Danaus plexippus</i>)	Sensitive, Candidate	Large, contiguous, high-density milkweed stands in moist-soil sites within grasslands, wetlands, deciduous forest, and shrub-steppe habitats with natural or anthropogenic surface or ground water on public lands	No suitable habitat (see Western Monarch Milkweed Mapper online)	No impact
Northern Goshawk (<i>Accipiter gentilis</i>)	Sensitive, MIS	Nesting habitat is mature and old-growth forest with a high canopy cover. Douglas fir and ponderosa pine forest types contain most of the known goshawk nests in the western United States. Foraging habitat includes both forested (of all stand ages) and non-forested habitats, but more goshawk prey may be present	Territory present in project area	No impact

		in older vegetative structural stages and small openings.		
Peregrine Falcon (<i>Falco peregrinus</i>)	Sensitive, BCC, MIS	Breeding habitat is steep, high, large cliffs without human disturbance for nesting and adjacent areas (up to 15 kilometers from the cliff) of foraging habitat, primary prey are birds caught in flight	Not present, no suitable habitat	No impact
Pygmy rabbit (<i>Brachylagus idahoensis</i>)	Sensitive	Suitable habitat includes sagebrush areas with dense and mature stands of big sagebrush (which provide shelter and forage) on deep loose soils (which provide for the development of burrow systems).	Not present, no suitable habitat	No impact
Spotted bat (<i>Euderma maculatum</i>)	Sensitive, MIS	Large, isolated rock walls and cliff faces within 20 miles of riparian corridors primarily, but also forest openings, juniper and sagebrush uplands, meadows, wetlands, and fields	Not within geographic range	No impact
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	Sensitive, MIS	Strongly associated with caves and cave-like structures for winter and summer roosts; overall, this species is a habitat generalist and is found in both forested and shrubland areas	Within geographic range but presence not documented, no surveys conducted, no roosts known	No impact
Trumpeter Swan (<i>Cygnus buccinator</i>)	Sensitive, MIS	Nesting habitat includes marshes, lakes, beaver ponds, and oxbows and backwaters of rivers.	Not present, no suitable habitat	No impact
Wolverine (<i>Gulo gulo</i>)	Sensitive	High-elevation alpine areas and subalpine forest that maintain persistent spring snow	No suitable habitat, may be present during movements that primarily occur in February and March, outside of the project time period	No impact
Category 3 Species	Status	Habitat	Presence	Determination
Migratory birds	BCC, sensitive, MIS,	Varies	Several species present	Neutral, negative, or positive

	or no designation			
Category 4 Species	Status	Habitat	Presence	Determination
Elk (<i>Cervus elaphus</i>)	MIS	Historically a plains animal, but able to occupy multiple ecotones (forest, meadow, and shrublands); cover and solar radiation important for thermal regulation in winter; prefers grass and sedge; summer forage is critical for acquisition of fat reserves to survive winter	Present	Neutral to negative

Canada Lynx (*Lynx canadensis*)

Issues and Other Concerns

Public comment expressed a concern that project activities could impact Canada lynx movements. Also, mineral exploration has the potential to impact lynx from the creation of roads, which can cause direct mortality, increase competition from other predators from snow-compacted routes, or contribute to fragmentation. Overall, mineral exploration is not expected to impact a large portion of lynx habitat (ILBT 2013).

Resource Indicators and Measures

The first measure is the amount of lynx habitat that may be removed by road construction to facilitate mineral exploration. Lynx habitat is determined using the definition in the Northern Rockies Lynx Management Direction (NRLMD). Primary and secondary vegetation that is above 4000 feet in elevation can contribute to lynx habitat. Primary lynx vegetation is defined as subalpine fir habitat types, even if the dominant cover is of Douglas-fir, spruce, or lodgepole pine. Secondary lynx vegetation includes other cool, moist habitat types of Douglas fir, when within 200 meters of primary vegetation. Dry forest habitat types of Douglas fir or climax lodgepole pine do not appear to be associated with lynx and so are not considered to contribute to primary or secondary vegetation (USDA 2007).

The GIS layer developed for lynx habitat for the 2015 draft EIS for the Targhee National Forest Lynx Analysis Units (USDA 2015) was used to determine primary and secondary vegetation in the project area. This layer follows the direction in appendix B of the NRLMD (USDA 2007) and was approved for use by the Intermountain Region of the Forest Service. This layer was developed primarily from the Targhee National Forest Ecological Unit Inventory and model (USDA 1999). Since this model is a coarse assessment at a 1:24,000 scale, it is an initial estimate. It can be refined by site-specific, forest stand-level vegetation survey data (USDA 2015). However, the site-specific vegetation survey data was not available, so information from

the GIS layer is an initial estimate and the best data available. There is modeled primary and secondary vegetation in the project area.

Primary and secondary vegetation contribute to lynx habitat when the amount, patch size, and inter-patch distance; are sufficient to identify a lynx analysis unit (LAU) (USDA 2007). Areas that do not contain lynx habitat are considered to have lynx linkage habitat and contribute to lynx linkage areas. A LAU is a hypothetical home range of a female lynx. Lynx habitat inter-patch distances should not be beyond daily female movement distances. The average daily movement of lynx in Montana was 6.9 kilometers per day (n = 28 to 33). There must be at least 10 square miles of lynx habitat to support a reproductive female lynx in a home range (ILBT 2013). Patch sizes of five acres or greater were retained (USDA 2015). Requirements for the amount, patch size, and inter-patch distance are met for modeled primary and secondary vegetation (lynx habitat).

A LAU should approximate the size of a lynx home range (Ruediger 2000). Lynx home ranges are larger in the western United States than in Canada or the northeastern United States. A female lynx home range (in west-central Wyoming) was 44 square miles (n = 1) (ILBT 2013). It is recommended that a LAU be delineated based on accepted ecological units, such as hydrologic unit codes (Ruediger 2000). Fifth and sixth code hydrologic unit codes were used; these watersheds are large and accommodate the naturally fragmented, less contiguous, lower quality habitat patches of the GYE (USDA 2015). Other factors relevant to delineation of LAUs includes a review of lynx occurrence records, an evaluation of land ownership pattern to achieve appropriate size and configuration of the LAU, and exclusion of ungulate winter ranges which may not retain adequate snow in winter for lynx (USDA 2007). Winter range was not excluded because it may have adequate snow depth, land ownership allows for the appropriate size and configuration of a LAU, and there have been no reliable observations of Canada lynx on the Dubois District from 1874 to present.

The project area overlaps with the Beaver Creek and Camas Creek fifth code hydrologic unit codes and LAUs (figure 3). The Camas Creek LAU is 73,611 acres with 41,191 acres of modeled primary and secondary vegetation (lynx habitat). The Beaver Creek LAU is 80,984 acres with 22,701 acres of modeled primary and secondary vegetation (lynx habitat). It should be noted that there is a lack of lynx occurrence in the LAUs.

Of the 10.4 miles of new proposed roads, 9.9 miles intersect with primary and secondary vegetation and 0.5 mile intersect with no primary or secondary vegetation. New roads may be 12 or 20 feet wide. Since the width is not known for the mileage that intersects with primary or secondary vegetation, it is assumed that all 10.4 miles of road would have a width of 20 feet. Thus, up to 24 acres of lynx habitat would be removed by this project. Using the same assumption, approximately 1.2 acres of non-lynx habitat would be removed by this project. Non-lynx habitat is lynx linkage habitat. It should be noted that new roads would be eventually reclaimed and would re-vegetate.

The second measure is the likelihood of the presence of lynx in the project area. Presence is determined from trapping records, verifiable sightings, results of the national lynx detection

survey, and radio-collar data from the Colorado Lynx Reintroduction Program. There have been no verified lynx occurrences on the Dubois District from 1874 to present.

Spatial and Temporal Context

Direct and indirect effects were evaluated at the project area (approximately 4000 acres). Cumulative effects were analyzed for the Beaver Creek and Camas Creek LAUs (154,595 acres). The time period for the analysis is ten years.

Affected Environment

Population Status

The Dubois Ranger District is in a secondary lynx area. Secondary lynx areas are defined by sporadic current and historic records of lynx, overall low relative abundance, and no documentation of reproduction. Secondary lynx areas are hypothesized to be important for dispersal of lynx or provide habitat until the animal(s) return to core or primary areas. The lynx recovery outline objective related to secondary lynx areas is to maintain habitat for occupancy by lynx (USFWS 2005).

There is no evidence that lynx are present on the Dubois Ranger District. During 1999-2003, the northeastern portion of the district in the Centennial Mountains was surveyed as part of the National Lynx Detection Survey. There were seven survey stations and there were no lynx detections. Lynx from the Colorado lynx project traveled to eleven states, including Idaho (Shenk 2009). These animals were radio-collared and none of them traveled through the Dubois District. From 1874 to present, there have been no reliable observations of Canada lynx on the Dubois District.

The Greater Yellowstone Ecosystem (GYE) has a long history of lynx presence, but that presence may or may not be consistent. There may be a small resident population of 10 individuals or less in the GYE, both currently and historically. From 2000 to 2009 (USFWS 2017), residency of both males and females or reproduction have been documented east of Yellowstone Lake in Yellowstone National Park and the Wyoming Range on the Bridger-Teton National Forest (Bell et al. 2016). But, there were no detections of lynx in the GYE from 2010 to 2017 (USFWS 2017).

Habitat Status

Lynx presence is likely limited by the patchy distribution of high-quality habitat and the low or marginal hare densities in the Greater Yellowstone Ecosystem (Bell et al. 2016). For example, surveys of hare density in Yellowstone National Park demonstrated that snowshoe hares were rare and patchily distributed with 36 percent of stands having no hares and only four percent of stands having greater than 0.5 hares per hectare (Hodges et al. 2009). Hare densities greater than 0.5 to 1.5 hares per hectare are necessary to support lynx (ILBT 2013). Given the protected status of much of the ecosystem (Yellowstone and Grand Teton National Parks, several wildernesses including the Jedediah Smith Wilderness Area on the Caribou-Targhee National

Forest) and the current inability of this area to support lynx suggests that lynx presence is limited in the Greater Yellowstone Ecosystem (Bell et al. 2016).

Environmental Consequences

Direct and Indirect Effects of the No Action Alternative

No lynx habitat would be removed from road construction to facilitate mineral exploration. However, there has been no documented presence of Canada lynx on the Dubois District from 1874 to present. Thus, a lynx may not use this habitat.

Direct and Indirect Effects of the Action Alternative

Up to 24 acres of lynx habitat would be removed by road construction to facilitate mineral exploration. However, these areas would re-vegetate after reclamation. Further, there has been no documented presence of Canada lynx on the Dubois District from 1874 to present. Thus, a lynx may not be impacted by the removal of this habitat.

Cumulative Effects for the Action Alternative

Climate change has the potential to decrease snow depth and snow persistence. These two snow condition factors are important for lynx habitat (ILBT 2013). However, climate models analyzed by McKelvey and others suggest that the Greater Yellowstone Area would maintain snow cover, albeit with increased fragmentation (2011). Historically and currently, lynx populations in the GYE have been low (0 to 10 individuals). It is possible that irruptions of lynx from Canada into the GYE during lows in the snowshoe hare cycle in Canada may replenish and provide continuity of lynx in the GYE. However, climate change may have dampened snowshoe hare cycles in Canada. This could result in extirpation of lynx from the GYE (USFWS 2017).

A review of wildfires in the western U.S. from 1973 to 2012 demonstrated that wildfires have increased in frequency, area burned, and length of fire season. These changes are correlated with higher spring and summer temperatures and earlier spring snowmelt associated with climate change (Westerling 2016). Wildfires can create lynx habitat by producing early-seral lodgepole pine and spruce-fir stands with very high stem densities. Alternatively, wildfires can remove mature, multi-storied stands and destroy lynx habitat.

There is no legal trapping season for Canada lynx in the contiguous United States. However, lynx are very vulnerable to trapping and may become caught in traps set legally for other species. Since 2000, ten lynx in Montana have been documented caught in traps set for other species. At least four of these individuals died from the trapping incident. Even if released alive, a trapped lynx may have trap-related injuries such as dislocations, fractures, and foot-freezing (ILBT 2013). However, the likelihood of lynx presence in the analysis area is very low, reducing the likelihood of trapping-related injury or mortality.

Canada lynx are also vulnerable to illegal shooting. In the first 10 years of the Colorado lynx re-introduction project, 14 of 102 lynx mortalities (14 percent) were caused by illegal shooting (ILBT 2013). However, the likelihood of lynx presence in the analysis area is very low, as no lynx have been documented in the analysis area from 1874 to present. Thus, illegal shooting is unlikely.

Research suggests that roads and highways can create lynx movement impediments and cause direct mortality. Non-resident lynx may be more vulnerable to highway mortality than resident lynx (ILBT 2013). Interstate 15 is the only highway in the analysis area. However, the likelihood of lynx presence in the analysis area is very low, reducing the likelihood of mortality from highway crossings.

The Porcupine Lookout timber harvest project is not expected to have any impact on lynx. This project would be required to meet standards, guidelines, and objectives in the Northern Rockies Lynx Management Direction (USDA 2007). This direction has substantially reduced the influence of anthropogenic impacts to lynx (ILBT 2013).

Summary

Summary of Environmental Effects

The determination for the action alternative is “may affect, not likely to adversely affect lynx.” Up to 24 acres of lynx habitat would be removed from road construction to facilitate mineral exploration. There is a lack of documented evidence of lynx presence on the Dubois District. Cumulative effects would not contribute to project effects in a way which is detrimental to Canada lynx recovery.

Compliance with Relevant Laws, Regulation, and Policy

The 2007 Northern Rockies Lynx Management Direction (NRLMD) provides management direction for lynx conservation for 18 national forests in Idaho, Montana, Utah, and Wyoming; including the Targhee National Forest (USDA 2007). The land management plan amendments for lynx have substantially reduced the influence of anthropogenic impacts to lynx (ILBT 2013). The table below demonstrates how this project meets the NRLMD.

OBJECTIVES, STANDARDS, & GUIDELINES	EXPLANATION & DISCUSSION
The following objectives, standards, and guidelines apply to all management projects in lynx habitat in lynx analysis units (LAUs) and in linkage areas, subject to valid existing rights. They do not apply to wildfire suppression, or to wildland fire use.	The project area may contain lynx habitat and lynx linkage habitat.
<u>Objective ALL O1</u> Maintain or restore lynx habitat connectivity in and between LAUs, and in linkage areas.	Habitat connectivity consists of an adequate amount of vegetation cover arranged in a way that allows lynx to move around. Narrow forested mountain ridges or shrub-steppe plateaus may serve as a link between more extensive areas of lynx habitat; wooded riparian areas may provide travel cover across open valley floors (USDA 2007). This project does not remove large areas of vegetation or remove vegetation along riparian corridors. Rather, this project removes vegetation for road construction. The roads would be up to 20 feet in width. This level of vegetation removal would not prohibit lynx movements. This objective is met.
<u>Standard ALL S1</u>	This project does not involve new permanent development or vegetation management.

<p>New or expanded permanent development and vegetation management projects must maintain habitat connectivity in an LAU or linkage area. A permanent development is any development that results in a loss of lynx habitat for at least 15 years. Ski trails, parking lots, new permanent roads, structures, campgrounds, and many special use developments would be considered permanent developments. Vegetation management changes the composition and structure of vegetation, using such means as prescribed fire or timber harvest.</p>	
<p><u>Guideline ALL G1</u> Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways or forest highways across federal land. Methods could include fencing, underpasses, or overpasses.</p>	<p>This project does not involve highway construction or re-construction.</p>
<p><u>Standard LAU S1</u> Changes in LAU boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.</p>	<p>This project does not involve a change in LAU boundaries.</p>
<p>The following objectives, standards, and guidelines apply to vegetation management projects in lynx habitat within lynx analysis units (LAUs). With the exception of Objective VEG O3 that specifically concerns wildland fire use, the objectives, standards, and guidelines do not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments such as mineral operations, ski runs, roads, and the like. None of the objectives, standards, or guidelines apply to linkage areas.</p>	<p>This project does not involve vegetation management, so this section does not apply. No further management direction is discussed.</p>
<p>The following objectives and guidelines apply to grazing projects in lynx habitat in lynx analysis units (LAUs). They do not apply to linkage areas.</p>	<p>This project does not involve grazing management, so this section does not apply. No further management direction is discussed.</p>
<p>The following objectives and guidelines apply to human use projects, such as special uses (other than grazing), recreation management, roads, highways, and mineral and energy development, in lynx habitat in lynx analysis units (LAUs), subject to valid existing rights. They do not apply to vegetation management projects or grazing projects directly. They do not apply to linkage areas.</p>	<p>This project does involve special uses in potential lynx habitat, so this section does apply.</p>
<p><u>Objective HU O1</u> Maintain (conserve) the lynx's natural competitive advantage over other predators in deep snow, by discouraging the expansion of snow-compacting activities in lynx habitat.</p>	<p>Snow-compaction is created by snowmobiles, skiers, and animals. Project activities would occur from July 15 to December 15 each year. Thus, project activities would not occur during winter. So, this project does not create or encourage snow-compacting activities in lynx habitat. This objective is met.</p>
<p><u>Objective HU O2</u> Manage recreational activities to maintain lynx habitat and connectivity.</p>	<p>Project activities will occur behind roads restricted to the public, so this project should have not allow recreational activities to influence lynx habitat and connectivity. This objective is met.</p>
<p><u>Objective HU O3</u> Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat.</p>	<p>The drill sites in the Mine Ridge area are adjacent to an existing area of activity, but proposed actions in the Gold Ridge, Prospect Ridge, and Dog Bone Ridge areas are extensions of activity in areas not</p>

	previously explored on the claim. However, this project does not involve any permanent developments in lynx habitat. This objective is met.
<u>Objective HU O4</u> Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation sites or ski areas. Developed recreation sites include parking lots, buildings, roads, campgrounds, and toilets.	This project does not involve developed recreation sites. This objective does not apply.
<u>Objective HU O5</u> Manage human activities, such as special uses, mineral and oil and gas exploration and development, and placement of utility transmission corridors, to reduce impacts on lynx and lynx habitat.	This project is not expected to impact lynx and lynx habitat. There have been no reliable observations of lynx presence on the Dubois District from 1874 to present. This project will remove up to 24 acres of potential lynx habitat, but given the lack of evidence of lynx presence, it is not believed that this will impact lynx. Further, the vegetation removal for new roads will revegetate after reclamation. This objective is met.
<u>Objective HU O6</u> Reduce adverse highway effects on lynx by working cooperatively with other agencies to provide for lynx movement and habitat connectivity, and to reduce the potential of lynx mortality.	There are no highways in the project area, so this objective does not apply.
<u>Guideline HU G1</u> When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris, so winter snowshoe hare habitat is maintained. Winter snowshoe hare habitat contains thousands of young trees per acre that protrude above winter snow levels and develops primarily in the stand initiation, understory re-initiation, and old forest multi-storied structural stages.	This project does not involve ski areas, so this guideline does not apply.
<u>Guideline HU G2</u> When developing or expanding ski areas, lynx foraging habitat should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.	This project does not involve ski areas, so this guideline does not apply.
<u>Guideline HU G3</u> Recreation developments and operations should be planned in ways that both provide for lynx movement and maintain the effectiveness of lynx habitat.	This project does not involve recreation development and operations, so this guideline does not apply.
<u>Guideline HU G4</u> For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction.	This project does not involve mineral development, but rather mineral exploration. Snow-compaction is created by snowmobiles, skiers, and animals. Project activities would occur from July 15 to December 15 each year. Thus, project activities would not occur during winter. So, this project does not create or encourage snow-compacting activities in lynx habitat. This guideline is met.
<u>Guideline HU G5</u> For mineral and energy development sites and facilities that are closed, a reclamation plan that restores (returns or re-establishes ecosystems or habitats to their original	This project does not involve mineral development, but rather mineral exploration. However, reclamation is included in project activities. This guideline is met.

structure and species composition) lynx habitat should be developed.	
<u>Guideline HU G6</u> Methods to avoid or reduce effects on lynx should be used in lynx habitat when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.	This project does not involve upgrading unpaved roads to maintenance levels 4 or 5, so this guideline does not apply.
<u>Guideline HU G7</u> New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity. New permanent roads and trails should be situated away from forested stringers.	This project does not involve new permanent roads, so this guideline does not apply.
<u>Guideline HU G8</u> Cutting brush along low-speed (less than 20 miles per hour), low-traffic-volume (less than 100 vehicles per day) roads should be done to the minimum level necessary to provide for public safety.	Brush removal would occur on approximately 2.1 miles of roads with low-speeds and low traffic volumes. This would be done for safety and convenience. These roads would not be open to the public.
<u>Guideline HU G9</u> On new roads built for projects, public motorized use should be restricted. Effective closures should be provided in road designs. When the project is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.	This project does construct new roads, but these roads are not open to the public. The public will be restricted by the use of gates and rock berms. Further, Otis Capitol will twice annually monitor the restricted road systems (early fall and summer) to ensure effective public closure. Lastly, the new roads will be reclaimed. This guideline is met.
<u>Guideline HU G10</u> When developing or expanding ski areas and trails, consider locating access roads and lift termini to maintain and provide lynx security habitat, if it has been identified as a need. Lynx security habitat provides visual and acoustic insulation for lynx from human disturbance and allows lynx to move away from intrusion.	This project does not involve developing or expanding ski areas or trails, so this guideline does not apply.
<u>Guideline HU G11</u> Designated over-the-snow routes or designated play areas should not expand outside baseline areas of consistent snow compaction, unless designation serves to consolidate use and improve lynx habitat. This may be calculated on an LAU basis, or on a combination of immediately adjacent LAUs. This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12. Use the same analysis boundaries for all actions subject to this guideline. Areas of consistent snow compaction are those that receive enough snowmobile or ski use that individual tracks are not distinguishable. These areas are usually near snowmobile or ski routes, in openings, parks, and meadows, and near roads or parking areas.	This project does not involve designating over-the-snow routes or designated play areas, so this guideline does not apply.
<u>Guideline HU G12</u> Winter access for non-recreation special uses and mineral and energy exploration and development, should be limited to designated routes (open road or trail) or designated over-the snow routes (mapped routes).	This project does not involve winter access for mineral exploration, so this guideline does not apply. Project activities will not occur from December 21 to March 21, but rather July 15 to December 15. This guideline is met.

The following objective, standard, and guidelines apply to all projects within linkage areas, subject to valid existing rights.	The project area may contain lynx linkage habitat, so this section does apply.
<u>Objective LINK O1</u> In areas of intermingled land ownership, work with landowners to pursue conservation easements, habitat conservation plans, land exchanges, or other solutions to reduce the potential of adverse impacts on lynx and lynx habitat.	This project does not provide the opportunity for conservation projects with intermingled land ownership, so this objective does not apply.
<u>Standard LINK S1</u> When highway or forest highway construction or reconstruction is proposed in linkage areas, identify potential highway crossings. Forest highways are forest roads under the jurisdiction of and maintained by a public authority and open to public travel, designated by an agreement with the Forest Service, state transportation agency, and Federal Highway Administration.	This project does not involve highway or forest highway construction or reconstruction, so this standard does not apply.
<u>Guideline LINK G1</u> NFS lands should be retained in public ownership.	This project does not involve the transfer of Forest Service lands to private ownership, so this guideline does not apply.
<u>Guideline LINK G2</u> Livestock grazing in shrub-steppe habitats should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes. Mid-seral is the successional stage in a plant community that is the midpoint as it moves from bare ground to climax. For riparian areas, it means willows or other shrubs have become established. For shrub-steppe areas, it means shrubs associated with climax are present and increasing in density.	This project does not involve livestock grazing in shrub-steppe habitats, so this guideline does not apply.

Intensity Factors for Significance

The following intensity factors for significance may apply to Canada lynx:

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were outlined for Canada lynx above. Climate change may have the greatest impact on lynx (ILBT 2013). Climate change will reduce the cover and persistence of snow in the GYE, but to a lesser degree than in other areas of the contiguous United States (McKelvey et al. 2011). Overall, cumulative effects do not contribute to direct and indirect effects in a manner which would result in significant impacts.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

This project is not likely to adversely affect Canada lynx. This project removes up to 24 acres of lynx habitat and lynx have not been documented on the Dubois District from 1874 to present. There is no critical habitat for lynx on the Caribou-Targhee National Forest.

Grizzly Bear (*Ursus arctos*)

Issues and Other Concerns

Most wildlife-related comments from the public were about grizzly bears. Comments expressed concern that there could be impacts to grizzly bear movement corridors, habitat loss, lack of consistency with management direction, disturbance or displacement, general adverse impacts, population declines, and inadequate mitigation. A related concern is that secure habitat would be removed because of road construction to facilitate mineral exploration. Also, grizzly bears could be disturbed by motorized project activities, such as road construction, road use, or 24-hour exploration drilling.

Resource Indicators and Measures

The amount of secure habitat (habitat greater than 500 meters from a motorized route) within a grizzly bear's home range is likely the most important determinant of grizzly bear survival (Schwartz et al. 2010). The population trend for females with cubs is very sensitive to road density (Boulanger and Stenhouse 2014). Thus, the amount of secure habitat removed by road construction to facilitate mineral exploration is the first measure. Secure habitat would be decreased by 606 acres from road construction. Since new roads would be reclaimed, loss of secure habitat is temporary.

The second measure is the presence of radio-collared grizzly bears present in the project area. Project activities, which include motorized activities such as road construction, road maintenance, vehicle road use, and 24-hour exploration drilling; have the potential to disturb grizzly bears. Road construction, road maintenance, and vehicle road use would be variable and intermittent, but more likely during the day. However, drill operation noise would be 24 hours per day and could occur nearly continuously from July 15 to December 15. Specifically, up to three drill sites would be in operation simultaneously and would operate 24 hours per day for one or two weeks at each site.

To assess if these activities would be a disturbance to grizzly bears, the presence of radiolocations within or adjacent to a 500-meter buffer around all of the roads to be used for mineral exploration is another relevant measure. There are no grizzly bear radiolocations within a 500-meter buffer of all roads to be used for project activities.

The third measure is the quality of habitat for grizzly bears within the project area. The road density on the claim is relatively high from past exploration activities. These roads are restricted and not open to the public. Areas of high road density represent low-quality habitat for grizzly bears and grizzly bear may avoid these areas. There are no important habitats for grizzly bears within the project area, such as areas where the four important food resources may be found, riparian areas for spring foraging, or denning areas. Lastly, the Mine Ridge area of the project

area has had mineral exploration nearly annually for the last few years, so noise-related disturbance, which may lower the suitability of habitat for grizzly bears, is established. Overall, the project area may be low-quality habitat for grizzly bears.

Spatial and Temporal Context

The direct and indirect effects analysis area is the area that includes a 500-meter buffer on all of the existing and proposed roads for access to and used for exploration drilling. A 500-meter buffer was selected because areas less than 500 meters from an open or restricted road are non-secure habitat for grizzly bears and this area is also the maximum zone of motorized noise which may be disturbing to grizzly bears. This area is calculated to be 6069 acres (9.5 square miles).

The cumulative effects analysis area is the Centennial BAU (bear analysis unit). This project is 27 kilometers west of the grizzly bear recovery zone (GRBZ). BAUs have been identified outside the GRBZ. The units correspond to areas where state agencies currently manage for grizzly bears in the GYE. A BAU approximates the size of the annual or lifetime range of a female grizzly bear (IGBST 2011). The Centennial BAU includes the east side of the Dubois District (east of I-15) and the western part of the Ashton-Island Park District outside of the Grizzly Bear Recovery Zone. The BAU is 127,424 acres and is 97 percent national forest land. The time period for the analysis is ten years.

Affected Environment

Population Status

Radio-collar information from the Interagency Grizzly Bear Study Team (IGBST) for 2000 - 2017 for the east side of the Dubois District (east of I-15) was obtained to outline specific grizzly bear presence. This was supplemented with more generic information for 2005 to 2019 from IGBST for all of the Caribou-Targhee National Forest. Specifically, six radio-collared males have been present on the east side of the Dubois District during six years (2001, 2009, 2010, 2014, 2016, and 2017). Five of these males frequent the district. The radio-location information does not contain the temporal resolution to determine if these grizzly bears are present only in certain seasons or in all seasons of the non-hibernal period (Landenburger et al. 2017).

From 2000 to 2017, no radio-collared female grizzly bears had moved naturally to the east side of the Dubois District. In 2011, a sub-adult female was transported to the area from the Shoshone National Forest, but she did not stay in the area (Landenburger et al. 2017). However, in 2018 or 2019, a female with young was present on the east side of the Dubois District and a solitary female was observed in the northwest corner of the east side of the district (Karabensh et al. 2020).

From 2000 to 2017, all of the radio-locations in the area, except one, were no further west than the East Camas Creek drainage. The lone radio-location of a male grizzly bear was near West Camas Creek immediately south of Steel Creek. However, in 2018 and 2019, a solitary female was observed in the northwest corner of the east side of the district and a male was also present west of West Camas Creek (Karabensh et al. 2020). While grizzly bears have expanded their distribution in the Greater Yellowstone Ecosystem (GYE), especially to the north and south,

since 2004, there has been no westward expansion of grizzly bears. Thus, it is believed that interstate 15 and adjacent open sagebrush steppe is a dispersal barrier to grizzly bears (Bjornlie et al. 2013).

Overall in the GYE, the grizzly bear has expanded its range, distribution, and numbers: From 1983 to 2002, the annual population growth rate of grizzly bears in the GYE was four to seven percent. From 2002 to 2011, the annual population growth rate was 0.3 to 2.2 percent. While there were 230 to 312 grizzly bears in the GYE in 1975, there were at least 714 grizzly bears in 2014. In 2013, there were an estimated 58 unique females with cubs of the year. This is the highest number recorded. Further, the range and distribution of grizzly bears has tripled since 1975. Forty-one percent of the GYE grizzly bears are present within the GBRZ and 59 percent are present outside of the GBRZ, mostly on federal land. The stabilizing population trend, along with evidence of other density dependent regulation, suggests that the GYE grizzly bear population is approaching carrying capacity (YES 2016).

Habitat Status

Habitat is described in the Centennial BAU. The amount of secure habitat (habitat greater than 500 meters from a motorized route) within a grizzly bear's home range is likely the most important determinant of grizzly bear survival (Schwartz et al. 2010). The Centennial BAU is 50.9 percent secure. Among all of the BAUs on the Caribou-Targhee National Forest, there is a range of 36.7 to 70.0 percent security (IGBST 2015).

Lethal removal from livestock depredation was the most common cause of grizzly bear mortality in the GYE (Haroldson and Frey 2016), but not in Idaho. There are 11 active livestock allotments and two closed allotments in the Centennial BAU. Six of the active allotments are sheep allotments. Grizzly bear-livestock conflicts are more likely with sheep than cattle (Knight and Judd 1983). There have been two grizzly bear-livestock conflicts in the Centennial BAU. One occurred in 2000 and one occurred in 2016; both of these were sheep depredations on the Dubois District. The 2016 male was lethally removed (Landenburger et al. 2017). The low level of livestock depredations in the Centennial BAU is not surprising since depredations are positively related to grizzly bear density (Wells 2017).

The second greatest source of grizzly bear mortality in the GYE was from hunter conflicts (Haroldson and Frey 2016). Usually, the bear is killed by a hunter in self-defense, but occasionally, the bear is killed because of mistaken identity. There was one hunter conflict in the Centennial BAU in 2012 on the Ashton-Island Park District. This bear was not killed.

The Centennial BAU has considerable denning habitat in the more rugged areas of the Centennial Mountains. There are two den locations of radio-collared bears in the Centennial Mountains of the BAU. One is on the Ashton-Island Park District and one is 30 meters north of the Dubois District boundary (Landenburger et al. 2017).

The Centennial BAU also has two large areas of whitebark pine forests; one is in the Table Mountain area and the other is in the head of Ching Creek. Both areas are on the Dubois District. One of the six radio-collared males has radio-locations that overlap with the whitebark pine forests in the Ching Creek drainage in the fall. This occurred in 2001. Overall, this information

suggests that grizzly bears are not selecting whitebark pine forests on the Dubois District for fall foraging (Landenburger et al. 2017).

Environmental Consequences

Direct and Indirect Effects of the No Action Alternative

There would be no decrease in secure habitat for road construction to facilitate mineral exploration. In addition, there would be no motorized noise from road construction, road use, and exploration drilling to disturb grizzly bears. However, there are no radiolocations of grizzly bears within the project area.

Direct and Indirect Effects of the Action Alternative

Secure habitat would be decreased by 606 acres from project activities. The loss of secure habitat is temporary because roads would be reclaimed. Disturbance to grizzly bears from motorized project activity is possible within the project area. However, there are no radio-locations of grizzly bears within the project area. Further, habitat within the project area is likely of low-quality because of a lack of important food resources (whitebark pine) or important habitats (denning), existing non-secure habitat from current claim roads, and previous project activity over multiple years.

Cumulative Effects for the Action Alternative

Livestock grazing provides the potential for grizzly bear-livestock conflicts. However, there have only been two conflicts from 2000 to 2016. Both conflicts were related to sheep depredation.

Vegetation management can impact grizzly bears by disturbance or displacement and reductions in secure habitat from temporary roads. However, vegetation management has been infrequent in the analysis area. The Porcupine Lookout project may occur within the analysis area.

The amount of secure habitat within a grizzly bear's home range is likely the most important determinant of grizzly bear survival (Schwartz et al. 2010). Some recreationists create illegal OHV routes for access to the forest. These actions decrease secure habitat for grizzly bears. However, education and enforcement to prevent illegal routes and use are provided by forest personnel.

The most common grizzly bear conflict in the Idaho portion of the GYE is a food reward (garbage, pet food, birdfeeders) from subdivisions adjacent to public land (Hendricks 2016). However, there are no subdivisions in the analysis area. Food rewards are possible at campgrounds or campsites in the analysis area, but these have not occurred (Landenburger et al. 2017). In addition, food storage education occurs in the analysis area.

Summary

Summary of Environmental Effects

The determination for the action alternative is "may affect, not likely to adversely affect grizzly bears." There are no radiolocations of grizzly bears within the project area. In addition, habitat quality is low in the project area, making it less likely that non-radio-collared bears are present or

grizzly bears would expand into the area. Cumulative effects would not contribute to project effects in a way which is detrimental to grizzly bears.

Compliance with Relevant Laws, Regulation, and Policy

On the Caribou-Targhee National Forest, Occupancy and Use Order #04-15-117 (food storage order) applies to the Ashton-Island Park District and portions of the Dubois and Teton Basin Districts annually from March 1 to December 1. This project is on the Dubois District in the food storage order area. Since personnel may be camping on the claim, the camp and campers will need to abide by the food storage order.

Intensity Factors for Significance

The following intensity factors for significance may apply to grizzly bears:

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were outlined for grizzly bears above. Livestock grazing, vegetation management, secure habitat, and food rewards were addressed. There have been two grizzly bear-livestock conflicts in the BAU since 2000, vegetation management is infrequent, illegal motorized activity does occur but so do education and enforcement, and food reward conflicts have not occurred. Overall, cumulative effects would not contribute to project effects in a way which is significant to grizzly bears.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

This project is not likely to adversely affect grizzly bears. There are no grizzly bear radio locations in the direct and indirect effects analysis area and the habitat quality appears to be low. Secure habitat is reduced by 606 acres, but this reduction is temporary. There is no critical habitat for grizzly bears on the Caribou-Targhee National Forest.

American Three-toed Woodpecker (*Picoides tridactylus*)

Issues and Other Concerns

There were no public comments specific to American Three-toed Woodpeckers. A concern is that habitat would be removed because of road construction to facilitate mineral exploration. Also, project activities, which include road construction, road use, and 24-hour drilling; could disturb nesting activities.

Resource Indicators and Measures

The first measure is the amount of American Three-toed Woodpecker habitat that may be removed for road construction for the project. Habitat of three-toed woodpecker home ranges is

mature and old-growth conifer forests characterized by disturbance (burns, floods, windthrow, avalanche, disease, and drought) (Wiggins 2004). The GIS product of the Caribou-Targhee National Forest mid-level existing classification and mapping program was used to determine the mileage of new roads that intersected with a stand of mature (7 to 15.9 inches diameter at breast height or DBH) or old-growth (16 inches or greater DBH) forest. The mapping product was created with satellite and aerial imagery and complemented with field surveys and photo interpretation. New roads may be 12 or 20 feet wide. Since the width is not known for the mileage that intersects with three-toed woodpecker habitat, it is assumed that all miles of road that intersect would have a width of 20 feet. Thus, up to 9.3 acres of three-toed woodpecker habitat may be removed. The accuracy of tree size of the GIS product is 62 percent, so it is only an approximation of the amount of mature and old-growth stands that may be removed. Further, mature and older tree stands used by three-toed woodpeckers are generally characterized by disturbance, but this cannot be determined from the GIS product. Thus, the actual amount of three-toed woodpecker habitat removed may be less.

The second measure is the amount of potential three-toed woodpecker habitat in the noise effects zone. Noise can affect birds in the following ways: It can cause physical damage to ears, stress, avoidance, changes in behaviors (such as foraging), and masking of sounds necessary for survival or reproduction. Ultimately, these effects can result in lower reproductive success or population levels (Ortega 2012).

It was determined that 24-hour drill rig operation created a noise effects zone that was 500 meters from any road that might be used for drilling: Drill rig operations produce approximately 100 decibels of sound at the rig. In an environment without wind or other noise, at 100 meters the sound intensity would be 70 decibels (equivalent to traffic noise and considered annoying to most persons) or less, at 500 meters would be 50 decibels (equivalent to human conversation) or less, and at 2000 meters would be 40 decibels (equivalent to bird calls). Thus, it was estimated that with wind and other noise sources, a drill rig in operation would create, at most, a noise effects zone with a radius of 500 meters. This area is 2672 acres or 4.2 square miles. Since up to three drill rigs would be in operation at any one time, the entire noise effects zone would not be filled with noise at all times. Rather, the noise effects zone describes a maximum area of noise effects.

The GIS product of the Caribou-Targhee National Forest mid-level existing classification and mapping program was used to determine how much of the noise effects zone contained potential three-toed woodpecker habitat (stands with tree sizes of 7 inches DBH or greater). The noise effects zone contained 1131 acres of potential three-toed woodpecker habitat (forest stands with tree size greater than seven inches DBH). This was 41 percent of the noise effects zone.

The third measure is the presence of American Three-toed Woodpeckers within the project area. District observations and forest plan woodpecker monitoring surveys were used to determine presence. There is a standard monitoring point near the project area, but no three-toed woodpeckers have been detected at this site in 2014, 2015, 2016, and 2017 forest plan monitoring surveys. No three-toed woodpeckers were detected during Northern Goshawk surveys in the project area in 2018. However, district records have a three-toed woodpecker observation in 2013 at the edge of the project area.

Spatial and Temporal Context

The direct and indirect effects analysis area is the noise effects zone (2672 acres), while the cumulative effects analysis area is the Camas Creek and East Beaver Creek Watersheds. The project area is within both of these watersheds. The time period for the analysis is ten years.

Affected Environment

Population Status

Forest plan woodpecker monitoring detected American Three-toed Woodpeckers at one of four district sites in 2014, one of eight district sites in 2015, two of eight district sites in 2016, and three of nine district sites in 2017. Over a five-year period (2010 to 2013), there were 13 observations of three-toed woodpeckers on the district. These records include an observation at the edge of the project area.

More than four years of forest plan woodpecker monitoring data is necessary to determine population trend for woodpecker species (Miller et al. 2017), so no trend information is available for the Targhee National Forest. Overall, Partners in Flight has estimated a 27 percent decline in American Three-toed populations in the United States and Canada from 1970 to 2014, based on Breeding Bird Survey or Christmas Bird Count surveys. The population estimate for the United States and Canada is 1.4 million (Rosenburg et al. 2016).

Habitat Status

The Dubois District may provide ample and quality habitat for American Three-toed Woodpeckers. The district has a high percentage of late-seral forest (21 to 79 percent). Disturbances, such as insects and disease especially, and to some extent wildfire, are allowed to occur naturally. A range capability and suitability analysis determined that there were 105,148 acres of suitable American Three-toed Woodpecker habitat on the Dubois District or 23 percent of the district acreage.

Environmental Consequences

Direct and Indirect Effects of the No Action Alternative

Up to 9.3 acres of potential American Three-toed Woodpecker habitat would not be removed for road construction. There would be no noise disturbance to 1131 acres of potential three-toed woodpecker habitat. It is likely that three-toed woodpeckers are present in the project area.

Direct and Indirect Effects of the Action Alternative

Up to 9.3 acres of potential American Three-toed Woodpecker habitat would be removed. Up to 1131 acres of potential three-toed woodpecker breeding habitat may be disturbed by drilling noise. Noise has the potential to negatively impact reproductive success and contribute to declines in population trend. For example, noise can interfere with basic survival, such as the ability of birds to detect predators or prey or hear alarm calls or begging calls of family members. In addition, noise may cause stress or avoidance (Ortega 2012).

Cumulative Effects for the Action Alternative

There are likely three important habitat components for American Three-toed Woodpeckers: These are mature and old-growth coniferous forests, snags, and recent forest disturbances (fire, insect and disease outbreaks, floods, and windthrow) (Wiggins 2004). Past, present, and future forest actions that affect these three habitat parameters are discussed here.

The 1997 Revised Forest Plan for the Targhee National Forest contains guidelines for the conservation of late-seral and old-growth forest stands. Both the Camas Creek and East Beaver Creek Watersheds meet forest plan standards and guidelines for late-seral and old-growth forest. The Camas Creek Watershed has 52.4 percent of its forested acres in late-seral and old-growth, while the East Beaver Creek Watershed has 33.9 percent of its forested acres in late-seral and old-growth.

The forest plan also contains guidelines for the maintenance of 40 to 60 percent biological potential for snag habitat. Snag habitat in the watersheds was 47 and 46 percent in 1997 for the Camas Creek and East Beaver Watersheds, respectively. And, this has increased from bark beetle activity (USDA 2006). This biological potential meets recommendations for cavity-nesting species (40 percent) (Bull et al. 1997).

Forest disturbances, such as bark beetle outbreaks and wildfires, are increasing. Bark beetle activity in the last two decades represents the largest and most severe outbreak in the last 125 years (Raffa 2008). However, the Porcupine-Lookout timber harvest is designed to reduce insect and disease in the watersheds. A review of wildfires in the western U.S. from 1973 to 2012 demonstrated that wildfires have increased in frequency, area burned, and length of fire season. These changes are correlated with higher spring and summer temperatures and earlier spring snowmelt associated with climate change (Westerling 2016). Two forest wildfires have occurred in the Camas Creek Watershed. These are the Winslow Creek fire of 2008 (4907 acres) and the Timber fire of 2003 (1731 acres). In addition, approximately half of the Camas Creek Watershed is considered at a low risk for fire. Here, wildfires may be allowed to burn.

Summary

Summary of Environmental Effects

The determination for the action alternative is “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.” Up to 9.3 acres of potential three-toed woodpecker habitat would be removed for road construction and 1131 acres of potential habitat may be exposed to drilling noise. Cumulative effects would not contribute to project effects in a way which is detrimental to the American Three-toed Woodpecker.

Compliance with Relevant Laws, Regulation, and Policy

The 1997 Revised Forest Plan for the Targhee National Forest contains standards and guidelines for woodpeckers. However, this management direction applies to timber harvest practices and pertains to snag and live tree retention. This project does not involve timber harvest.

Intensity Factors for Significance

The following intensity factors for significance may apply to American Three-toed Woodpeckers:

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were outlined for American Three-toed Woodpeckers above. Overall, cumulative effects may provide benefits to this species. Thus, cumulative effects do not contribute to direct and indirect effects in a manner which is detrimental to the American Three-toed Woodpecker.

Boreal Owl (*Ageolius funereus*)

Issues and Other Concerns

Public comment expressed a concern that 24-hour drilling noise could impact Boreal Owls. Habitat may be removed because of road construction to facilitate mineral exploration. Also, project activities, which include road construction, road use, and 24-hour drilling; could disturb nesting activities.

Resource Indicators and Measures

The first measure is the amount of Boreal Owl habitat that may be removed for road construction for the project. There are three habitat components that appear to be important for Boreal Owls: The first is late-seral mixed conifer or aspen stands with natural or woodpecker-created cavities for nest sites. The second is cool, moist roost sites for thermoregulation during summer. The third is mature, mesic, usually spruce-fir forests where the primary prey, red-backed voles, are present (Hayward and Verner 1994). In summary, Boreal Owls use a variety of forest types. The GIS product of the Caribou-Targhee National Forest mid-level existing classification and mapping program was used to determine the mileage of new roads that intersected with any forest. The mapping product was created with satellite and aerial imagery and complemented with field surveys and photo interpretation. New roads may be 12 or 20 feet wide. Since the width is not known, it is assumed that all miles of road that intersect would have a width of 20 feet. Since all 10.4 miles of the new roads intersect with some type of forest, and the width of the new roads is assumed to be 20 feet, up to 25.1 acres of habitat would be removed. However, it is not known if Boreal Owls are using this habitat.

The second measure is the amount of Boreal Owl habitat in the noise effects zone. Noise can affect birds in the following ways: It can cause physical damage to ears, stress, avoidance, changes in behaviors (such as foraging), and masking of sounds necessary for survival or reproduction. Ultimately, these effects can result in lower reproductive success or population levels (Ortega 2012). Boreal Owls locate prey by sound (Hayward and Verner 1994). Thus, noise could interfere with the ability of Boreal Owls to forage.

Please see discussion above relative to the determination of the noise effects zone (2672 acres or 4.2 square miles). Since up to three drill rigs would be in operation at any one time, the entire noise effects zone would not be filled with noise at all times. Rather, the noise effects zone describes a maximum area of noise effects.

The GIS product of the Caribou-Targhee National Forest mid-level existing classification and mapping program was used to determine how much of the noise effects zone contained potential Boreal Owl habitat (forested stands). The noise effects zone contained 2577 acres of potential Boreal Owl habitat (forest stands with tree size greater than seven inches DBH). This was 96 percent of the noise effects zone. However, it is not known if Boreal Owls are using this habitat.

The third measure is the presence of Boreal Owls within the project area. Previous surveys were used to determine presence. In 2014, a Boreal Owl survey was conducted in and below the Mine Ridge area. While no Boreal Owls were detected in the Mine Ridge area, a Boreal Owl was detected below this area, within the project area, but outside of the noise effects zone.

Spatial and Temporal Context

The direct and indirect effects analysis area is the noise effects zone (2672 acres), while the cumulative effects analysis area is the Camas Creek and East Beaver Creek Watersheds. The project area is within both of these watersheds. The time period for the analysis is ten years.

Affected Environment

Population Status

There are five standard forest plan owl monitoring routes on the Dubois District. The purpose of the surveys is to document distribution across the forest, as opposed to locate specific territories. Boreal Owls appear to remain well-distributed across the forest (USDA 2006). The population estimate for the United States and Canada is 1.7 million. There is not enough information to determine a population trend (Rosenburg et al. 2016).

Habitat Status

The Dubois District may not provide as much habitat for Boreal Owls as the Ashton-Island Park District. This species appears to be detected more readily on the latter district during forest plan owl monitoring surveys. The Boreal Owl is a thermally-stressed species in summer and relies on soft snow for foraging in winter (Hayward 1993). Perhaps the cooler temperatures of the Ashton-Island Park district provide cooler environments and softer snow.

Environmental Consequences

Direct and Indirect Effects of the No Action Alternative

Approximately 25 acres of Boreal Owl habitat would not be removed for road construction. There would be no noise disturbance to 2577 acres of potential Boreal Owl habitat. It is likely that Boreal Owls are present in the project area.

Direct and Indirect Effects of the Action Alternative

Approximately 25 acres of potential Boreal Owl habitat would be removed. Up to 2577 acres of potential Boreal Owl breeding habitat may be disturbed by drilling noise. Noise has the potential to negatively impact reproductive success and contribute to declines in population trend. For example, noise can interfere with basic survival, such as the ability of birds to detect predators or prey or hear alarm calls or begging calls of family members. In addition, noise may cause stress or avoidance (Ortega 2012).

Boreal Owls could be especially susceptible to noise pollution because they locate prey by sound. However, project activities would not commence until July 15. Boreal Owls fledge by mid-July (Hayward et al. 1993). Consequently, there is less overlap of project activity with the Boreal Owl breeding season and less impact overall.

Cumulative Effects for the Action Alternative

There are likely two important factors for Boreal Owls: These are a cold, snowy climate and nesting cavities. Boreal Owls are obligate cavity nesters (Hayward 1994). On the Dubois District, it appears that Boreal Owls are nesting in aspen and Douglas fir cavities. These cavities can be in live aspen, decadent live Douglas fir, or dead Douglas fir snags. In 1990-1991, biological potential for snag habitat in the watersheds was 47 and 46 percent for the Camas Creek and East Beaver Watersheds, respectively. And, this has increased from bark beetle activity (USDA 2006). This biological potential meets recommendations for cavity-nesting species (40 percent) (Bull et al. 1997). Live tree cavities are most likely to be found in mature and older successional stage forests. The percentage of forest within the watersheds that is late-seral or old-growth is 52.4 percent in the Camas Creek Watershed and 33.9 percent in the East Beaver Watershed. Overall, the quantity of snag habitat and the presence of late-seral and old-growth forest may benefit cavity habitat and presence of Boreal Owls.

Boreal Owls require cool, moist roosting habitat in summer to prevent heat-stress and cold, winter foraging habitat with soft snow so prey can be easily acquired (Hayward 1994). However, climate change increases the occurrence of freeze-thaw cycles, which causes snow crusting (Halofsky et al. 2018) and hinders the hunting ability of Boreal Owls, which dive through the snow to capture prey. Also, climate change causes an increase in mean annual temperatures and an increase in the occurrence of hot summers (Halofsky et al. 2018) which may heat-stress Boreal Owls in the summer.

The Porcupine Lookout timber harvest project must meet forest plan direction for Boreal Owls. This includes both maintenance of late-seral forest in the 3600-acre nest territory. And, no timber harvest in the active or historic 30-acre nest area.

Summary

Summary of Environmental Effects

The determination for the action alternative is “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.” Approximately 25 acres of potential Boreal Owl habitat would be removed for road construction and 2577 acres of potential habitat may be exposed to drilling noise. Boreal Owls

may be present in the project area. Cumulative effects would not contribute to project effects in a way which is detrimental to the Boreal Owl.

Compliance with Relevant Laws, Regulation, and Policy

The 1997 Revised Forest Plan for the Targhee National Forest contains standards and guidelines for Boreal Owls. This management direction applies to timber harvest, but in recent projects has been interpreted to include any type of vegetation removal. The table below outlines how this project meets forest plan management direction for Boreal Owls.

STANDARDS AND GUIDELINES	EXPLANATION AND DISCUSSION
Do not allow timber or firewood harvest activities within a 30-acre area around all known Boreal Owl active and historic nest sites (Standard, page III-21).	Boreal Owl surveys will occur in those areas where new roads are proposed. If a Boreal Owl nest is located, no vegetation removal will occur within a 30-acre buffer of the nest.
Maintain over 40% of the forested acres in late-seral age classes within a 3600-acre area around all known Boreal Owl nest sites (Guideline, page III-22).	This project would not alter the proportion of late-seral age classes within the project area. This guideline is met.

Intensity Factors for Significance

The following intensity factors for significance may apply to Boreal Owls:

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were outlined for Boreal Owls above. Forest actions have maintained habitats and habitat characteristics for Boreal Owls. Thus, cumulative effects do not contribute to direct and indirect effects in a manner which is detrimental to the Boreal Owl.

Columbia Spotted Frog (*Rana luteiventris*)

Issues and Other Concerns

There were no public comments specific to Columbia spotted frogs. A concern is that water use for drilling operations could lower water levels in spotted frog breeding or summering habitat. Also, project activities, which include road construction and road use could cause direct mortality to frogs.

Resource Indicators and Measures

The first measure is the amount of water withdrawal that would occur in streams. Water may be drafted (collected) from three sources. These include an existing well on the claim, West Camas Creek at the road crossing, and Beaver Creek at the Idmon Road. The latter is not on and is downstream of national forest land, so water withdrawal impacts cannot be evaluated. The state has allowed Otis Capitol to take five acre-feet per year at a rate of 18 gallons per minute from each water source. Eighteen gallons per minute is 0.04 cubic feet per second and five acre-feet is

1.6 million gallons. Unfortunately, it is not possible to know the average flow of the tributaries during July 15 to December 15 and determine the maximum percentage of withdrawal from each creek. Therefore, this measure is qualitative.

The second measure is the mileage of roads that will be used for project activities and the amount of traffic on these roads. Otis Capitol estimates that there are 32.1 miles of roads that will be used for the project. There would be two to six pick-ups in operation per day and a water truck as necessary. Frogs are very susceptible to road mortality because they are a slow-moving species (Fahrig and Rytwinski 2009).

The third measure is the presence of Columbia spotted frogs within the project area. Spotted frogs breed in Camas Creek beaver ponds near the water withdrawal site. Also, spotted frogs have bred in a small seep created by previous mining activity on the claim. In addition, a survey will be conducted in any suitable un-surveyed wetland in the project area. However, the Beaver Creek draft site is not present on national forest land so surveys will not occur here. Overall, spotted frogs are considered common on the Dubois District and may be present in all aquatic habitats.

Spatial and Temporal Context

The direct and indirect effects analysis area is the project area, while the cumulative effects analysis area is the Camas Creek and East Beaver Creek Watersheds. The project area is within both of these watersheds. The time period for the analysis is ten years.

Affected Environment

Population Status

Overall, Columbia spotted frogs are common on the district and it is reasonable to expect their presence in most aquatic habitats. For example, of the 12 standard survey sites on the district, nine sites or 75 percent have spotted frog presence. The nearest standard survey site to the project area is West Camas Creek at Bear Gulch. This is the site where water may be drafted for drilling activities. Spotted frog adults and larvae were detected here in all three decadal surveys of 1992, 2002, and 2012 (Clark et al. 2012). In addition, previous mining and exploration activities created a seep within the mine claim. The seep is a breeding site for spotted frogs. Although nine spotted frog egg masses were detected at this site on June 3, 2010, no spotted frogs and little or not suitable habitat was detected at this site on July 1, 2013.

As mentioned above, forest-wide, decadal surveys for amphibians have occurred in 1992, 2002, and 2012; at over 90 standard sites on the Targhee National Forest. Twelve standard sites were surveyed on the Dubois District. Results from the decadal surveys demonstrate that there is geographic and temporal variability in amphibian use of sites, but there is no indication that amphibian species are declining on the forest (Clark et al. 2012). No decline in spotted frog populations is evident in nearby Yellowstone and Grand Teton National Parks. However, declines in spotted frog populations have been documented in southwestern Idaho, Nevada, Oregon, and Utah (Patla and Kenaith, 2005).

Habitat Status

Overall, the Dubois District is relatively arid, resulting in less suitable breeding sites for spotted frogs. Beaver activity has also declined on the district, so some beaver wetlands have disappeared or are in decline. However, beaver trapping is closed on most of the Dubois District. As mentioned previously, spotted frogs are considered common on the district and found in most aquatic habitats. Thus, it appears that spotted frogs are making use of available habitat.

Environmental Consequences

Direct and Indirect Effects of the No Action Alternative

Water would not be removed from creeks and tributaries that are breeding sites for spotted frogs or may be summer habitat. Road density and road use would not increase in the project area. This would result in a lower probability of road mortality for spotted frogs.

Direct and Indirect Effects of the Action Alternative

Columbia spotted frogs breed in Camas Creek near the water withdrawal site. Thus, water withdrawal from Camas Creek could impact spotted frogs by reducing water levels necessary for survival. However, water withdrawal would not occur until July 15 or later and spotted frog tadpoles may have metamorphosed at this time, making them less susceptible to changes in water level.

Columbia spotted frogs are mostly confined to aquatic areas for habitat and movements. However, spotted frogs may travel overland, if the route is more direct. Movements occur in July when spotted frogs may move to summer habitats or from August to October, when spotted frogs move from summer foraging areas to over-winter sites. During overland movements, spotted frogs are very susceptible to road mortality because they are a slow-moving species (Fahrig and Rytwinski 2009). Project activities include vehicular traffic on 32.1 miles of roads. If spotted frogs travel overland and cross roads, their probability of road mortality is increased with project activity.

Cumulative Effects for the Action Alternative

Past activities that impacted spotted frogs include alterations to aquatic habitats, road construction, introduced fish, and beaver eradication. Beavers create spotted frog habitat (breeding ponds, dams for wintering sites, and slower streamside areas for summer foraging areas) and a recent study suggested an increase in spotted frog populations after beaver re-introduction (Patla and Kenaith 2005). Further, In Grand Teton and Yellowstone National Parks, spotted frog breeding sites are twice as likely in beaver-influenced wetlands (Hossack et al. 2015). However, it is estimated that only 10 percent of the historic North American beaver population is present today (Naiman et al. 1988). Almost all of the Dubois District is closed to beaver trapping.

It is estimated that 95 percent of Western mountain lakes were historically fishless; fish have been introduced into many lakes and streams. All life phases of spotted frogs (eggs, tadpoles, and adults) are palatable to salmonids (Patla and Kenaith 2005). Indirect effects include prevention of movement through riparian corridors and lower habitat quality in deep lakes used

for over-wintering. However, a study of over 2000 Western lakes suggests that spotted frogs are able to co-exist successfully with fish (Pilliod et al. 2010).

A literature review on road effects on amphibians indicates that amphibians receive primarily negative effects from roads because of vulnerability to road mortality (Fahrig and Rytwinski 2009). The 1997 Revised Forest Plan for the Targhee National Forest reduced road density throughout the forest. This may have provided benefits to frogs. The Porcupine Lookout timber harvest project would increase road use and presence.

Aquatic habitat alteration, such as diversions, damming, and recreation; may have removed or impacted spotted frog habitat. Livestock grazing has occurred in the past and present within the watershed. Grazing has differing effects on frogs, which include nitrogen pollution, compaction of streambank refugia (negative), increases in basking sites, and algal tadpole food resources (positive). Research on the effects of cattle grazing at spotted frog breeding habitats suggests neutral to beneficial impacts (Bull and Hayes 2000, Adams et al. 2009).

Three infectious diseases may impact Columbia spotted frogs. These are the chytrid fungus, severe Perkinsea infection (SPI), and ranaviruses. Ranaviruses are part of the natural life history of amphibians, but their virulence may be accelerated by human activity. Ranaviruses are characterized by environmental persistence (Corn 2007). Twelve percent of wild anuran mortality events in the U.S. were caused by SPI in a recent study. It affects Ranid frogs, such as the Columbia spotted frog, but only in the tadpole stage. SPI is also characterized by environmental persistence (Isidoro-Ayza et al. 2017). Chytrid fungus has not been shown to cause mortality or impairment in the Oregon spotted frog (*Rana pretiosa*), but it did cause frogs to lose weight, suggesting energetic effects (Padgett-Flohr and Hayes 2011). Further research is needed; at this time, there is no definitive link between infectious disease and amphibian declines in the Greater Yellowstone Ecosystem (Hossack et al. 2015).

Climate change results in warmer summers, decreased snowpack, and changes in snow-melt timing. This results in declines in wetland habitats from decreases in precipitation, run-off, and groundwater sources (Halofsky et al. 2018). Columbia spotted frogs need wetland habitats for breeding and summering.

Summary

Summary of Environmental Effects

The determination for the action alternative is “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.” Water withdrawal may impact Columbia spotted frogs. Also, spotted frogs could be killed by project vehicles on roads. Cumulative effects would not contribute to project effects in a way which is detrimental to the Columbia spotted frog.

Compliance with Relevant Laws, Regulation, and Policy

The 1997 Revised Forest Plan for the Targhee National Forest does not contain management direction for Columbia spotted frogs.

Intensity Factors for Significance

The following intensity factors for significance may apply to Columbia spotted frogs:

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were outlined for Columbia spotted frogs above. Overall, spotted frogs are common on the Dubois District. Thus, cumulative effects do not contribute to direct and indirect effects in a manner which is detrimental to the Columbia spotted frog.

Gray Wolf (*Canis lupus*)

Issues and Other Concerns

There were no public comments on the project specific to gray wolves. A concern is that project activities may disturb gray wolves or their prey. The primary prey of wolves in the Greater Yellowstone Ecosystem is elk.

Resource Indicators and Measures

The first measure is the presence of gray wolves within or adjacent to the project area. The project area is between the approximate territories of the Pleasant Valley and Fogg Butte packs. The project area overlapped with the approximate Bishop Mountain pack territory, but this pack was removed (IDFG 2015). It is assumed this pack was removed for livestock (sheep) depredation. Since the project area does not lie within any approximate pack territories, it would seem unlikely that the project area contains or is near any den or rendezvous sites. However, wolves are long-distance migrants and dispersers, so there is the possibility of wolves traveling through or near the project area any time of the year (Boyd and Pletscher 1999).

The second measure is the presence of elk, the primary prey of gray wolves in the Greater Yellowstone Ecosystem, within the project area. In the Island Park Zone, which includes the project area, the numbers of cow elk are within objectives, but the numbers of bull elk are below objectives. The herd is considered moderately productive (IDFG 2014). It is possible that previous annual project activities on the claim have already encouraged elk to seek out alternative habitats away from noise and road density on the claim.

Spatial and Temporal Context

Direct and indirect effects are considered within the project area, while cumulative effects are considered in the Island Park wolf management zone. This zone is east of I-15, north of the Snake River, and bounded on the east by Wyoming. The time period for the analysis is ten years.

Affected Environment

Population Status

Within the Island Park wolf management zone in 2015, there were four interior packs, one Montana border pack, one pack shared with the Beaverhead wolf management zone, and two suspect packs. One pack, Bishop Mountain, was removed. Reproduction was confirmed in two packs, including the Fogg Butte pack. No radio-collared wolves dispersed. There were 15 mortalities (all human-caused). Eight wolves were legally harvested and six wolves were lethally removed (IDFG 2015).

Overall in Idaho, there were an estimated 786 wolves at the end of 2015. There were 108 packs within the state and 20 border packs shared with Wyoming, Montana, and Washington. This is the third highest wolf population in the state in 20 years; the highest estimated wolf population occurred in 2009 with 856 wolves. There were 358 known wolf mortalities and 99 percent of these were human-caused. Hunters harvested 256 wolves, 75 wolves were lethally controlled, and 21 wolves were killed to support elk management (IDFG 2015). The population trend appears stable for wolves.

A rough estimate of the mortality rate for gray wolves in Idaho in 2015 is around 30 percent. Research in Alaska demonstrates that gray wolf population trends are not affected by human-related mortality if mortality rates are less than 30 percent. Wolves have very high productivity and very high dispersal rates. Thus, wolf populations compensate for human-related mortality by productivity and dispersal (Adams et al. 2008).

Habitat Status

Gray wolves are habitat generalists in the Rocky Mountains. The primary prey of wolves in the Greater Yellowstone Ecosystem is elk and elk populations are well-managed in Idaho. Wolves outside of Yellowstone National Park are influenced by human harvest and lethal control for livestock depredation.

Environmental Consequences

Direct and Indirect Effects of the No Action Alternative

There would be no disturbances to packs or dispersing wolves from project activities. Their primary prey, elk, would also experience less disturbance from project activities and roads. However, there may be little wolf activity (packs or dispersers) within or adjacent to the project area because of the removal of the Bishop Mountain pack in 2015.

Direct and Indirect Effects of the Action Alternative

Gray wolves from nearby packs or dispersers could be disturbed by project activities. However, disturbance is more likely near den or rendezvous sites and none are expected within or adjacent to the project area. Project activities could disturb the primary prey of gray wolves, elk. Some habituation to project activities may have occurred in previous years of activity.

Cumulative Effects of the Action Alternative

Harvest is the greatest contributor to wolf mortality in Idaho. However, the potential for reducing wolf populations through regulated harvest is very low (Adams et al. 2008). Thus, although

harvest is the greatest threat to a wolf in the analysis area, the population trend for wolves appears stable.

The second greatest contributor to wolf mortality is lethal control relative to livestock depredation. Full pack removal for confirmed livestock depredation is more effective than no or partial pack removal (Coltrane et al. 2015). Livestock grazing occurs throughout much of the Island Park wolf management zone and includes both cattle and sheep. Wolf mortalities from lethal control appears to be around 20 percent of total mortalities.

Wolves are impacted by many parasites and diseases. Outbreaks of canine distemper virus (CDV) occurred in Yellowstone National Park (YNP) in 1999, 2005, and 2008. CDV decreases wolf pup survival by approximately 50 percent. Mange is another parasite that has been documented in YNP (Smith 2016) and observed in Montana wolves (Coltrane et al. 2015). Mange is caused by a microscopic mite which burrows into the skin of fur-bearing animals. The burrowing causing itching and animals scratch themselves and produce hair loss. The result is difficulty with thermal maintenance, which can lower survival. The mite that produces mange was introduced into the wild in the early 1900s as part of predator eradication efforts (Smith 2016).

Summary

Summary of Environmental Effects

The determination for the action alternative is “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.” There is some potential for project activities to disturb resident or transient gray wolves or their prey. Cumulative effects would not contribute to project effects in a way which is detrimental to gray wolves.

Compliance with Relevant Laws, Regulation, and Policy

The 1997 Revised Forest Plan for the Targhee National Forest does contain management direction for gray wolves, but it is related to livestock grazing, not mineral exploration. The Idaho Department of Fish and Game is responsible for wolf management in Idaho. One of their management goals is to prevent the re-listing of gray wolves, which would occur if the population level fell below 150 animals.

Intensity Factors for Significance

The following intensity factors for significance may apply to gray wolves:

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were outlined for gray wolves above. Harvest and lethal control have resulted in high mortality rates for wolves. But, gray wolves are very resilient to relatively high mortality

rates as evidence by research in Alaska by Adams and others (2008). Cumulative effects would not contribute to project effects in a way which is significant to gray wolves.

Great Gray Owl (*Strix nebulosa*)

Issues and Other Concerns

Public comment expressed a concern that 24-hour drilling noise could impact Great Gray Owls. Project activities, which include road construction, road use, and 24-hour drilling; could disturb nesting activities. Another concern is that habitat would be removed because of road construction to facilitate mineral exploration.

Resource Indicators and Measures

The first measure is the amount of Great Gray Owl habitat that may be removed for road construction for the project. Great Gray Owls require different habitats for foraging and nesting. In southeast Idaho, Great Gray Owls nest in mid- to late-successional (mature and older) Douglas fir stands with herbaceous understories near to natural meadows and small clearcuts (Duncan and Hayward 1994). Great Gray Owl foraging habitats are natural meadows, small forest openings, recent clearcuts, and open mature and older forests. The GIS product of the Caribou-Targhee National Forest mid-level existing classification and mapping program was used to determine the mileage of new roads that intersected with any forest. This may over-estimate Great Gray Owl habitat, since this species is strongly associated with Douglas fir, rather than all forest types. The mapping product was created with satellite and aerial imagery and complemented with field surveys and photo interpretation. All 10.4 miles of the new roads intersect with some type of forest. New roads may be 12 or 20 feet wide. Since the width is not known, it is assumed that all miles of road that intersect would have a width of 20 feet. Thus, up to 25.1 acres of habitat would be removed. However, it is not known if Great Gray Owls are using this habitat.

The second measure is the amount of Great Gray Owl habitat in the noise effects zone. Noise can affect birds in the following ways: It can cause physical damage to ears, stress, avoidance, changes in behaviors (such as foraging), and masking of sounds necessary for survival or reproduction. Ultimately, these effects can result in lower reproductive success or population levels (Ortega 2012). Great Gray Owls locate prey by sound (Hayward and Verner 1994), so noise could interfere with the ability of Great Gray Owls to forage.

Please see discussion above relative to the determination of the noise effects zone (2672 acres or 4.2 square miles). Since up to three drill rigs would be in operation at any one time, the entire noise effects zone would not be filled with noise at all times. Rather, the noise effects zone describes a maximum area of noise effects.

The GIS product of the Caribou-Targhee National Forest mid-level existing classification and mapping program was used to determine how much of the noise effects zone contained potential Great Gray Owl habitat (forested stands). Again, this may over-estimate Great Gray Owl habitat, since this species is strongly associated with Douglas fir, rather than all forest types. The noise

effects zone contained 2577 acres of potential Great Gray Owl habitat (forest stands with tree size greater than seven inches DBH). This was 96 percent of the noise effects zone. However, it is not known if Great Gray Owls are using all of this habitat.

The third measure is the presence of Great Gray Owls within the project area. District observations and previous surveys were used to determine presence. In 2014, a Great Gray Owl survey was conducted in and below the Mine Ridge area. No Great Gray Owls were detected during the survey. District records include two sightings: One occurred in November 1990 and is within the noise effects zone. The second occurred in October 1991 is outside of the noise effects zone. These fall sightings are likely not associated with breeding activity or breeding territories.

Spatial and Temporal Context

The direct and indirect effects analysis area is the noise effects zone (2672 acres), while the cumulative effects analysis area is the Camas Creek and East Beaver Creek Watersheds. The project area is within both of these watersheds. The time period for the analysis is ten years.

Affected Environment

Population Status

There are over 30 district records of Great Gray Owls on the east side of the Dubois District (east of I-15), suggesting that this species may be relatively common. There are five standard forest plan owl monitoring routes on the Dubois District. The purpose of the surveys is to document distribution across the forest, as opposed to locate specific territories. Great Gray Owls appear to remain well-distributed across the forest (USDA 2006). The population estimate for the United States and Canada is 95,000. There is not enough information to determine a population trend (Rosenburg et al. 2016).

Habitat Status

The east side of the Dubois District may provide ample, quality habitat for Great Gray Owls. In southeast Idaho, this species commonly nests in late-seral Douglas fir forests, where old goshawk nests and broken-top snags are available for nest structures. There is considerable late-seral Douglas fir forest on the district.

Environmental Consequences

Direct and Indirect Effects of the No Action Alternative

Approximately 25 acres of Great Gray Owl habitat would not be removed for road construction. There would be no noise disturbance to 2577 acres of potential Great Gray Owl habitat. There may be Great Gray Owls in the project area.

Direct and Indirect Effects of the Action Alternative

Approximately 25 acres of potential Great Gray Owl habitat would be removed. Up to 2577 acres of potential Great Gray Owl breeding habitat may be disturbed by drilling noise. Noise has the potential to negatively impact reproductive success and contribute to declines in population trend. For example, noise can interfere with basic survival, such as the ability of birds to detect

predators or prey or hear alarm calls or begging calls of family members. In addition, noise may cause stress or avoidance (Ortega 2012). Great Gray Owls could be especially susceptible to noise pollution because they locate prey by sound. Great Gray Owls are beginning to fly in late July and early August. Since project activities begin July 15, there would be some overlap with the Great Gray Owl breeding season.

Cumulative Effects for the Action Alternative

Timber harvest in the analysis area during the 1970s, 1980s, and 1990s may have increased foraging habitat for Great Gray Owls, especially smaller patch cuts. However, foraging habitat created by clear cuts is short-lived. Further, timber harvest can reduce nesting habitat for Great Gray Owls because it may take a century or longer after harvest to re-establish the late-seral forests used by Great Gray Owls for nesting (Hayward and Verner 1994). However, the Camas Creek and East Beaver Creek Watersheds contains 52.4 and 33.9 percent late-seral and old-growth forest stands, respectively, which contribute to Great Gray Owl nesting habitat. The Porcupine Lookout timber harvest project must meet forest plan direction for Great Gray Owls. This includes both maintenance of late-seral forest in the 1600-acre nest territory. And, no timber harvest in the active or historic 20-acre nest area.

Strychnine is used to kill pocket gophers after planting of clear-cut areas to prevent loss of seedlings. There is concern that Great Gray Owls, whose principal prey is pocket gophers, could receive secondary poisoning foraging on pocket gophers in clear cuts where strychnine has been applied (Hayward and Verner 1994). Douglas fir harvest areas are more likely to have strychnine applied than lodgepole pine forests. The former forest types are more common in the analysis area.

Wildfire maintains natural meadows and opens late-seral forest structure, while insects and disease create small openings in mature forest. These natural processes produce long-term foraging habitat for Great Gray Owls (Hayward and Verner 1994). Two forest wildfires have occurred in the Camas Creek Watershed. These are the Winslow Creek fire of 2008 (4907 acres) and the Timber fire of 2003 (1731 acres). In addition, approximately half of the Camas Creek Watershed is considered at a low risk for fire. Here, wildfires may be allowed to burn. Insect and disease activity has been increasing on the forest, as it has in the West (Raffa et al. 2008). However, the Porcupine Look-out timber harvest within the analysis area is designed to reduce insect and disease activity.

Summary

Summary of Environmental Effects

The determination for the action alternative is “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species.” Approximately 25 acres of potential Great Gray Owl habitat would be removed for road construction and 2577 acres of potential habitat may be exposed to drilling noise. However, surveys will occur for Great Gray Owls and forest plan management direction will be met (see below). Cumulative effects would not contribute to project effects in a way which is detrimental to the Great Gray Owl.

Compliance with Relevant Laws, Regulation, and Policy

The 1997 Revised Forest Plan for the Targhee National Forest contains standards and guidelines for Great Gray Owls. This management direction applies to timber harvest, but in recent projects has been interpreted to include any type of vegetation removal. The table below outlines how this project meets forest plan management direction for Great Gray Owls.

STANDARDS AND GUIDELINES	EXPLANATION AND DISCUSSION
Do not allow timber or firewood harvest activities within a 20-acre area around all known Great Gray Owl active and historic nest sites (Standard, page III-21).	Great Gray Owl surveys will occur in those areas where new roads are proposed. If a Great Gray Owl nest is located, no vegetation removal will occur within a 20-acre buffer of the nest.
Maintain over 40% of the forested acres in late-seral age classes within a 1600-acre area around all known Great Gray Owl nest sites (Guideline, page III-22).	This project would not alter the proportion of late-seral age classes within the project area. This guideline is met.

Intensity Factors for Significance

The following intensity factors for significance may apply to Great Gray Owls:

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were outlined for Great Gray Owls above. Forest actions have maintained habitats and habitat characteristics for Great Gray Owls as evidence by the large number of district records and the amount of late-seral and old-growth forest in the analysis area. Thus, cumulative effects do not contribute to direct and indirect effects in a manner which is detrimental to the Great Gray Owl.

Migratory birds

Issues and Other Concerns

There were no public comments specific to migratory birds. A concern is that habitat would be removed because of road construction to facilitate mineral exploration. Also, project activities, which include noise from road construction, road use, and 24-hour drilling; could disturb nesting activities.

Resource Indicators and Measures

The first measure is the overlap of project activities with the migratory bird breeding season. The migratory bird breeding season for the project area is approximately May 1 through August 15. This time period includes early nesters, late nesters, and re-nesters (those who re-nest if the first clutch fails). The project time period is July 15 through December 15 for up to five years. Thus, there is overlap between the project time period and the migratory bird breeding season from July 15 to August 15. The July 15 project activity onset may allow for early nesters to complete their breeding. But, it would not allow for late nesters or re-nesters to complete their breeding.

The second measure is the amount of migratory bird breeding habitat that may be removed for road construction for the project. Suitable migratory bird breeding habitat includes all forest and non-forest habitat types. There are 10.4 miles of new roads. These roads intersect with potential nesting habitat for migratory birds. It is assumed that the width of the new roads would be 20 feet, so 25.1 acres of potential migratory bird breeding habitat would be removed.

The third measure is the amount of migratory bird breeding habitat in the noise effects zone. Please see discussion above relative to the determination of the noise effects zone (2672 acres or 4.2 square miles). Since up to three drill rigs would be in operation at any one time, the entire noise effects zone would not be filled with noise at all times. Rather, the noise effects zone describes a maximum area of noise effects.

Migratory birds breed in many different types of habitats, including both forested and non-forested types. Thus, the entire noise effects zone is potential migratory bird breeding habitat. All 2672 acres of the noise effects zone contains potential migratory bird nesting habitat.

Noise can affect birds in the following ways: It can cause physical damage to ears, stress, avoidance, changes in behaviors (such as foraging), and masking of sounds necessary for survival or reproduction. Ultimately, these effects can result in lower reproductive success or population levels. However, some species can use constant well compressor noise to shield themselves from predators (Ortega 2012). Thus, it is expected that drill rig noise would have mostly negative impacts on migratory birds, but could have positive impacts for some species.

A study in northwestern New Mexico assessed the impact of 24-hour gas well compression noise on breeding bird densities and richness (Francis et al. 2009). This study may be the most valuable of chronic noise studies on passerines because the researchers were able to control for potential false negatives during breeding bird surveys by turning off the compressor during surveys. Most chronic noise studies on birds were not able to control the noise, so there is concern that lower abundances or diversity of birds may be because researchers could not detect birds that were present. In New Mexico, the researchers discovered that chronic noise may not decrease breeding bird densities within the noise effects zone, but nests may be located further from the source of noise. Further, bird species richness appears to decline in the effects zone of chronic noise. Lastly, nest predation may be lower in the noise effects zone if nest predators use low-frequency sounds to locate nest prey. The primary nest predator using low-frequency sound to locate nest prey in the study was the Scrub Jay (Francis et al. 2009). Thus, it is expected that bird abundance may not decline in the noise effects zone around the drilling operations, but that diversity may be less. For species breeding in the noise effects zone, there may be less nest predation and greater nest success.

The fourth measure is the presence of migratory birds within the project area, especially species of concern. Birds of conservation concern (BCC) are identified by the U.S. Fish and Wildlife Service (2008). The BCC that may be present in the project area are Calliope Hummingbird, Cassin's Finch, Olive-sided Flycatcher, Swainson's Hawk, and Williamson's Sapsucker. Partners in Flight (PIF) watchlist species that may be present in the project are Cassin's Finch, Common Nighthawk, Evening Grosbeak, Olive-sided Flycatcher, and Pine Siskin. These species

have experienced population declines of 58 to 94 percent (Rosenburg et al. 2016). Idaho species of greatest conservation need (SGCN) that may be in the project area are Clark's Nutcracker, Olive-sided Flycatcher, and Sandhill Crane. Information collected during goshawk surveys in 2013 and 2018 were used to determine presence.

Migratory bird data was collected during goshawk surveys conducted in the Mine Ridge area of the Otis Capitol claim on July 1, 3, and 5, 2013. BCC, PIF watchlist species, and Idaho SGCN detected were Olive-sided Flycatcher and Pine Siskin. American Robin, Dark-eyed Junco, Hermit Thrush, Ruby-crowned Kinglet, and Yellow-rumped Warbler were also detected in the Mine Ridge area.

Migratory bird data was also collected during goshawk surveys conducted in the project area on June 20, 21, 28, July 2, and 5, 2018. BCC, PIF watchlist species, and Idaho SGCN detected were Cassin's Finch, Clark's Nutcracker, Olive-sided Flycatcher, Pine Siskin, Sandhill Crane, and Swainson's Hawk. American Robin, Brown Creeper, Black-headed Grosbeak, Common Raven, Dark-eyed Junco, Dusky or Hammond's Flycatcher, Hermit Thrush, House Wren, Lincoln's Sparrow, MacGillivray's Warbler, Mountain Chickadee, Northern Flicker, Red-breasted Nuthatch, Red-tailed Hawk, Ruby-crowned Kinglet, Sharp-shinned Hawk, Swainson's Thrush, Townsend's Solitaire, Turkey Vulture, Warbling Vireo, Western Tanager, Western Wood Pewee, White-crowned Sparrow, Yellow Warbler, and Yellow-rumped Warbler were also detected in the project area.

Spatial and Temporal Context

The direct and indirect effects analysis area is the noise effects zone (2672 acres). The cumulative effects analysis area is the Dubois District (465,000 acres). The time period for the analysis is ten years.

Affected Environment

Population Status

The Caribou-Targhee National Forest has been surveyed annually for migratory birds from 2012 through 2019 as part of a multi-scale avian monitoring program (Integrated Monitoring in Bird Conservation Regions). Annually, surveys are conducted at over 100 survey stations from late May to early July. Population trend estimates are available for most bird species. With respect to BCC, population trends are stable for Olive-sided Flycatcher, and Williamson's Sapsucker. Population trend is slightly down for Cassin's Finch and unknown for Swainson's Hawk. With respect to Idaho SGCN, population trend is slightly down for Clark's Nutcracker; stable for Olive-sided Flycatcher; and unknown for Sandhill Crane. With respect to PIF watchlist species, population trend is slightly down for Cassin's Finch, Common Nighthawk, Evening Grosbeak (low sample size); and stable for Olive-sided Flycatcher and Pine Siskin. Across the forest, bird species with notable declines include Cordilleran Flycatcher, Dusky Grouse, Mountain Bluebird, Orange-crowned Warbler, Wilson's Warbler, Townsend's Solitaire, Downy Woodpecker, and Common Nighthawk (Rocky Mountain Avian Data Center online).

Overall, one-quarter or three billion birds have been lost from North America since 1970. Grassland birds have experienced the greatest loss, but birds in forest biomes have also decreased, with a loss of about one billion birds. This biodiversity crisis can be reversed with the same strategies that have been applied to waterfowl management (Rosenberg et al. 2019).

Habitat Status

Habitat in the project area was determined from the 2011 mid-level existing vegetation classification and mapping project for the Caribou-Targhee National Forest. This map identified 27 vegetation types, nine canopy cover classes, and six tree-size classes. Moderate and high resolution imagery, topographic data, ancillary GIS layers, field and photo-interpreted reference data, automated image segmentation, and data mining classification techniques were used to create the vegetation map.

The project area is primarily mixed conifer. The canopy cover appears to be relatively open in most stands. The stands are also primarily late-seral.

Public lands are very important for migratory birds. The U.S. Forest Service provides habitat for 62 percent of the birds breeding on western forested public land (NABCI 2011). In North America, boreal forests are largely intact and both boreal and temperate forests provide considerable habitat for migratory birds (NABCI 2016).

Environmental Consequences

Direct and Indirect Effects of the No Action Alternative

Approximately 25 acres of potential migratory bird breeding habitat would not be removed for road construction. There would be no noise disturbance to 2672 acres of potential migratory bird habitat from July 15 to August 15 of the migratory bird breeding season. Migratory birds are present throughout the project area during the breeding season.

Direct and Indirect Effects of the Action Alternative

Approximately 25 acres of migratory bird breeding habitat would be removed. Up to 2672 acres of migratory bird breeding habitat may be disturbed by drilling noise. However, noise disturbance would occur for the latter month of the 4.5-month migratory bird breeding season (July 15 to August 15), allowing for early nesters to complete their breeding but not allowing late-nesters or re-nesters to complete their breeding. Noise has the potential to negatively impact reproductive success and contribute to declines in population trend. Noise can also protect breeding birds from predators that use sound to locate their prey. Common birds, BCC, PIF watchlist, and SGCN bird species are present in the project area.

Cumulative Effects for the Action Alternative

The cumulative effects analysis area is the Dubois District (465,000 acres). Practices on western forested public lands that may be harmful to migratory birds are mineral and energy extraction, logging, grazing, recreation, road density, and expanding urban interface. Important habitat features are snags, old-growth, riparian corridors, whitebark pine, and restoration of natural fire regimes. Climate change is also a concern (NABCI 2011).

Climate change may produce asynchrony in the arrival of long-distance migratory bird species and the peak of food resources, lowering reproductive success and survival. Also, climate change may alter the hydroperiod, resulting in a decrease in wetland habitats, which are important habitats for migratory birds. Further, extreme weather events, such as drought, increase with climate change and can cause bird population declines. Climate change also requires range shifts, northward or to higher elevations, for bird species, but range shifts may not be possible because of migration impediments or habitat loss. Further, range shifts may result in new unfavorable ecological relationships with prey, predators, or disease (Wormworth and Mallon 2006). However, only two percent of North American forest bird species show high vulnerability to climate change (NABCI 2010).

There are five important habitat features in forested biomes for migratory birds. First, natural fire regimes may be allowed to occur on the district. Six percent of the district is in a full-suppression zone, while 36 percent is in a low-risk zone and 58 percent is in a medium-risk zone. This allows for some tolerance of wildfire. Second, whitebark pine stands are present in the Centennial Mountains. Declines have been consistent with that in other areas in the Greater Yellowstone Ecosystem and the mountain pine beetle epidemic appears to have waned. Third, there is no legal harvest trapping of beaver on most of the district. This benefits riparian corridors and wetland habitats, which are important migratory bird habitats. Fourth, the percentage of forest on the district that is late-seral or old-growth ranges from 21 to 79 percent. This is higher than forest plan direction for five to 10 percent. Fifth, snags are well-represented in the analysis area. In 1990-1991, the biological potential for snag habitat for the district ranged from 41 to 53 percent. This has likely increased with insect-related tree mortality (USDA 2006). This meets recommendations for cavity-nesting species (40 percent) (Bull et al. 1997).

There are six harmful practices in western forests that may affect migratory birds. First, there has been little increase in urban interface within the cumulative effects analysis area and no increase is expected in the future. There are primarily Bureau of Land Management lands at the Forest Service boundary. Second, the road density varies from 0 to two mile per square mile in the analysis area, but the most recent travel plan for the Targhee National Forest decreased road density. Third, dispersed camping, OHV use, fishing, and hunting are primary recreational pursuits. The analysis area overlaps with approximately 40 cattle and sheep allotments. Grazing occurs in riparian zones. There is less grazing pressure currently than in the past. Fifth, timber extraction has not been frequent on the district, but a timber sale is planned for July 2021. The Kilgore Gold project could lead to an open-pit mine if exploration drilling suggests economic feasibility.

The Porcupine Lookout timber harvest project would have a start date of July 15 each year, which would lessen impacts to migratory bird breeding. There could still be impacts after July 15 to late-nesting or re-nesting birds. These are short-term impacts. Long-term impacts from changes in habitat would have neutral, negative or positive effects, depending on individual species habitat requirements. Overall, public lands provide abundant high-quality migratory bird breeding habitat (NABCI 2011).

Summary

Summary of Environmental Effects

The determination for the action alternative is “neutral, negative or positive.” Project activities will occur during the latter part of the migratory bird breeding season, 25 acres of habitat would be removed for road construction, and noise from project activities can have both negative and positive impacts on migratory birds. Cumulative effects would not contribute to project effects in a way which is detrimental to migratory birds.

Compliance with Relevant Laws, Regulation, and Policy

Executive Order (EO) 13186, signed by President Clinton in 2001, outlined the responsibilities of federal agencies to protect migratory birds. The EO directs federal agencies to “ensure that environmental analyses of Federal actions required by the NEPA [National Environmental Policy Act] or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.” Please see the analysis above. In addition, the EO stated that agencies will “support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.” Timing restrictions, such as July 15 for this project, are an effective method to minimize adverse impacts.

Intensity Factors for Significance

The following intensity factors for significance may apply to migratory birds:

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were outlined for migratory birds above. Overall, public lands provide considerable quality migratory bird breeding habitat. Thus, cumulative effects do not contribute to direct and indirect effects in a manner which is detrimental to migratory birds.

Elk (Cervus elaphus)

Issues and Other Concerns

Comments from the public expressed concern that project activities would negatively impact elk and big game hunting. Correlated concerns include decreases in habitat effectiveness and security. Both of these measures are influenced by road construction and road use.

Resource Indicators and Measures

There are two resource indicators and measures. The first is security. Security is a measure of the vulnerability of elk during the hunting season. The hunting season includes archery and general rifle seasons. Vulnerability is dependent on the density of motorized routes in use during the hunting season. Areas that are secure for elk should be at least 250 acres in size, at least one-half mile from an open motorized route, and should comprise at least 30 percent of an analysis unit

(Canfield 2013). Projects that involve road construction or the use of roads that have been closed and in non-use decreases the size of security areas.

Prior to mineral exploration, there are six elk security areas in the analysis area. From north to south, these areas are approximately 6000, 1500, 450, 450, 700, and 800 acres in size, for a total of approximately 10,000 acres. These security areas are 33 percent of the analysis area. With mineral exploration (and the associated road construction and use of closed roads), elk security declines to five elk security areas and to a total of approximately 9400 acres. The resulting security areas are 31 percent of the analysis area. With or without project activity, the security areas are at least 30 percent of the analysis unit, as recommended.

The second resource indicator and measure is habitat effectiveness. Habitat effectiveness is determined by the motorized road density in summer range. Road densities of one mile per square mile cause habitat effectiveness to decline by 25 percent, while road densities of two miles per square mile cause habitat effectiveness to decline by 50 percent. It must be recognized that road density is the proxy for habitat effectiveness, but other factors besides motorized route density influence habitat effectiveness, such as livestock grazing or presence of preferred habitats (Canfield 2013). Habitat effectiveness should be 70 percent or greater to benefit elk summer range. Habitat effectiveness should be at least 50 percent if elk are a primary resource consideration (Christensen et al. 1993). Projects that involve road construction or the use of roads that have been closed and in non-use decreases habitat effectiveness.

Prior to mineral exploration, habitat effectiveness is almost 60 percent in the analysis area (1.1 miles per square mile). With mineral exploration (and the associated road construction and road use), habitat effectiveness is above 50 percent (1.4 miles per square mile). With or without project activity, habitat effectiveness is above 50 percent, as recommended if elk are a primary resource consideration.

Spatial and Temporal Context

It is recommended that security be measured at the elk analysis unit or the sixth-code watershed (Canfield 2013). Idaho does not have elk analysis units as Montana does. The project area overlaps with two sixth-code watersheds and three twelfth-code watersheds (Corral Creek, Lower West Camas Creek, and Upper Camas Creek). Thus, the analysis area for security was the three twelfth-code watersheds where they exist on the national forest. This analysis area is 30,082 acres.

It is recommended that habitat effectiveness be measured at the elk analysis unit and winter range be excluded if it has been identified (Canfield 2013). Idaho does not have elk analysis units as Montana does. The same analysis area used for security was used for habitat effectiveness, except that identified winter range was excluded. The analysis area is 26,692 acres. There is no winter range in the project area, only in the analysis area.

Cumulative effects are measured at the game management unit. This is unit 61. The time period for the analysis is ten years.

Affected Environment

Population Status

The Island Park Zone includes game management units 60, 60A, 61, and 62A. The project area is in unit 61. In 2010, game management unit 60A of the Island Park Zone was surveyed during the winter and 2512 elk were detected. The other game management units in the Island Park Zone were not surveyed (IDFG 2014). Elk are at state objective in the Island Park Zone.

Habitat Status

The east side of the Dubois District is characterized by mature timber, Douglas fir dominance, a decline in aspen, past wildfire, and areas of open sagebrush. Road density was reduced by the 1998 travel plan. There is winter range on the southern forest boundary.

Environmental Consequences

Direct and Indirect Effects of the No Action Alternative

Security areas in the analysis area would not be decreased. Elk vulnerability would remain at the same level. Habitat effectiveness would not be decreased either.

Direct and Indirect Effects of the Action Alternative

With project activity, elk security decreases from six areas to five, and by 600 acres. Overall, the percent of the analysis area that is secure for elk declines from 33 to 31 percent. With or without project activity, the security areas are at least 30 percent of the analysis unit, as recommended.

With project activity, elk habitat effectiveness declines from approximately 60 percent to 50 percent. However, habitat effectiveness should be at least 50 percent if elk are a primary resource consideration (Christensen et al. 1993). And, with or without project activity, habitat effectiveness is above 50 percent.

Cumulative Effects for the Action Alternative

Domestic elk ranching in the analysis area is a potential threat to wild elk. Domestic elk ranching can harm elk through loss of habitat, obstruction of migratory routes, disease transmission, and genetic introgression from escapees (IDFG 2014). The Juniper Mountain Ranch, a domestic elk ranching operation, is located in St. Anthony.

In the Greater Yellowstone Ecosystem, wolves are the primary predator of elk. However, research on 2746 female elk from 45 study populations in the northwestern United States found that female elk survival rates decreased less than two percent in populations with wolf predation relative to populations without wolf predation (Brodie et al. 2013). Research by Montana Fish, Wildlife, and Parks in Montana indicates that elk populations with wolf-only predation have generally remained stable or increased. Adult female elk survival has remained high in most areas during wolf population increase (Hamlin and Cunningham 2009). State wildlife managers limit harvest where elk are in the presence of wolves, so that female adult elk survival is actually greater in the presence of wolves than in areas without wolves (Brodie et al. 2013).

But, elk populations are limited by predators when multiple predator species (i.e., wolves and grizzly bears) prey on elk. The population limitation occurs through low elk calf survival and recruitment (Hamlin and Cunningham 2009). Where present, grizzly bears are the biggest source of mortality for neonatal elk calves. Grizzly bear predation may be additive mortality, whereas predation from wolves, cougars, and coyotes may be compensatory mortality. After the neonatal period (90 days from birth), bear predation on calves no longer occurs (Griffin et al. 2011).

Wolf predation accounts for seven percent of adult female elk mortality. However, harvest accounts for 55 percent of all adult female elk mortality (Brodie et al. 2013). Elk hunting is the major source of elk mortality.

The Porcupine Lookout timber harvest project has the potential to impact security and habitat effectiveness. However, there is management direction in the forest plan to maintain security and habitat effectiveness in specific management prescription areas. Further, an analysis for security and habitat effectiveness would occur for that project and any deficits would be mitigated.

Summary

Summary of Environmental Effects

The determination for the action alternative is “neutral to negative.” Security areas decline, both in size and as a percentage of the analysis area. Thus, elk may be more vulnerable during the hunting season. But, with or without project activity, the security areas are at least 30 percent of the analysis unit, as recommended. Habitat effectiveness also declines, but remains above 50 percent. Habitat effectiveness should be at least 50 percent if elk are a primary resource consideration (Christensen et al. 1993).

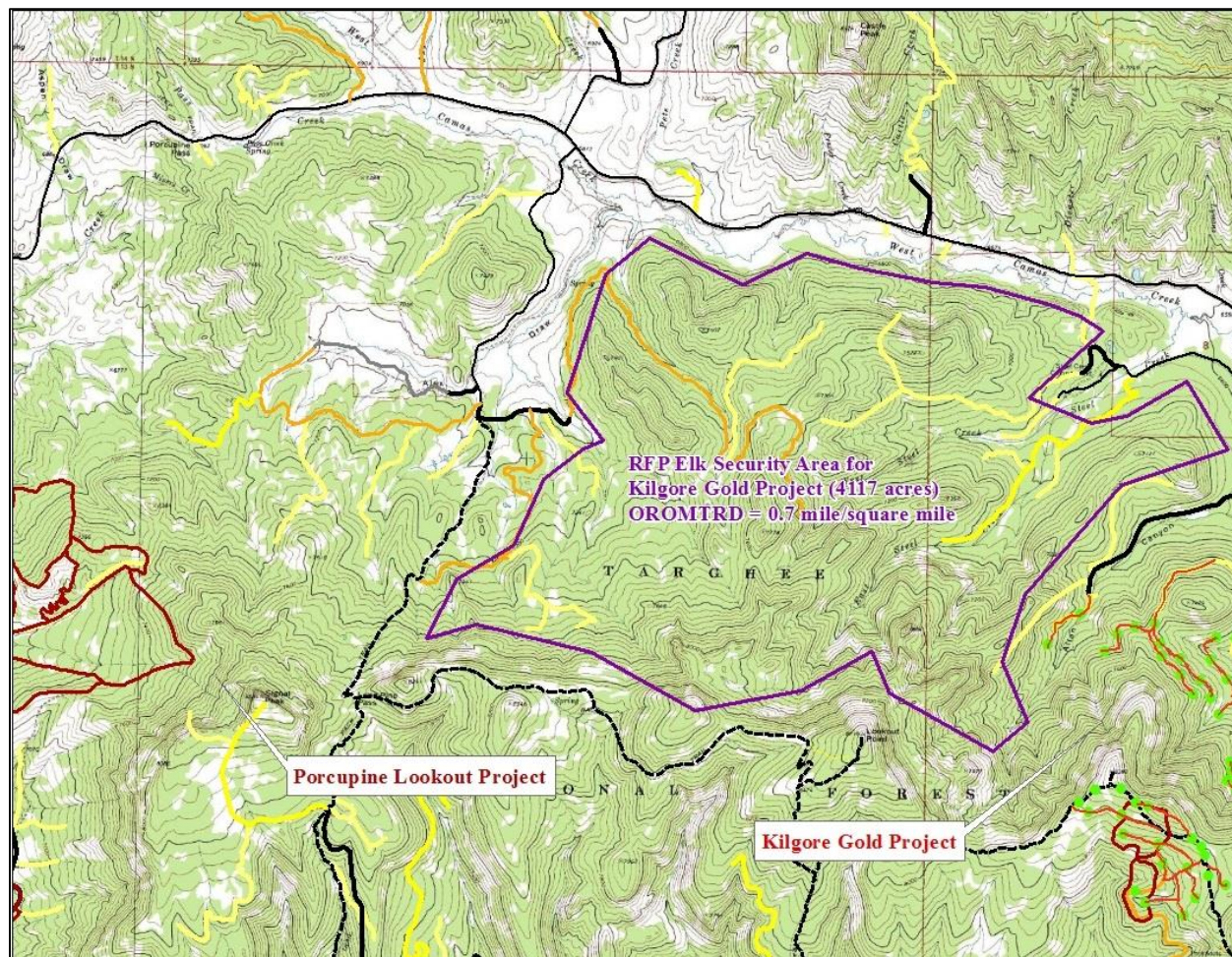
Security and habitat effectiveness are indirectly related to big game hunting. Habitat effectiveness is related to the quality of summer range where most fat accumulation occurs that allow elk to survive winter. Habitat effectiveness is positively related to big game hunting. Security is related to elk vulnerability during hunting season. Low levels of security stress cows and calves prior to winter and reduce bull elk survival. So, low security is positively-related to big game hunting in the short-term, but could be negative in the long-term. Both security and habitat effectiveness are maintained at recommended levels with the project action.

Compliance with Relevant Laws, Regulation, and Policy

The 1997 Revised Forest Plan for the Targhee National Forest contains standards and guidelines for elk in certain management prescription areas. The project area is within management prescription area 5.1.4 (b) timber management (big game security emphasis). The table below outlines how this project meets forest plan management direction for elk.

STANDARDS AND GUIDELINES	EXPLANATION AND DISCUSSION
<p>For scheduling [timber] harvest activity areas, big game security areas will be provided. Security should provide the following conditions (page III-142):</p> <ol style="list-style-type: none"> 1. Security areas will be greater than 250 acres in size, or depending on the size of the timber sale area boundary, as large as necessary to meet big game security needs (G). 	<p>This project does not involve timber harvest, but does involve the use of heavy equipment (drill rigs and a dozer, an excavator, and skid steers for road work). Consequently, it was decided to apply this management direction for timber harvest to exploration drilling.</p>

<p>2. Within the security area, OROMTRD must be less than the density established for this management prescription (S).</p> <p>3. No timber harvesting activity or similar type of disturbance activity (i.e., involving heavy equipment, noise, concentrated human activity) can occur within the security area during the time it is designated as a security area while the adjacent timber harvesting activity is occurring (S).</p>	<p>1. The project area is approximately 4000 acres. The security area is 4117 acres. This is greater than 250 acres and approximates the project area. This guideline is met. Please see map below for the security area.</p> <p>2. The OROMTRD density established for this management prescription is 1.5 miles per square mile (page III-140). The OROMTRD within the security area is 0.7 mile per square mile. This standard is met.</p> <p>3. There will be no disturbance activity involving heavy equipment, noise, or concentrated human activity within the security area during the exploration drilling project time period. This standard is met.</p>
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Intensity Factors for Significance

The following intensity factors for significance may apply to elk:

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were outlined for elk above. Harvest from hunting is the greatest threat. However, hunting is managed at sustainable levels. Cumulative effects would not contribute to project effects in a way which is significant to elk.

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