# APPENDIX F
# BIOLOGICAL EVALUATION

# INTRODUCTION

The USDA Forest Service (Forest Service) established direction in Forest Service Manual (FSM) 2670 to guide habitat management for Threatened, Endangered, Proposed, and Sensitive species (TEPS). This document is prepared in accordance with FSM direction (2672.42) and the Code of Federal Regulations (CFR) (50 CFR 402). This document tiers directly to the Land and Resource Management Plan for the Bridger-Teton National Forest (Forest Plan) (USFS 1990). This Biological Evaluation (BE) meets the objectives set forth in FSM 2672.41, which include:

- Ensure that Forest Service actions do not contribute to loss of viability of any native or desired non-native plant or animal species;
- Ensure that activities do not cause the status of any species to move toward federal listing; and
- Incorporate concerns for sensitive species throughout the planning process, reducing negative impacts to species and enhancing opportunities for mitigation.

To accomplish these objectives, this BE reviews the proposed action and alternatives in sufficient detail to determine the level of effect that would occur to each sensitive species evaluated. One of four possible determinations was chosen based on the best available scientific literature, a thorough analysis of the potential effects of the project, and the professional judgment of the biologists who completed the evaluation. The four possible determinations (from FSM 2672.42) are as follows:

- "No impact" – where no impact is expected;
- "Beneficial impact" – where impacts are expected to be beneficial;
- "May adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range wide" – where impacts are expected to be immeasurable or extremely unlikely; and
- "Likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability range wide" – where impacts are expected to be detrimental and substantial.

## Forest-wide Goals and Objectives Related to Sensitive Species

The following goals and objectives for sensitive species are included in the Forest Plan (USFS 1990). Additional Standards and Guidelines for fish and wildlife resources are included on pages 123-127 of the Forest Plan (USFS 1990).

- Goal 3.3 - Sensitive species are prevented from becoming a federally listed Threatened species in Wyoming.

- Objective 3.3(a) – Protect National Forest Service Intermountain Region Sensitive plant and animal species and provide suitable and adequate amounts of habitat to ensure that activities do not cause: (1) long-term or further decline in population numbers or habitats supporting these populations; and (2) trends towards federal listing.
- Objective 3.3(b) – By 1995, in cooperation with Wyoming Game and Fish Department, Trout Unlimited, and BLM, improve 10 percent of the 77 acres of lake habitat and 166 miles of stream habitat for Colorado River cutthroat trout.

- Objective 3.3(c) – In cooperation with Wyoming Game and Fish Department and Trout Unlimited, rehabilitate and improve the existing stream habitat occupied within the Bear River drainage by Bonneville cutthroat trout.

## PROJECT AREA DESCRIPTION

The Forest Service has received an application from Lower Valley Energy (LVE) for a special use authorization to construct and operate a natural gas pipeline on lands administered by the Big Piney and Jackson Ranger Districts of the Bridger-Teton National Forest (BTNF). This proposed pipeline would bring natural gas service to the Jackson, Wyoming area from a location near Merna, Wyoming and would cross National Forest System (NFS) lands, State of Wyoming lands, and private lands in Sublette and Teton Counties.

The Project Area for the LVE pipeline project is located along the proposed pipeline route from the Merna area to Jackson, a distance of 49.7 miles. The Project Area encompasses lands within one mile of the proposed pipeline route. About half of the 49.7-mile pipeline route (25.4 miles) would be located on NFS lands. The Project Area contains 63,767 acres and encompasses lands within one mile of the proposed pipeline route, including 40,184 acres of NFS lands, 1,534 acres of lands managed by the Bureau of Land Management (BLM), 1,364 acres of State-owned lands, and 20,685 acres of privately owned lands (**Figure 1-1 from the FEIS**).

The proposed LVE Pipeline would parallel existing roadways and utility corridors for most of its route. The pipeline would traverse Camp Creek Saddle, Hoback Canyon, the Hoback Basin area along and near the Hoback River, and Fisherman Creek. It would cross portions of the following townships: Township 36 North, Range 112 West; Township 37 North, Ranges 111, 112, and 113 West; Township 38 North, Ranges 113, 114, and 115 West; Township 39 North, Ranges 115 and 116 West; and Township 40 North, Range 116 West; Sixth Principal Meridian. Within the Project Area, elevations range from 5,911 to 8,850 feet.

The Project Area is in a transitional zone characterized by big sagebrush at the lower elevations that grades into aspen and lodgepole pine at the higher elevations. Forest inventory data for the BTNF includes five vegetation types, non-forested areas, and clearcuts/burns within the Project Area. **Table F-1** lists the vegetation types within the BTNF portion of the Project Area.

### TABLE F-1 VEGETATION TYPES ON NFS LANDS IN PROJECT AREA

| Vegetation Type | Acres | Portion of Total (percent) |
|---|---|---|
| Aspen | 2,957 | 7 |
| Douglas-fir | 6,000 | 15 |
| Lodgepole pine | 6,486 | 16 |
| Engelmann spruce/Subalpine fir | 2,654 | 7 |
| Riparian | 2,050 | 5 |
| Non-forested | 19,980 | 50 |
| Clearcuts/burns | 57 | <1 |
| **All Vegetation Types on NFS Lands in Project Area (Acres)** | 40,184 | 100 |

**Figure 1-1 from the FEIS (page 1-3)**

The non-forested areas have a mixed foothill shrubland mosaic that consists of bluebunch wheatgrass, fringed sage, mountain big sagebrush, needle-and-thread grass, Saskatoon serviceberry, yarrow, and other grasses and forbs. The non-forested areas also include irrigated agricultural lands, such as pastureland and hayfields, which are found on alluvial plains and associated farm and ranch facilities and shelterbelts.

Riparian zones exist throughout the Project Area in the floodplains of the Hoback and Snake Rivers, as well as along many of the smaller streams. Willows are dominant along many of these riparian areas, but cottonwoods and a variety of wetland plants such as sedges can be found along many streams as well.

# ALTERNATIVES

Two alternatives were considered in detail.

## Alternative A- No Action

Under the No Action alternative (Alternative A), a natural gas pipeline would not be constructed to the Jackson, Wyoming area. The application for a special use authorization for the construction, operation, and maintenance of a natural gas pipeline submitted to the Forest Service by LVE would not be approved. Long-term supplies of natural gas to meet the needs of LVE's customers in the Jackson area would not be acquired by a connection to an existing gas pipeline in the Merna area. The Jackson area would continue to be supplied with liquid natural gas (LNG) by tanker trucks traveling on public highways. An estimated 500 to 600 round trips per year by tanker trucks along public highways would occur over the next five years.

## Alternative B- Proposed Action

Under the Proposed Action (Alternative B), the Forest Service would approve the application for a special use authorization submitted by LVE. The Proposed Action includes the design, construction, operation, and maintenance of a pressurized natural gas pipeline. The new steel pipeline would be 6 inches in diameter and would be designed, constructed, and operated by LVE in accordance with U.S. Department of Transportation (DOT) Pipeline Safety Regulations contained in Title 49 of the CFR. The Office of Pipeline Safety (OPS) regulations in 49 CFR Parts 190-199 contain federal pipeline safety regulations that assure safety in design, construction, inspection, testing, operation, and maintenance of natural gas pipeline facilities.

A small gas processing facility would be constructed in the vicinity of U.S. 189/191 near the southern end of the pipeline route in Section 24, T. 36 N., R. 112 W. This facility would occupy a small site, less than one acre in size, on privately-owned land. It would include a glycol dehydration unit and an air compressor to inject air into the gas stream.

Existing public and private roads would provide access to the pipeline construction corridor. No temporary or permanent roads would be constructed in association with the proposed pipeline. Improvements, upgrades, or modifications to existing roads would not be required for construction of the project. However, access roads would be repaired and maintained as needed, to pre-construction conditions.

**Table F-2** provides a comparison of activities and amount of disturbance predicted for each alternative. Under Alternative B, the short-term disturbance, which includes the construction corridor and temporary work areas, is 370 acres (**Table F-2**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. The pipeline maintenance corridor would consist of a 20-foot

wide area where no shrubs or trees would be restored. The long-term disturbance within the Project Area from this corridor would be 120 acres (**Table F-2**).

## TABLE F-2 COMPARISON OF ACTIVITIES AND ESTIMATED DISTURBANCE FOR ALTERNATIVE A AND ALTERNATIVE B

| Proposed Activities | Alternative A | Alternative B |
|---|---|---|
| Proposed Pipeline Corridor (total miles, all types of surface ownership) (10.5 miles in Hoback Canyon; 39.3 miles outside Hoback Canyon) | 0 | 49.7 |
| Proposed Pipeline Corridor (total miles, NFS lands) | 0 | 25.4 |
| Proposed Crossings of Hoback River | 0 | 9 |
| Proposed Crossings of U.S. 189/191 (Hoback Canyon Highway) | 0 | 19 |
| Proposed Crossings of U.S. 89/191 Near Jackson | 0 | 2 |
| Proposed Crossing of Cliff Creek | 0 | 1 |
| Proposed Crossing of Upper Hoback River | 0 | 1 |
| Construction Areas (potential short-term disturbance for construction corridor and temporary work areas, total acres) | 0 | 370 |
| Pipeline Maintenance Corridor (20-foot-wide area affected over the long term, where no shrubs or trees would be restored, total acres) | 0 | 120 |
| Gas Processing Facility (potential long-term disturbance, total acres) | 0 | <1 |
| Transport of LNG to Jackson by tanker trucks on public highways (estimated round trips per year) | 500-600 | <50 |

**Table F-3** lists the acres of disturbance to vegetation types within the Project Area from implementation of Alternative B. Approximately 34 acres of forested habitat would be disturbed during construction of the pipeline, of which 13 acres would remain in a non-forested cover type as part of the pipeline maintenance corridor.

## TABLE F-3 PROPOSED VEGETATION DISTURBANCE – (ACRES)

| Vegetation Type | Short-Term Disturbance | Long-Term Disturbance |
|---|---|---|
| Aspen | 9 | 3 |
| Douglas-fir | 4 | 2 |
| Lodgepole pine | 17 | 6 |
| Engelmann spruce/Subalpine fir | 4 | 2 |
| Riparian | 15 | 6 |
| Non-forested | 109 | 40 |
| No Data (outside National Forest) | 212 | 61 |
| **Total Disturbance** | **370** | **120** |

# MITIGATION

The following mitigation measures would be followed during the implementation of the proposed project to protect sensitive species in the project area. Modifications to these mitigation measures should be reviewed by an interdisciplinary team that includes a biologist or ecologist, and thorough documentation of the effects to each species should be placed in the *Project File*.

1. Sensitive species located after contract or permit approval should be appropriately managed by active coordination among permittee, Forest Service line officer, project administrator, and biologist. Viable solutions should be based on circumstances surrounding each new discovery and should consider the individual sensitive species needing protection.
2. In the event that a sensitive species is killed or injured during project activities, or a dead individual is encountered, the Forest Service will be notified and specific mitigation measures directed at that species will be implemented under direction of the Forest Service.
3. No construction activity will occur within 0.5 miles of active peregrine falcon eyries from March 1 through July 31 or within 0.5 miles of hack sites from July 1 through September 15 (Forest Plan Peregrine Falcon Disturbance Standard, page 125).
4. If important greater sage grouse breeding habitat (leks, nesting, or brood rearing habitat) is discovered within the Project Area, no project-related disturbance to habitat will occur between March 1 and June 30.
5. Construction, drilling, and other activities potentially disruptive to nesting raptors are prohibited within 0.5 mile of an active nest from February 1 through July 31, or until the young have fledged.

## Stream, Wetland, and Riparian

6. Pipeline crossings of wetlands will comply with U.S. Army Corps of Engineers (COE) permit terms and conditions.
7. All wetlands crossed by the pipeline will be delineated and wetland boundaries will be clearly marked with flagging or signage prior to construction.
8. To prevent sediment flow into wetlands, sediment barriers will be installed across the construction corridor at wetland boundaries. To contain spoil and sediment within the construction corridor through wetlands, sediment barriers will be installed as needed in the wetland along the edge of the construction corridor.
9. Saturated wetland soils will be protected from traffic impacts. Work areas will be stabilized with timber or clean prefabricated equipment mats. No rock, soil imported from outside the wetland, tree stumps, or brush will be used to stabilize work areas.
10. The wetland surface will be restored as near as practicable to pre-construction elevations.
11. No concrete coating, storage of hazardous material (including chemicals, fuels, and lubricating oils), or refueling of equipment will occur within 100 feet of wetlands, or 150 feet if feasible. If refueling must occur closer, appropriate steps (including adequate spill kits and secondary containment) will be taken to prevent spills and provide for prompt cleanup in the event of a spill. Adequate spill response kits will be on hand at each crossing to ensure prompt and effective spill response.

12. Stream crossings will be constructed as close to perpendicular to the stream channel axis as engineering and routing conditions allow.
13. Grading activities will not interfere with or obstruct existing natural drainages (Forest Plan Standard, page 133).
14. Crossings of the Hoback River will occur no closer than 50 feet away from highway bridges in an upstream direction.
15. Temporary equipment bridges will be installed to provide access across streams and rivers and maintain unrestricted instream flows. Bridges will be designed and maintained to prevent soil from entering streams and rivers. Only clearing equipment and equipment needed to install equipment bridges will be allowed to cross waterways prior to bridge installation.
16. Equipment needed to construct the crossings will operate instream only where the width of the crossing exceeds the reach of the equipment.
17. Stream banks will be restored to preconstruction contours and stabilized within 24 hours of completing instream construction activities.
18. Streambank vegetation will be left undisturbed outside a 20-foot-wide trench working area. Equipment staging and spoil storage for the stream crossing will be located a minimum of 25 feet outside of the riparian area.
19. Vegetation that provides greater stability because of rooting structure, such as woody nursery stock, will be planted during the revegetation of channel banks following construction (Forest Plan Standard, page 133).
20. Following construction, the stream channel will be returned to original width, depth, gradient, and curvature (Forest Plan Standard, page 133).
21. Structural bank stabilization techniques shall be used where high velocities, steep banks, soil types, or limited water availability prevents establishment of adequate vegetative cover.
22. At least 90 percent of the natural bank stability of streams that support a fishery, particularly threatened, endangered, and sensitive species, and all trout species, will be maintained. Streambank vegetation will be maintained to 80 percent of its potential natural condition or an HCI rating of 85 or greater (Forest Plan Guideline, page 126).
23. Instream construction activities would occur only after July 31.

# SPECIES CONSIDERED AND EVALUATED

There are 38 sensitive wildlife and plant species that are known or are suspected to occur on the BTNF: (**Table F-4**). These species were evaluated for their potential to be affected by the proposed project and selected for analysis in this BE. The species noted as excluded in **Table F-4** would not be affected by the proposed project and are not addressed further in this document.

## TABLE F-4 SENSITIVE SPECIES CONSIDERED AND EVALUATED

| Common Name | Scientific Name | Species Included | Reason for Exclusion |
|---|---|---|---|
| **Mammals** | | | |
| Fisher | *Martes pennanti* | No | The fisher prefers coniferous forests with a continuous closed canopy cover (Cerovski et al. 2004). The fisher feeds on small birds, snowshoe hares, red and flying squirrels, mice, voles, shrews, porcupines, and carrion such as deer carcasses. The fisher is classified as rare in Wyoming and has been observed in the same region as the Project Area, but because of the mobility of the species, breeding cannot be assumed (Cerovski et al. 2004). There are no documented occurrences of this species within the Project Area (Wyoming Natural Diversity Database [WYNDD] 2004). While this species may occasionally cross the Project Area during the course of seasonal movements, the potential for it to occur is extremely low. Additionally, a large portion of the Project Area (62.4 percent) does not contain coniferous forest that would provide suitable habitats for this species. |
| Townsend's big-eared bat | *Corynorhinus townsendii* | No | This species inhabits deciduous forests, dry coniferous forests, prairie and mountain foothills shrublands, desert grasslands, and pinyon-juniper habitat types (Cerovski et al. 2004). Townsend's big-eared bats roost near entrances to mines and caves that may also be used for hibernation. They are extremely sensitive to human disturbance during hibernation (Cerovski et al. 2004). Tree cavities may occasionally be used for roosting. They do not move long distances from hibernacula to summer roosts. Townsend's big-eared bat is classified as rare in Wyoming and has been observed in the same latitude and longitude as the Project Area, but because of the mobility of the species, breeding cannot be assumed (Cerovski et al. 2004). There are no documented occurrences of this species within the Project Area (WYNDD 2004). While this species may occasionally cross the Project Area during the course of seasonal movements, the potential for it to occur is extremely low. No suitable hibernating habitat or preferred roosting habitats are known to exist within the Project Area. |
| Spotted bat | *Euderma maculatum* | No | This species roosts in rock crevices and cliffs, and is associated with juniper shrublands and desert sagebrush-grasslands in Wyoming (Cerovski et al. 2004). The spotted bat is classified as rare in Wyoming. It has not been observed in the same latilong as the Project Area (Cerovski et al. 2004). There are no documented occurrences of this species within the Project Area (WYNDD 2004). Although potential roosting habitat may occur, its current distribution does not include the Project Area. |
| Wolverine | *Gulo gulo* | No | The wolverine inhabits coniferous forests, especially dense continuous stands in remote areas (Cerovski et al. 2004). It feeds on mule deer, elk, moose, rabbits, hares, porcupines, beaver, squirrels, chipmunks, marmots, mice, and birds in the summer and carrion in the winter (Cerovski et al. 2004). The wolverine is classified as rare in Wyoming and has been observed in the same latilong as the Project Area (Cerovski et al. 2004). However, there are no documented occurrences of this species within the Project Area (WYNDD 2004). While this species may occasionally cross the Project Area during the course of seasonal movements, the potential for it to occur is extremely low because of its preference for remote areas and its avoidance of areas of human disturbance. |

## TABLE F-4 SENSITIVE SPECIES CONSIDERED AND EVALUATED

| Common Name | Scientific Name | Species Included | Reason for Exclusion |
|---|---|---|---|
| Grizzly Bear | *Ursus arctos horribilis* | Yes | |
| **Birds** | | | |
| Bald eagle | *Haliaeetus leucocephalus* | Yes | |
| Northern goshawk | *Accipiter gentilis* | Yes | |
| Boreal owl | *Aegolius funereus* | Yes | |
| Great gray owl | *Strix nebulosa* | Yes | |
| Trumpeter swan | *Cygnus buccinator* | Yes | |
| Common loon | *Gavia immer* | No | The common loon inhabits lakes above 6,000 feet. It feeds on fish and aquatic invertebrates (Cerovski et al. 2004). The common loon is classified as an uncommon summer resident in Wyoming and has been documented nesting in the same latilong as the Project Area (Cerovski et al. 2004). There are no documented occurrences of this species within the Project Area (WYNDD 2004). While this species may occasionally cross the Project Area during the course of migration, the potential for it to occur is extremely low. There are no lakes and no suitable nesting habitat exists within the Project Area. |
| Greater sage grouse | *Centrocercus urophasianus* | Yes | |
| Peregrine falcon | *Falco peregrinus* | Yes | |
| Harlequin duck | *Histrionicus histrionicus* | No | The harlequin duck requires low gradient streams with woody debris and dense, shrubby riparian areas (Cerovski et al. 2004). The nearest known harlequin breeding record are found approximately 40 miles south of the Project Area in Pine Creek, which empties into Fremont Lake. There are no documented occurrences of this species within the Project Area (WYNDD 2004). |
| Flammulated owl | *Otus flammeolus* | Yes | |
| Three-toed woodpecker | *Picoides dorsalis* | Yes | |
| **Amphibians** | | | |
| Columbia spotted frog | *Rana luteiventris* | No | The Columbia spotted frog inhabits ponds, sloughs, and small streams in the foothills and montane zones (Cerovski et al. 2004). Adults feed on insects and tadpoles. The Columbia spotted frog is classified as a common resident in Wyoming and has been observed in the same region as the Project Area, but breeding cannot be assumed (Cerovski et al. 2004). There are no documented occurrences of this species within the Project Area (WYNDD 2004). There are no lakes and no suitable breeding habitat exists within Project Area. |
| **Fish** | | | |
| Colorado River cutthroat trout | *Oncorhynchus clarki pleuriticus* | Yes | |

## TABLE F-4 SENSITIVE SPECIES CONSIDERED AND EVALUATED

| Common Name | Scientific Name | Species Included | Reason for Exclusion |
|---|---|---|---|
| Bonneville cutthroat trout | *Oncorhynchus clarki utah* | No | The Bonneville cutthroat trout is native to Wyoming in the Thomas Fork and Smith Fork drainages of the Bear River system (Baxter and Stone 1995). This current distribution is outside the Project Area and there are no documented occurrences of this subspecies within the Project Area (WYNDD 2004). |
| Snake River fine-spotted cutthroat trout | *Oncorhynchus clarki* ssp. | Yes | |
| **Plants** | | | |
| Pink Agoseris | *Agoseris lackschewitzil* | No | This species is endemic to the Wind River and Beartooth Ranges of northwestern Wyoming in Park and Sublette Counties. It occurs in wet montane and subalpine meadows from 9,600 to 10,600 feet (Fertig et al. 1994). The Project Area occurs at a lower elevation than the plant is typically found. This species has not been documented within the Project Area (WYNDD 2004). |
| Sweet-flowered rock jasmine | *Androsace chamaejasme carinata* | Yes | |
| Soft aster | *Aster mollis* | Yes | |
| Meadow milkvetch | *Astragalus diversifolius v. diversifolius* | Yes | |
| Starveling milkvetch | *Astragalus jejunus jejunus* | Yes | |
| Payson's milkvetch | *Astragalus paysonii* | Yes | |
| Slender moonwort | *Botrychium lineare* | Yes | |
| Seaside sedge | *Carex incurviformis* | No | This species is known from the Absorka and Wind River Ranges in Wyoming. It occurs in alpine and subalpine moist tundra and wet rock ledges from 10,000 to 12,200 feet (Fertig et al. 1994). The Project Area occurs at a lower elevation than the plant is typically found. This species has not been documented within the Project Area (WYNDD 2004). |
| Black and purple sedge | *Carex luzulina atropurpurea* | No | This species is known from the Wind River Range in Wyoming (Fremont and Sublette Counties). It occurs in subalpine wet meadows and sreamsides from 10,000 to 10,600 feet (Fertig et al. 1994). The Project Area occurs at a lower elevation than the plant is typically found. This species has not been documented within the Project Area (WYNDD 2004). |
| Wyoming tansymustard | *Descurainia torulosa* | Yes | |
| Rockcress draba | *Draba densifolia* var. *apiculata* | No | This species occurs in moist, gravelly alpine meadows and talus slopes, often on limestone-derived soils from 10,400 to 12,000 feet (Fertig et al. 1994). The Project Area occurs at a lower elevation than the plant is typically found. This species has not been documented within the Project Area (WYNDD 2004). |
| Wolly fleabane | *Erigeron lanatus* | No | This species is known from the Wind River range in Wyoming (Sublette County). It occurs in alpine or subalpine limestone talus slopes above 11,000 feet (Fertig et al. 1994). The Project Area occurs at a lower elevation than the plant is typically found. This species has not been documented within the Project Area (WYNDD 2004). |

### TABLE F-4 SENSITIVE SPECIES CONSIDERED AND EVALUATED

| Common Name | Scientific Name | Species Included | Reason for Exclusion |
|---|---|---|---|
| Narrow-leaf goldenweed | *Haplopappus macronema linearis* | No | This species is known to occur in northwest Wyoming in Fremont, Park, and Teton Counties and Yellowstone National Park. It occurs in semi-barren, whitish clay flats and slopes, gravel bars, and sandy lakeshores from 7,700 to 10,300 feet (Fertig et al. 1994). No suitable habitat occurs within the Project Area and this species has not been documented within the Project Area (WYNDD 2004). |
| Payson bladderpod | *Lesquerella paysonii* | Yes | |
| Naked-stemmed parrya | *Parrya nudicaulis* | No | This species is endemic to the Wind River and Beartooth ranges of northwestern Wyoming. It occurs on alpine talus limestone substrates from 10,700 to 11,400 feet (Fertig et al. 1994). The Project Area occurs at a lower elevation than the plant is typically found. This species has not been documented within the Project Area (WYNDD 2004). |
| Creeping twinpod | *Physaria integrifolia* var. *monticola* | Yes | |
| Greenland primrose | *Primula egaliksensis* | Yes | |
| Weber's saw-wort | *Saussurea weberi* | No | This species is known from the Wind River range in Wyoming (Fremont and Sublette Counties). It occurs on alpine talus and gravel fields on limestone from 10,200 to 11,200 feet (Fertig et al. 1994). The Project Area occurs at a lower elevation than the plant is typically found. This species has not been documented within the Project Area (WYNDD 2004). |

## SUMMARY OF DETERMINATIONS

**Table F-5** presents the effects determination for each species by alternative.

### TABLE F-5 SUMMARY OF EFFECTS DETERMINATIONS

| Common Name | Scientific Name | Alternative | |
|---|---|---|---|
| | | A | B |
| Grizzly bear | *Ursus arctos horribilis* | NI | MAII |
| Bald eagle | *Haliaeetus leucocephalus* | NI | MAII |
| Northern goshawk | *Accipiter gentilis* | NI | MAII |
| Boreal owl | *Aegolius funereuss* | NI | MAII |
| Great gray owl | *Strix nebulosa* | NI | MAII |
| Flammulated owl | *Otus flammeolus* | NI | MAII |
| Peregrine falcon | *Falco peregrinus* | NI | MAII |
| Three-toed woodpecker | *Picoides tridactylus* | NI | MAII |
| Greater sage grouse | *Centrocercus urophasianus* | NI | MAII |
| Trumpeter swan | *Cygnus buccinator* | NI | NI |
| Snake River fine-spotted cutthroat | *Oncorhynchus clarki* | NI | MAII |
| Colorado River cutthroat | *Oncorhynchus clarki pleuriticus* | NI | MAII |
| Sweet-flowered rock jasmine | *Androsace chamaejasme v. carinata* | NI | MAII |
| Soft aster | *Aster mollis* | NI | MAII |

| Common Name | Scientific Name | Alternative | |
|---|---|---|---|
| | | A | B |
| Meadow milkvetch | *Astragalus diversifolius v. diversifolius* | NI | MAII |
| Starveling milkvetch | *Astragalus jejunus jejunus* | NI | MAII |
| Payson's milkvetch | *Astragalus paysonii* | NI | MAII |
| Slender moonwort | *Botrichium lineare* | NI | MAII |
| Wyoming tansymustard | *Descurainia torulosa* | NI | MAII |
| Payson bladderpod | *Lesquerella paysonii* | NI | MAII |
| Creeping twinpod | *Physaria intergrifolis v. monticola* | NI | MAII |
| Greenland primrose | *Primula egaliksensis* | NI | MAII |

Note: "NI is substituted for the entire determination wording of "No Impact"; "MAII" is substituted for the entire determination wording of "May adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range-wide". For MAII, effects are expected to be insignificant (immeasurable), or discountable (extremely unlikely).

# SPECIES DISCUSSION

This section evaluates the potential effects of implementing each of the alternatives on species that are known to occur, or that have potential to occur, in the project area. General information is reviewed for each species, including distribution, habitat, threats, existing conditions, and management recommendations. Direct, indirect, and cumulative effects are discussed and compared between alternatives. Finally, a determination of effects is made.

## Cumulative Effects

Cumulative effects from other past, present, and reasonably foreseeable activities in the region associated with Forest Service, BLM, or private action that may affect Forest Service sensitive species or their habitats include the following:

- Highway Reconstruction and Improvements: Dell Creek and Pfisterer near Bondurant; Alpine to Hoback Junction; Hoback Junction; Hoback North; and Hoback SE (FHWA/WYDOT)
- Proposed exploratory gas wells in the Upper Hoback area near Bondurant and the Hoback Ranches subdivision (BTNF)
- Moose-Gypsum area projects (BTNF)
- Horse Creek Feedground Connector Road, construction of approximately 500 feet of low service road on the Horse Creek Plateau (WGFD)
- South Park River Access Site/Plan (BLM)
- Monument Ridge Fuel Treatment Project, Hoback Guard Station to Clark Butte Area (BTNF)
- Hoback Ranches Fuels Reduction/Fire Prevention, vegetation management of 975 acres between 2004-2007 (BLM/BTNF/Private)
- Poison Creek Open Space Land Purchase (BTNF)
- Cottonwood II Integrated Projects, vegetation management of 975 acres and prescribed burning of 1,000 acres of aspen, and Maki Creek, vegetation management of 214 acres and prescribed burning of 2,000 acres (BTNF)
- Fisherman Creek Aspen Treatment Project, conifer removal, mechanical treatment of aspen stands and some broadcast burning on 213 acres (BTNF)
- Special Use, Recreation Use, and Outfitter and Guide Activities in/near the Project Area (BTNF)
- High Mountains Heli-Skiing – Snake River/Wyoming Range (BTNF)
- Oil and gas development and production activity in the Pinedale Anticline area, including Questar Year-Round Drilling Project and Jonah Infill Drilling Project (BLM)

- Wildlife Habitat Management Areas, management of hay pastures and winter feedgrounds (WGFD)
- Wyoming Range Allotment Complex, sheep grazing in Hoback watershed (BTNF)
- Livestock grazing and grazing improvements, including the reauthorization of the Bondurant Basin grazing allotments (BTNF)

Potential effects from these projects to wildlife and plants may include direct effects to species and their habitats. Construction activities in occupied habitats may harm species that are unable to avoid these activities. Increases in human activity and project vicinity traffic volumes may increase vehicle collisions with wildlife and trampling of plant species. Wildlife occurring in these project locales may also be displaced from these areas because of the increased human activity. Wildlife displacement may have severe effects to some wildlife species when sufficient suitable habitats are not available and/or when displacement occurs during high-stress periods, including winter and calving. Wildlife species, particularly big game, can also be disturbed from increases in human activity. Such disturbances can increase physiological stress on wildlife and affect individual health and productivity. These projects may also result in introduction and spread of non-native plant species.

# Grizzly Bear

## Distribution

Historically, the range of grizzly bears in North America extended from mid-western plains westward to the California coast and south into Texas and Mexico (FWS 1993). Between 1800 and 1975, grizzly populations in the lower 48 states receded from estimates of over 50,000 to less than 1,000 bears because of depredation control, habitat deterioration, and commercial hunting and trapping (FWS 1993). In 1975, grizzly bears were listed as threatened under the ESA. The Greater Yellowstone Area is designated as one of six recovery zones in the contiguous United States for the grizzly bear. The FWS officially delisted the Yellowstone Distinct Population Segment of Grizzly Bears from the Federal List of Endangered and Threatened Wildlife on April 30, 2007 (FWS 2007a).

## Habitat

The most suitable grizzly bear habitat is in areas with large tracts of undisturbed habitat and minimal human disturbance (Moody et al. 2002). The established outer boundary for grizzly bear occupancy encompasses most of the area within the Wyoming portion of the GYE. The Project Area lies within the southern portion of the GYE. Grizzly bears are omnivorous and very opportunistic. They are able to survive in a variety of habitats and use a variety of food sources. Four major food sources used by grizzly bears inhabiting the GYE are whitebark pine seeds, army cutworm moths, large ungulates, and spawning cutthroat trout (Moody et al. 2002).

## Threats

Threats to the grizzly bear include habitat loss and direct and indirect human-caused mortality. Food storage and garbage disposal stipulations should be enforced to reduce the threat of human-caused mortality. Continued recovery of grizzly bear populations depends on large areas free from land-use activities that permanently alter their habitat. Intensive recreational use, land development, timber management, and other development activities can threaten the species.

## Existing Conditions

Grizzly bears are not considered common in the Project Area. The Forest Service and WGFD consider grizzly bears common north of the Project Area. Grizzly bears are expanding their range south into the Gros Ventre Wilderness and Wind River ranges (Moody et al. 2002). The Project Area is outside the Grizzly Bear Primary Conservation Area and no Grizzly Bear Management Units are mapped for the area (Moody et al. 2002). The state highway within the Project Area (U.S. Highway 189/191) is a heavily used motor vehicle travel corridor. Security habitat for this species is not found along high use primary roads, adjacent residential development, commercially used private lands, and in relatively small areas receiving heavy recreational use. Transient or dispersing individuals may cross busy roads, especially during low traffic periods, but regular occupancy is precluded by displacement associated with extensive development on private lands and chronic or unpredictable human presence.

## Effects Analysis

**Direct:** The proposed action would reduce traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would decrease direct disturbance to grizzly bears from motorized vehicle traffic if an individual were in the area. No temporary or permanent roads would be constructed in association with the proposed pipeline. The work force and machinery required for pipeline construction could temporarily displace grizzly bears if they occurred in the area; however, this displacement effect is not expected to occur because of the uncommon occurrence of the species in the project area. The proposed action also could alter grizzly bear movement in the short-term during construction activities, but it is not expected to alter movement over the long-term. Grizzly bear denning is not known to occur in the Project Area.

**Indirect:** Habitat modification through construction and development activities may indirectly affect grizzly bears by disturbing their social systems, and reducing their foraging efficiency. However, the Project Area is outside the Grizzly Bear Primary Conservation Area and no Grizzly Bear Management Units would be affected by the proposed project. In addition, a large portion of the Project Area is adjacent to a U.S. Highway that is a heavily used motor vehicle travel corridor. Short-term disturbance would be caused by construction of the pipeline corridor and TWAs. In the short-term, 49 acres of disturbance are anticipated within coniferous and deciduous forests and riparian vegetation that may contain grizzly bear habitat. After the pipeline corridor is reclaimed when construction activities end, habitat loss would be reduced. In the long-term, 19 acres of disturbance are anticipated within coniferous and deciduous forests and riparian vegetation that may contain grizzly bear habitat However, disturbance to forested and riparian habitats would be minimal when compared with the availability of those habitats within the Project Area .

**Cumulative:** The proposed action may cause a slight increase in short-term and long-term disturbance to grizzly bears in conjunction with all other present and reasonably foreseeable future activities in the region. Cumulatively, other land uses and activities on adjacent lands that may disturb grizzly bears or affect their habitats include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, residential development, river floating, and fishing. Specific existing and future actions in the same region as the Project Area that may affect grizzly bears are found on pages F-12 to F-13.

## Determination

Implementation of the proposed action, "**may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range wide**" of the grizzly bear. This determination is based on the adherence to the Food Storage Order, as specified in **Appendix D**, and the low likelihood for project actions to disturb or

displace grizzly bears or cause a shortage of suitable habitats in the Project Area. Development of the proposed pipeline is not likely to affect grizzly bear recovery in the GYE.

# Bald Eagle

## Distribution

Bald eagles are distributed across North America, with their breeding range extending from south of the arctic tundra in Alaska and Canada, south to the southern United States and Baja California (Spahr et al. 1991). Bald eagles south of the 40th parallel were first listed in 1967 as Endangered under the Endangered Species Preservation Act (U.S.C. 668aa-668cc). A proposal for de-listing the bald eagle was issued in July 1999 (FWS 1999), and this species was officially delisted on July 9, 2007 (FWS 2007b).

In 2003, 147 nesting territories were identified in the Greater Yellowstone Area (GYA). A total of 144 territories (98 percent) were occupied, 125 active (87 percent) and 87 successful (61 percent) that produced a total of 133 young. This represents a 32 percent increase in occupied nesting territories since 1995, the last year the working group compiled data (USFS 2001). There are currently 15 known bald eagle breeding territories on the BTNF. Eleven of these territories are located on the Jackson and Buffalo Ranger Districts and occur along the Snake River or one of its tributaries. Two of the eleven nests occur on private land, but the eagles perch, loaf, and forage on NFS lands. The four remaining nnesting areas are located on the Pinedale Ranger District in the Upper Green River region and south to Half Moon Lake.

## Habitat

The bald eagle is mainly fish eating and is found closely associated with riverbanks, lakeshores, and coastlines during the breeding season (Spahr et al. 1991). Large stick nests are common in large trees, primarily in cottonwoods, and conifers when cottonwoods aren't available, such as along much of the Snake River from the South Park Bridge to Alpine. Snags, trees with large openings in the upper crown portion, and trees with dead tops, are frequently used for perching and roosting (Spahr et al. 1991). Preferred perches are usually the highest in a given area and are located near bodies of water and feeding areas. Fish are the primary food source of the eagle during the breeding season although they will also eat waterfowl, upland birds, small mammals, and carrion (Spahr et al. 1991). Roosting habitat is often along rivers, lakes, or reservoirs, but can also be located as far as 20 miles from a water source (Spahr et al. 1991). More important than distance to water and foraging areas is the shelter that a roost tree provides. Large trees that have a protected microclimate, a crown extending above the forest canopy, and are located in areas providing good visual vantage points are characteristic roosts (Spahr et al. 1991).

## Threats

The major concern for the bald eagle is the potential for disturbance near active nests (FWS 2004) and the loss of mature and old-growth aspen, conifer, or mixed aspen/conifer forests where they breed and nest. The threat of a large-scale wildfire and subsequent loss of habitats for the bald eagle and its prey species is also a major concern (USFS 2001).

## Existing Conditions

The Snake River between Jackson Lake, Wyoming and Palisades Reservoir, straddling Wyoming and Idaho, is well-studied bald eagle habitat. Bald eagles found in this habitat are managed as part of the Snake Population Unit of the Greater Yellowstone Ecosystem (GYE). Fifty-four bald eagle breeding

territories were reported in the Snake Unit in 1995, on public and private lands. Two active bald eagle nesting territories, Porcupine Creek and Hoback Junction, occur in or near the Project Area. The Porcupine Creek nesting territory is within the Project Area and the Hoback Junction nesting territory is within three miles of the western Project Area boundary. However, a large portion of the Project Area (50 percent) is non-forested or contains no suitable nesting habitat (**Table F-1**). Raptors are most sensitive to noisy disturbance during the breeding season near their nest sites. Suitable nesting habitat is not likely to be found along the state highway located within the Project Area.

## Effects of the Proposed Action

**Direct:** The Project Area is within Zones I, II, and III of the Porcupine Creek and Hoback Campground nesting territory and Zone III of the Hoback Junction nesting territory (**Figure 2-4**). Bald eagle nests near the proposed pipeline route are shown on **Figure 2-4** and **Figure 3-6** of the FEIS. Short-term disturbance would be caused by construction activities along the 75-foot pipeline corridor and use of additional temporary work areas (TWAs). No surface disturbance from construction of the pipeline would occur within Zone I. Within Zone II, 4 acres of surface disturbance is anticipated. Within Zone III, 52 acres of surface disturbance is anticipated.

In the long-term, the pipeline right-of-way would be reclaimed and the amount of habitat loss would be reduced. Long-term surface disturbance along a permanent pipeline corridor would affect 2 acres within Zone II and 26 acres within Zone III. No direct injury, mortality, or disturbance of individual bald eagles is expected during construction or reclamation activities. All project design criteria adhere to Forest Plan guidance and timing and spatial disturbance restrictions contained in the Greater Yellowstone Bald Eagle Management Plan and the National Bald Eagle Management Guidelines (FWS 2007c). The proposed action would reduce traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would decrease direct disturbance to bald eagles from motorized vehicle traffic. No temporary or permanent roads would be constructed in association with the proposed pipeline. No bald eagle nesting territories are known to occur near the proposed gas processing facility near Merna.

During pipeline operation and maintenance, bald eagles may respond to the appearance and noise of helicopters, and the presence and noise of people by avoiding areas of disturbance. The length of this modified behavior by eagles may vary depending on their previous experience with such activities and the timing and location of the disturbance. Some bald eagles may undergo higher physiological stress and additional energy expenditure as they avoid human disturbance, which may indirectly affect their well-being and productivity. However, monitoring patrols would be periodic (approximately four times per year) and would not be expected to cause nest abandonment.

Project design criteria for aerial monitoring would establish a 0.5-mile horizontal and vertical line of sight no-fly buffer around all known active bald eagle nest sites, providing spatial separation between helicopter noise and nesting eagles during the critical nesting period. These measures would also provide protections for any new nesting territories discovered.

**Indirect:** Short-term disturbance would be caused by construction of the pipeline corridor and TWAs. Short-term disturbance would affect 34 acres within coniferous or aspen forests that may contain habitat for bald eagle nesting and roosting. After the pipeline corridor is reclaimed when construction activities end, habitat loss would be reduced. In the long-term, 13 acres of disturbance are anticipated within coniferous or aspen forests that may contain habitat for bald eagle nesting or roosting. However, all of this vegetation would likely not be suitable nesting or roosting habitat.

Short-term disturbance would affect 15 acres within riparian areas that may contain habitat for bald eagle foraging. After the pipeline corridor is reclaimed when construction activities end, habitat loss would be reduced. In the long-term, 6 acres of disturbance are anticipated within riparian areas that may contain

habitat for bald eagle foraging. However, all of this vegetation would likely not be suitable foraging habitat. Disturbance to bald eagle nesting, roosting, and foraging habitat would be less than one percent when compared with the available habitats within the Project Area

**Cumulative:** The proposed action would cause a slight increase in short-term and long-term disturbance to bald eagle nesting, roosting, and foraging habitat cumulative effects in conjunction with present and reasonably foreseeable future activities in the region. Cumulatively, other land uses and activities on adjacent lands that may disturb eagles or affect their habitats include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, residential development, river floating, and fishing. Specific existing and future actions in the same region as the Project Area that may affect bald eagles are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action, "**may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability range wide**" for the bald eagle. This determination is based on the low likelihood that project actions would have measurable effects on nesting or roosting bald eagles or cause a shortage of suitable winter roosting or nesting habitat in the Project Area.

## Northern Goshawk

### Distribution

The northern goshawk is widely distributed throughout the boreal and temperate forest regions of North America. Northern goshawks are uncommon throughout their range and there is concern that goshawk populations may be declining in western North America (Kennedy 2003).

### Habitat

The goshawk is a forest habitat generalist. Hunting often occurs in open forests, along forest and shrubland ecotones, and in riparian zones. Prey species vary, but primarily include ruffed grouse, blue grouse, hares, and red squirrels. Goshawks tend to select stands with relatively large diameter trees and high canopy closure for nesting (Kennedy 2003). In south-central Wyoming and northeastern Utah, nest trees species are mainly lodgepole pine and aspen (*Populus tremuloides*), but Douglas-fir (*Pseudotsuga menziesii*), Engelmann spruce, and subalpine fir are also used (Squires and Ruggiero 1996). Goshawks select moderate slopes (range 1 to 34 percent) for nest sites but showed no preference for nest site aspect (Squires and Ruggiero 1996). Nest sites are often close to a perennial water source.

Goshawks are partly migratory in the northern parts of their range, moving down in elevation perhaps as a response to food scarcity (Kennedy 2003). Goshawks generally return to their territories in March and initiate breeding activities soon after.

### Threats

The major concern for the northern goshawk is the loss of mature and old-growth aspen, conifer, or mixed aspen/conifer forests where they breed and forage. The threat of a large-scale wildfire and subsequent loss of habitats for the northern goshawk and its prey species is also a major concern (Kennedy 2003).

## Existing Conditions

Habitat needs for the northern goshawk are present within and surrounding the Project Area. However, a large portion of the Project Area (50 percent) is non-forested or contains no suitable nesting habitat (**Table F-1**). Raptors are most sensitive to noisy disturbance during the breeding season near their nest sites. Suitable nesting habitat is not likely to be found along the state highway located within the Project Area. Northern goshawks have been observed in the same region as the Project Area (Cerovski et al. 2004). However, no goshawk nests have been documented within the Project Area (WYNDD 2004).

## Effects of the Proposed Action

**Direct:** The Proposed Action would reduce traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would decrease direct disturbance to the northern goshawk from motorized vehicle traffic if an individual were in the area. No temporary or permanent roads would be constructed in association with the proposed pipeline. The work force and machinery required for pipeline construction may temporarily displace northern goshawks if they occur in the area; however, this displacement effect is not likely to occur because of the lack of known northern goshawk occurrences within the Project Area.

Operation and maintenance of the pipeline would include periodic aerial and ground patrols of the pipeline corridor and corrosion/leak detection surveys to detect conditions that may endanger the integrity of the pipeline. Northern goshawks may respond to the appearance and noise of helicopters, and the presence and noise of people by avoiding areas of disturbance. The length of this modified behavior by northern goshawks may vary depending on their previous experience with such activities and the timing and location of the disturbance. Some northern goshawks may undergo higher physiological stress and additional energy expenditure as they avoid human disturbance, which may affect their well-being and productivity. However, no northern goshawk nests are documented within the Project Area and the pipeline aerial and ground monitoring events are periodic and not likely to cause nest abandonment. If northern goshawk nests were established along the pipeline corridor appropriate spatial and seasonal buffers would be established for aerial and ground monitoring events.

**Indirect:** Habitat modification through construction and development activities may indirectly impact the northern goshawk by removing potential nesting or roosting sites and altering prey habitat. Stands of Douglas-fir, aspen, Engelmann spruce, and subalpine fir do occur within the Project Area (**Table F-1**). Short-term disturbance would result from construction of the pipeline corridor and temporary work areas. In the short-term, 17 acres of disturbance is anticipated within Douglas-fir, aspen, Engelmann spruce, and subalpine fir forests that may contain suitable northern goshawk habitat (**Table F-3**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. In the long-term, 7 acres of disturbance is anticipated within Douglas-fir, aspen, Engelmann spruce, and subalpine fir forests that may contain suitable northern goshawk habitat (**Table F-3**). All of this vegetation is not likely suitable as northern goshawk habitat and a large portion of the Project Area (50 percent) is non-forested or contains no suitable nesting habitat (**Table F-1**). In addition, disturbance to Douglas-fir, aspen, Engelmann spruce, and subalpine fir habitat is minimal when compared with the amount of available habitat that occurs within the Project Area (**Table F-1**).

**Cumulative:** The proposed action may cause a slight increase in short-term disturbance to northern goshawk habitat in conjunction with all other past, present, and reasonably foreseeable future activities in the region. Cumulatively, other land uses or activities on adjacent lands that may disturb northern goshawks or affect their habitat include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, and residential development. Specific existing and future actions in the same region as the Project Area that may affect northern goshawk are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action "**may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide**" for the northern goshawk. This determination is based on the lack of known northern goshawk occurrences within the Project Area and the minimum disturbance to northern goshawk habitat within the Project Area. Mitigation measures to protect nest sites, if discovered, would help reduce potential adverse effects.

## Boreal Owl

### Distribution

Boreal owls range across northern North America They are considered a rare yearlong resident of Wyoming and can be found in the Jackson Hole area, Lake Marie area in the Medicine Bow Mountains, and the Blackhall Mountain area in the Sierra Madre Mountains (Dorn and Dorn 1999).

### Habitat

The boreal owl is a secondary cavity nester generally associated with mature and old spruce-fir forests (Clark 1994). As a secondary cavity nester, boreal owls rely on woodpeckers to excavate snags and decaying trees, which they subsequently use for nesting and roosting. These owls have been documented to the west of the Project Area along the Greys River. In this area, boreal owls were mainly found in spruce-fir habitat between 6,800 and 8,500 feet in elevation (Clark 1994). Owls were detected in multi-layer stands with high structural complexity, usually close to small wet meadows with complex perimeters (Clark 1994). Boreal owls were also documented in mixed conifer-aspen and Douglas-fir stands (Clark 1994). Boreal owls hunt mainly at night for small prey such as voles, mice, shrews, insects, and occasionally passerine birds.

### Threats

The major concern for the boreal owl is the loss of mature spruce-fir forests where they breed and forage. The threat of a large-scale wildfire and subsequent loss of habitats for the boreal owl and its prey species is also a major concern.

### Existing Conditions

Habitat for the boreal owl is present within and surrounding the Project Area. However, a large portion of the Project Area (50 percent) is non-forested or contains no suitable nesting habitat (**Table F-1**). Raptors are most sensitive to noisy disturbance during the breeding season near their nest sites. Suitable nesting habitat is not likely to be found along the state highway located within the Project Area. No boreal owl nests have been documented within the Project Area (WYNDD 2004).

### Effects of the Proposed Action

**Direct:** The proposed action would reduce traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would decrease direct disturbance to the boreal owl from motorized vehicle traffic if an individual were in the area. No temporary or permanent roads would be constructed in association with the proposed pipeline. The work force and machinery required for pipeline construction

may temporarily displace boreal owls if they occurred in the area; however, this displacement effect is not likely to occur because of the lack of known boreal owl occurrences within the Project Area.

Operation and maintenance of the pipeline would include periodic aerial and ground patrols of the pipeline corridor and corrosion/leak detection surveys to detect conditions that may endanger the integrity of the pipeline. Boreal owls may respond to the appearance and noise of helicopters, and the presence and noise of people by avoiding areas of disturbance. The length of this modified behavior by boreal owls may vary depending on their previous experience with such activities and the timing and location of the disturbance. Some boreal owls may undergo higher physiological stress and additional energy expenditure as they avoid human disturbance, which may affect their well-being and productivity. However, no boreal owl nests are documented within the Project Area and these pipeline aerial and ground monitoring events are periodic and not likely to cause nest abandonment. If boreal owl nests were established along the pipeline corridor appropriate spatial and seasonal buffers would be established for aerial and ground monitoring events.

**Indirect:** Habitat modification through construction and development activities may indirectly affect the boreal owl by removing potential nesting or roosting sites and altering prey habitat. Stands of Douglas-fir, aspen, Engelmann spruce, and subalpine fir occur within the Project Area. Short-term disturbance would be caused by construction of the pipeline corridor and temporary work areas. In the short-term, 8 acres of disturbance is anticipated within Douglas-fir, Engelmann spruce, and subalpine fir forests that may contain suitable boreal owl habitat (**Table F-3**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. In the long-term, 4 acres of disturbance is anticipated within Douglas-fir, Engelmann spruce, and subalpine fir forests that may contain suitable boreal owl habitat (**Table F-3**). All of this vegetation is not likely currently suitable boreal owl habitat and a large portion of the Project Area (50 percent) is non-forested or contains no suitable nesting habitat (**Table F-1**). In addition, disturbance to Douglas-fir, Engelmann spruce, and subalpine fir habitat is minimal when compared with the amount of available habitat that occurs within the Project Area (**Table F-1**).

**Cumulative:** The proposed action may cause a slight increase in short-term disturbance to boreal owl habitat in conjunction with all other past, present, and reasonably foreseeable future activities in the region. Cumulatively, other land uses or activities on adjacent lands that may disturb boreal owls or affect their habitat include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, and residential development. Specific existing and future actions in the same region as the Project Area that may affect the boreal owl are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action "**may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide**" for the boreal owl. This determination is based on the lack of known boreal owl occurrences within the Project Area and the minimum disturbance to boreal owl habitat within the Project Area. Mitigation measures to protect nest sites, if discovered, would help reduce potential adverse effects.

## Great Gray Owl

### Distribution

The Greater Yellowstone Ecosystem (GYE) lies on the southern periphery of great gray owl range. Great gray owls are found in the boreal forests of Alaska, interior Canada, and south to southwestern Quebec,

Minnesota, Idaho, and northern California. Within Wyoming, they can be found throughout the year at Yellowstone National Park, Jackson, Lake of the Woods near Union Pass in Fremont County, and around McCain Guard Station above Little Grey's River in Lincoln County (Dorn and Dorn 1999). The great gray owl is a large diurnal owl that has been described as bold but elusive and difficult to detect. They generally occur in low population densities.

## Habitat

Great gray owls inhabit mixed coniferous hardwood forests near small openings. The owls nest most often in broken-topped snags or stick nests originally built by other raptors (Cerovski et al. 2004). During winter, owls roost in low-elevation cottonwood groves.

## Threats

The major concern for the great gray owl is the loss of breeding and foraging habitat. The threat of a large-scale wildfire and subsequent loss of habitats for the great gray owl and its prey species is a major concern.

## Existing Conditions

Habitat for the boreal owl is present within and surrounding the Project Area. However, a large portion of the Project Area (50 percent) is non-forested or contains no suitable nesting habitat. Raptors are most sensitive to noisy disturbance during the breeding season near their nest sites. Suitable nesting habitat is not likely to be found along the state highway located within the Project Area. Nesting great gray owls have been documented in the same latilong as the Project Area (Cerovski et al. 2004). However, no great gray owl nests have been documented within the Project Area (WYNDD 2004).

## Effects of the Proposed Action

**Direct:** The proposed action would reduce traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would decrease direct disturbance to the great gray owl from motorized vehicle traffic if an individual were in the area. No temporary or permanent roads would be constructed in association with the proposed pipeline. The work force and machinery required for pipeline construction may temporarily displace great gray owls if they occur in the area; however, this displacement effect is not likely to occur because of the lack of known great gray owl occurrences within the Project Area.

Operation and maintenance of the pipeline would include periodic aerial and ground patrols of the pipeline corridor and corrosion/leak detection surveys to detect conditions that may endanger the integrity of the pipeline. Great gray owls may respond to the appearance and noise of helicopters, and the presence and noise of people by avoiding areas of disturbance. The length of this modified behavior by great gray owls may vary depending on their previous experience with such activities and the timing and location of the disturbance. Some great gray owls may undergo higher physiological stress and additional energy expenditure as they avoid human disturbance, which may affect their well-being and productivity. However, no great gray owl nests are documented within the Project Area and these pipeline aerial and ground monitoring events are periodic and not likely to cause nest abandonment. If great gray owl nests were established along the pipeline corridor, appropriate spatial and seasonal buffers would be established for aerial and ground monitoring events.

**Indirect:** Habitat modification through construction and development activities may indirectly affect the great gray owl by removing potential nesting or roosting sites and altering prey habitat. Stands of coniferous forests adjacent to meadows occur within the Project Area. Short-term disturbance would be caused by construction of the pipeline corridor and temporary work areas. In the short-term, 25 acres of disturbance is anticipated within Douglas-fir, Engelmann spruce, lodgepole pine, and subalpine fir forests that may contain suitable great gray owl habitat (**Table F-3**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. In the long-term, 10 acres of disturbance is anticipated within Douglas-fir, Engelmann spruce, lodgepole pine, and subalpine fir forests that may contain suitable great gray owl habitat (**Table F-3**). All of this vegetation is not likely currently suitable great gray owl habitat and a large portion of the Project Area (50 percent) is non-forested or contains no suitable nesting habitat (**Table F-1**). In addition, disturbance to Douglas-fir, Engelmann spruce, lodgepole pine, and subalpine fir habitat is minimal when compared with the amount of available habitat within the Project Area (**Table F-1**).

**Cumulative:** The proposed action may cause a slight increase in short-term disturbance cumulative effects to great gray owl habitat in conjunction with all other past, present, and reasonably foreseeable future activities in the region. Cumulatively, other land uses or activities on adjacent lands that may disturb great gray owls or affect their habitat include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, and residential development. Specific existing and future actions in the same region as the Project Area that may affect the great gray owl are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action "**may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide**" for the great gray owl. This determination is based on the lack of known great gray owl occurrences and the minimum disturbance to great gray owl habitat within the Project Area. Mitigation measures to protect nest sites, if discovered, would help reduce potential adverse effects.

## Flammulated Owl

### Distribution

The documented breeding range for this species includes southern British Columbia, Washington, the Cascade and Sierra Nevada mountain ranges, forests of Nevada, New Mexico, and Colorado; and it was found in forests of Idaho, Montana, and Wyoming (DeGraaf et al. 1991). Migration patterns of this species are still poorly understood, but data suggest that this species may migrate long distances north to south (DeGraaf et al. 1991). It is likely that the availability of prey also plays a large role in the migratory behavior of this species.

### Habitat

This species primarily depends on cavities for nesting, open forests for catching insects, and brush or dense foliage for roosting (Cerovski et al. 2004). Researchers have identified old-growth ponderosa pine and aspen as key habitats (Cerovski et al. 2004). This species prefers ponderosa pine/Douglas-fir forests and dense shrubs along small streams that have larger trees and higher densities of snags than average (Cerovski et al. 2004). High-quality breeding habitat for flammulated owls is characterized as mature, open stands of ponderosa pine mixed with Douglas-fir with sufficient cavity-trees for nesting (Linkhart 2001). This owl is primarily insectivorous (eating moths, crickets, grasshoppers, and beetles), but is known to prey on small mammals and birds as well.

## Threats

The major concern for the flammulated owl is the loss of mature and old-growth ponderosa pine, conifer, or mixed aspen/conifer forests where they breed and forage. The threat of a large-scale wildfire and subsequent loss of habitats for the flammulated owl and its prey species are also major concerns.

## Existing Conditions

A small amount of the Project Area (14.9 percent) contains Douglas-fir that could be used by the flammulated owl for nesting (**Table F-1**). One flammulated owl occurrence has been documented within the Project Area (WYNDD 2004) (**Figure 3-6 from the FEIS**). This occurrence was not a nest site and was from 1982.

## Effects of the Proposed Action

**Direct:** The proposed action would reduce traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would decrease direct disturbance to the flammulated owl from motorized vehicle traffic if an individual were nesting near the highway. No temporary or permanent roads would be constructed in association with the proposed pipeline.

One flammulated owl occurrence has been documented within the Project Area (WYNDD 2004) (**Figure 3-6 from the FEIS**). This occurrence was not a nest site and was from 1982. No nest sites have been documented within the Project Area. The work force and machinery required for pipeline construction could temporarily displace flammulated owls if they occurred in the area; however, this displacement effect is not likely to occur.

Operation and maintenance of the pipeline would include periodic aerial and ground patrols of the pipeline corridor and corrosion/leak detection surveys to detect conditions that may endanger the integrity of the pipeline. Flammulated owls may respond to the appearance and noise of helicopters, and the presence and noise of people by avoiding areas of disturbance. The length of this modified behavior by flammulated owls may vary depending on their previous experience with such activities and the timing and location of the disturbance. Some flammulated owls may undergo higher physiological stress and additional energy expenditure as they avoid human disturbance, which may affect their well-being and productivity. However, no flammulated owl nests are documented within the Project Area and these pipeline aerial and ground monitoring events are periodic and not likely to cause nest abandonment. If flammulated owl nests were established along the pipeline corridor appropriate spatial and seasonal buffers would be established for aerial and ground monitoring events.

**Indirect:** Habitat modification through construction and development activities may indirectly affect the flammulated owl by removing potential nesting or roosting sites and altering prey habitat. Stands of Douglas-fir and aspen occur within the Project Area. Short-term disturbance would result from construction of the pipeline corridor and temporary work areas. In the short-term, 13 acres of disturbance is anticipated within Douglas-fir and aspen forests that may contain suitable flammulated owl habitat (**Table F-3**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. In the long-term 5 acres of disturbance on is anticipated within Douglas-fir, and aspen forests that may contain suitable flammulated owl habitat (**Table F-3**). All of this vegetation is not likely currently suitable flammulated owl habitat and a large portion of the Project Area (50 percent) is non-forested or contains no suitable nesting habitat (**Table F-1**). In addition, disturbance to Douglas-fir and aspen habitat is minimal when compared with the amount of available habitat that occurs within the Project Area (**Table F-1**).

**Figure 3-6 from the FEIS (page 3-61)**

**Cumulative:** The proposed action may cause a slight increase in short-term disturbance to flammulated owl habitat in conjunction with all other past, present, and reasonably foreseeable future activities in the region. Cumulatively, other land uses or activities on adjacent lands that may disturb flammulated owls or affect their habitat include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, and residential development. Specific existing and future actions in the same region as the Project Area that may affect the flammulated owl are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action "**may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide**" for the flammulated owl. This determination is based on the lack of known flammulated owl nest sites within the Project Area and the minimum disturbance to flammulated owl habitat within the Project Area. Mitigation measures to protect nest sites, if discovered, would help reduce potential adverse effects.

## Peregrine Falcon

### Distribution

The peregrine falcon at one time inhabited nearly every state in the U.S. but then declined from exposure to DDT. Since DDT was banned, peregrine falcon populations have rebounded throughout North America. Peregrine falcons usually migrate to the Gulf of Mexico, inland Mexico and Central America during the winter (Spahr et al.1991). Birds return from their wintering areas in March, begin courtship and breeding activities soon after their arrival, and typically lay eggs in April. Although peregrine falcons generally migrate, they have been observed feeding in Wyoming as early as February and on nests in March (Spahr et al. 1991).

### Habitat

Peregrines usually nest on ledges of high cliffs or tall man-made structures. Peregrine falcon nest sites are often located on cliff faces with an overhanging ledge or rock outcrop, generally 150 feet or higher from the base of the cliff face (USFWS 1984). Peregrines prey on birds such as waterfowl, shorebirds, grouse, and pigeons. Although peregrine falcons travel ten miles or more to forage, they get most of their food within one mile of the nest (Spahr et al.1991). Human activities would be restricted within 0.5 miles of occupied eyries between March 1 and July 31 or July 1 to September 15 for hack sites, depending upon the height of the nesting cliff (USFS 1990).

### Threats

Several factors threaten the peregrine falcon. Because falcons rarely nest far from water, the loss or modification of these nesting habitats can have detrimental effects on the current population. Contamination of prey, particularly waterfowl, may seriously affect the availability and quality of prey. Effects to the prey base may in turn detrimentally affect the viability and survivability of reproducing peregrine falcons. Additional threats include disease, predation, and incidental or illegal shooting and trapping (USFWS 1999).

## Existing Conditions

Habitat for the peregrine falcon may be present within the northern portion of the Project Area in Hoback Canyon. However, the state highway within this canyon may cause disturbance during the breeding season. Nesting peregrine falcons have been documented in the same latilong as the Project Area (Cerovski et al. 2004). However, no peregrine falcon nests have been documented within the Project Area (WYNDD 2004).

## Effects of the Proposed Action

**Direct:** The proposed action would reduce traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would decrease direct disturbance to the peregrine falcon from motorized vehicle traffic if an individual were in the area. No temporary or permanent roads would be constructed in association with the proposed pipeline. The work force and machinery required for pipeline construction may temporarily displace peregrine falcons if they occur in the area; however, this displacement effect is not likely to occur at this time. There is a lack of known peregrine falcon occurrences within the Project Area.

A disturbance buffer outlined in the peregrine falcon disturbance standards (USFS 1990) would be applied to any nest sites that are discovered in the Project Area. These standards include a restriction of activity within 0.5 miles of occupied eyries between March 1 and July 31 or July 1 to September 15 for hack sites, depending upon the height of the nesting cliff (USFS 1990).

Operation and maintenance of the pipeline would include periodic aerial and ground patrols of the pipeline corridor and corrosion/leak detection surveys to detect conditions that may endanger the integrity of the pipeline. Peregrine falcons may respond to the appearance and noise of helicopters, and the presence and noise of people by avoiding areas of disturbance. The length of this modified behavior by peregrine falcons may vary depending on their previous experience with such activities and the timing and location of the disturbance. Some peregrine falcons may undergo higher physiological stress and additional energy expenditure as they avoid human disturbance, which may affect their well-being and productivity. However, no peregrine falcon nests are documented within the Project Area and these pipeline aerial and ground monitoring events are periodic and not likely to cause nest abandonment. If peregrine falcon nests were established along the pipeline corridor the peregrine falcon disturbance standards would be established for aerial and ground monitoring events.

**Indirect:** Habitat modification through construction and development activities may indirectly affect the peregrine falcon by removing or altering prey habitat. Alteration of potential nest sites along cliffs is unlikely to occur because the pipeline would avoid such sites. Because falcons commonly prey on waterfowl and rarely nest far from water, the loss or modification of riparian habitats can have detrimental effects on the current population. Short-term disturbance would be caused by construction of the pipeline corridor and temporary work areas. In the short-term, 15 acres of disturbance are anticipated within riparian vegetation throughout the Project Area (**Table F-3**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. In the long-term, only 6 acres of disturbance on Forest Service land is anticipated within riparian vegetation throughout the Project Area (**Table F-3**). Disturbance to riparian habitat is minimal when compared with the amount of available riparian habitat that occurs within the Project Area (**Table F-1**). All of this vegetation would likely not be considered suitable prey habitat for the peregrine falcon and a large portion of the Project Area (50 percent) is non-forested or contains no suitable prey habitat (**Table F-1**). In addition, disturbance to riparian habitat is minimal when compared with the amount of available riparian habitat that occurs within the Project Area (**Table F-1**). To minimize effects to riparian areas, mitigation measures for

streams, wetland, and riparian areas would be implemented during construction and operation of the pipeline.

**Cumulative:** The proposed action may cause a slight increase in short-term disturbance to prey habitat in conjunction with all other past, present, and reasonably foreseeable future activities in the region. Cumulatively, other land uses or activities on adjacent lands that may disturb peregrine falcons or affect their habitat include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, and residential development. Specific existing and future actions in the same region as the Project Area that may affect the peregrine falcon are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action "**may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide**" for the peregrine falcon. This determination is based on the lack of known peregrine falcon occurrences within the Project Area and the minimal potential disturbance to peregrine falcon habitat within the Project Area. Mitigation measures to protect nest sites, if discovered, would help reduce potential adverse effects.

## Three-Toed Woodpecker

### Distribution

The distribution of the three-toed woodpecker extends from Alaska to Arizona and New Mexico. In Wyoming, it has been reported in the Uinta Mountains in Uinta County, Powder River Rod in Big Horn Mountains, Pacific Creek at the north boundary of Grand Teton National Park, and Laramie Peak in northeast Albany County (Dorn and Dorn 1999). It is considered an uncommon resident of the GYE, although it may be locally abundant where beetle or fire killed trees are abundant.

### Habitat

Three-toed woodpeckers nest in coniferous forests and forage on insects (Wiggins 2004). They inhabit lodgepole pine, Douglas-fir, and Engelmann spruce-subalpine fir forests (Cerovski et al. 2004). The three-toed woodpecker warrants special concern due to its rarity and dependence on unique forest characteristics—snags in old growth or forests that have recently burned or been attacked by bark beetles. Three-toed woodpeckers are most common immediately after burning and are then less common as the forest recovers (Wiggins 2004).

### Threats

Loss of spruce-fir habitats is a concern for this species. In addition, fire suppression has led to reduced foraging habitat in burned-over areas.

### Existing Conditions

Lodgepole pine, Douglas-fir, and Engelmann spruce-subalpine fir forests represent 37.6 percent of the Project Area. However, the clearcut/burn areas occurred previous to 1980 and there are no known forested areas that have recently been attacked by bark beetles within the Project Area. Thus, high quality suitable nesting and foraging habitat for the three-toed woodpecker is not currently expected within the Project Area. Although the three-toed woodpecker is uncommon, it has been documented breeding in

several areas in western Wyoming (Cerovski et al. 2004). However, no three-toed woodpecker nests have been documented within the Project Area (WYNDD 2004).

## Effects of the Proposed Action

**Direct:** The proposed action would result in a reduction of traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would result in a decrease of direct disturbance to the three-toed woodpecker from motorized vehicle traffic if an individual were in the area. No temporary or permanent roads would be constructed in association with the proposed pipeline. The work force and machinery required for pipeline construction could temporarily displace three-toed woodpeckers if they occurred in the area; however, this displacement effect is not likely to occur at this time. There is a lack of known three-toed woodpecker occurrences within the Project Area.

Operation and maintenance of the pipeline would include periodic aerial and ground patrols of the pipeline corridor and corrosion/leak detection surveys to detect conditions that may endanger the integrity of the pipeline. Three-toed woodpeckers are cavity nesters in mature forest habitats and are unlikely to be affected by the noise of helicopters, and the presence and noise of people. No three-toed woodpecker nests are documented within the Project Area and these pipeline aerial and ground monitoring events are periodic and not likely to cause nest abandonment.

**Indirect:** Habitat modification through construction and development activities may indirectly impact the three-toed woodpecker by removing potential nesting or roosting sites and altering foraging habitat. Alteration of potential nest sites and foraging habitat is unlikely because of its dependence on unique forest characteristics—snags in old growth or forests that have recently burned or been attacked by bark beetles. Lodgepole pine, Douglas-fir, and Engelmann spruce-subalpine fir forests represent 38 percent of the Project Area (**Table F-1**). However, the clearcut/burn areas occurred previous to 1980 and there are no known forested areas that have recently been attacked by bark beetles within the Project Area. Thus, high quality suitable nesting and foraging habitat for the three-toed woodpecker is not currently expected within the Project Area.

Short-term disturbance would result from construction of the pipeline corridor and temporary work areas. In the short-term, 25 acres of disturbance is anticipated within lodgepole pine, Douglas-fir, and Engelmann spruce-subalpine fir forests that may contain suitable three-toed woodpecker habitat (**Table F-3**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. In the long-term, 10 acres of disturbance is anticipated within lodgepole pine, Douglas-fir, and Engelmann spruce-subalpine fir forests that may contain suitable three-toed woodpecker habitat (**Table F-3**). However, as mentioned above, much of this vegetation would likely not be considered suitable nesting or foraging habitat for the three-toed woodpecker. Disturbance to lodgepole pine, Douglas-fir, and Engelmann spruce-subalpine fir habitat is minimal when compared with the amount of available habitat that occurs within the Project Area (**Table F-1**).

**Cumulative:** The proposed action may cause a slight increase in short-term disturbance to three-toed woodpecker habitat in conjunction with all other past, present, and reasonably foreseeable future activities in the region. Cumulatively, other land uses or activities on adjacent lands that may disturb three-toed woodpeckers or affect their habitat include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, and residential development. Specific existing and future actions in the same region as the Project Area that may affect the three-toed woodpecker are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for the three-toed woodpecker. This determination is based on the lack of known three-toed woodpecker occurrences within the Project Area and the minimum disturbance to potential three-toed woodpecker habitat within the Project Area. Mitigation measures to protect nest sites, if discovered, would help reduce the potential adverse effects.

## Greater Sage Grouse

### Distribution

Greater sage grouse are found in Washington, Oregon, Idaho, Montana, North Dakota, eastern California, Nevada, Utah, western Colorado, South Dakota and Wyoming (USFWS 2005). Greater sage grouse are currently estimated to number from approximately 100,000 to 500,000 individuals. Sage grouse populations are estimated to have declined an average of 3.5 percent per year from 1965 to 1985. Since 1986, however, populations in several states have increased or generally stabilized and the rate of decline from 1985 to 2003 slowed to 0.37 percent annually for the species across its entire range (USFWS 2005).

### Habitat

The birds are found at elevations ranging from 4,000 to over 9,000 feet (USFWS 2005). The sage grouse is considered a sagebrush obligate species because of its close affiliation with sagebrush habitats. Key habitat components include leks and brood rearing and wintering habitats. Leks, or strutting grounds, are traditional sites used by males for breeding displays. These sites typically occur in open areas surrounded by sagebrush (USFS 2003).

### Threats

The causes for greater sage grouse rangewide decline are not completely understood and may be influenced by local conditions. Habitat loss and degradation, as well as loss of populations connectivity are important factors (USFWS 2005). Any activities that result in loss or degradation of sagebrush habitats may impact the species (USFWS 2005).

### Existing Conditions

The Gros Ventre River drainage, northeast of the Project Area, provides, nesting, brood rearing, and wintering habitat for sage grouse. There is one known lek site within the drainage and another is suspected (USFS 2003). No greater sage grouse leks have been documented within the Project Area (WYNDD 2004).

### Effects of the Proposed Action

**Direct:** Alternative B would result in a reduction of traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would result in a decrease of direct disturbance to the greater sage grouse from motorized vehicle traffic if an individual were located near the highway. No temporary or permanent roads would be constructed in association with the proposed pipeline. The work force and machinery required for pipeline construction could temporarily displace the greater sage grouse if they

occurred in the area; however, this displacement effect is not likely to occur at this time. There are no known greater sage grouse leks within the Project Area.

Operation and maintenance of the pipeline would include periodic aerial and ground patrols of the pipeline corridor and corrosion/leak detection surveys to detect conditions that may endanger the integrity of the pipeline. Greater sage grouse may respond to the appearance and noise of helicopters, and the presence and noise of people by avoiding areas of disturbance. The length of this modified behavior by greater sage grouse may vary depending on their previous experience with such activities and the timing and location of the disturbance. Some greater sage grouse may undergo higher physiological stress and additional energy expenditure as they avoid human disturbance, which may affect their well-being and productivity. However, no greater sage grouse leks are documented within the Project Area and these pipeline aerial and ground monitoring events are periodic and not likely to cause nest abandonment. If greater sage grouse leks were established along the pipeline corridor appropriate spatial and seasonal buffers would be established for aerial and ground monitoring events.

**Indirect:** Sagebrush habitat modification through construction and development activities may indirectly impact the greater sage grouse by removing potential leks, brood rearing, or wintering habitats. Much of the non-forested area, south of Hoback Canyon, is classified as range and contains sagebrush. Private land within the Project Area, south of the BTNF, also contains sagebrush.

Short-term disturbance would result from construction of the pipeline corridor and temporary work areas. In the short-term, 109 acres of disturbance is anticipated within non-forested habitat that may contain sagebrush habitat for the greater sage grouse (**Table F-3**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. In the long-term, 40 acres of disturbance is anticipated within non-forested areas that may contain sagebrush habitat for the greater sage grouse (**Table F-3**). However, it is unknown how much of this non-forested area contains sagebrush habitat suitable for greater sage grouse. Disturbance to non-forested habitat is minimal when compared with the amount of available non-forested habitat that occurs within the Project Area (**Table F-1**).

The proposed pipeline is not expected to affect connectivity of greater sage grouse habitat within the BTNF. If important breeding habitat (leks, nesting, or brood rearing habitat) is discovered within the Project Area no project-related disturbance to habitat would occur between March 1 and June 30 (USFWS 2004).

**Cumulative:** The proposed action may cause a slight increase in short-term disturbance to greater sage grouse habitat in conjunction with all other past, present, and reasonably foreseeable future activities in the region. Cumulatively, other land uses or activities on adjacent lands that may disturb the greater sage grouse or affect its habitat include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, and residential development. Specific existing and future actions in the same region as the Project Area that may affect the greater sage grouse are found on pages F-12 to F-13.

## Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for the greater sage grouse. This determination is based on the lack of known greater sage grouse occurrences within the Project Area and the minimum disturbance to potential greater sage grouse habitat within the Project Area. Mitigation measures to protect lek sites, if discovered, would help reduce the potential adverse effects.

# Trumpeter Swan

## Distribution

The trumpeter swan was formerly found throughout North America from central Alaska to western Hudson Bay and then southeast to Nova Scotia, with the southern limit extending to northwest Mississippi and eastern Arkansas in the east and possibly California in the west. It is presently found in Alaska, Yukon, British Columbia, Alberta, Washington, Oregon, Nevada, Montana, Idaho, Wyoming, South Dakota, Minnesota, Wisconsin, Michigan, Saskatchewan, and Ontario (NatureServe 2004). In Wyoming it is found in Yellowstone Lake and the Yellowstone River in Hayden Valley of Yellowstone National Park, Grand Teton National Park, and Seedskadee National Wildlife Refuge in Sweetwater County (Dorn and Dorn 1999).

## Habitat

Trumpeters feed exclusively on aquatic vegetation and thus rely on open water areas in the winter to survive. They may occasionally be found resting in snow-covered fields in large numbers waiting for frozen waters to thaw and open. Trumpeters nest on marshes, lakes, and beaver ponds. They prefer quiet, shallow waters with islands and areas of emergent vegetation for nesting, resting, and foraging (USFS 2003).

## Threats

Trumpeter swans face a serious threat because of declining winter habitat, overcrowding on existing winter habitat, and potential for widespread disease introduction (NatureServe 2004). Water quality changes are also a threat because aquatic and emergent plant species are used as forage and nesting materials. Trumpeter swans are also vulnerable to illegal hunting or malicious shooting due to their conspicuousness and large size (NatureServe 2004).

## Existing Conditions

Within the vicinity of the Project Area, the primary area of concentration for swans during winter is along the Snake River from the National Elk Refuge in Jackson, Wyoming to the South Fork of the Snake River in southeast Idaho. Within this stretch of the Snake River, a couple hundred birds are counted annually during the winter months. Up to 500 swans have been counted in Teton Basin along the warm springs at the south end of the Basin and the full length of the Teton River in southeast Idaho. Marked swans have provided evidence that trumpeters move throughout the winter between Jackson, Teton Basin, Grays/Salt River, and Swan Valley; most likely crossing between valleys over the lowest points in the Teton and Snake River Ranges (USFS 2003).

Although the north end of the Project Area, along the Snake River, may be used by trumpeter swans in the winter, no suitable nesting habitat for the trumpeter swan is available within the Project Area. No documented breeding records exist within the Project Area (WYNDD 2004).

## Effects of the Proposed Action

**Direct:** The proposed action would result in a reduction of traffic by tanker trucks transporting LNG along public highways to the Jackson area. This would result in a decrease of direct disturbance to the trumpeter swan from motorized vehicle traffic if an individual were nesting in riparian habitat located near the highway. No temporary or permanent roads would be constructed in association with the proposed

pipeline. The work force and machinery required for pipeline construction could temporarily displace the trumpeter swan if they occurred in the area; however, this displacement effect is not likely to occur at this time. There is a lack of known trumpeter swan occurrences within the Project Area.

Operation and maintenance of the pipeline would include periodic aerial and ground patrols of the pipeline corridor and corrosion/leak detection surveys to detect conditions that may endanger the integrity of the pipeline. There is always the potential for collisions between aircraft and birds. The potential of such collisions with swans is even smaller since they do not burst off water or snow-covered land with any speed due to their size. Trumpeter swans wintering near the Project Area are likely to be familiar with aircraft and their sound, and unless approached at close range, would not likely flush. However, there is a lack of known trumpeter swan occurrences within the Project Area. Aerial and ground monitoring events are unlikely to occur near wintering trumpeter swans.

**Indirect:** Habitat modification through construction and development activities may indirectly impact the trumpeter swan by removing potential wintering sites. The proposed pipeline does not cross the Snake River where the trumpeter swan is known to winter. In addition, no construction activities are planned in the during the winter months when the trumpeter swans are wintering along the Snake River.

**Cumulative:** The proposed action would have no additional cumulative effects on the trumpeter swan within the region. Cumulatively, other land uses or activities on adjacent lands that may disturb trumpeter swans or affect their winter habitat include vehicle traffic, highway maintenance, pedestrian traffic, aircraft flights, river floating, fishing, and residential development. Specific existing and future actions in the same region as the Project Area that may affect the trumpeter swan are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action would have "**no impact**" on the trumpeter swan. This determination is based on the lack of known trumpeter swan occurrences within the Project Area. The proposed pipeline does not cross the Snake River where the trumpeter swan is known to winter. In addition, no construction activities are planned during the winter months when the trumpeter swans are wintering along the Snake River.

## Snake River Fine-spotted Cutthroat Trout

### Distribution

The Snake River fine-spotted cutthroat trout is native in the headwaters of the Snake River drainage (Baxter and Stone 1995). In recent years, the Snake River fine-spotted cutthroat trout has been introduced into many lakes and streams in Wyoming. Current population information indicates that Snake River cutthroat trout populations are steady to increasing on a Forest-wide basis (Neal 2004). Snake River fine-spotted cutthroat trout populations are strong in the Hoback River and tributaries. Competition and hybridization has not significantly impacted Snake River fine-spotted cutthroat trout populations throughout the watershed (USFS 2004). In addition, the Snake River cutthroat populations are connected to other populations within the sub basin, further reducing extinction risks (USFS 2004).

### Habitat

The Snake River fine-spotted cutthroat prefers medium-sized and larger streams with good overhead cover. The diet of fish less than 11 inches in length mainly consists of aquatic insects. Fish, primarily

sculpins, are the most important dietary component of trout over 11 inches in length (Baxter and Stone 1995).

## Threats

Snake River fine-spotted cutthroat spawning tributaries have been altered by erosion, siltation, and irrigation diversions related to agricultural practices (Spahr et al. 1991). An outbreak of nematode parasites caused a decline in the Palisades Reservoir population (NatureServe 2004). The Snake River fine-spotted cutthroat is also vulnerable to overfishing (NatureServe 2004).

## Existing Conditions

The Forest Plan (USFS 1990) contains standards for the protection of fish habitat and populations within the Project Area. For fish habitat providing a fishery at or near its potential, fish populations should be maintained at existing levels. For habitat below its potential, habitat should be improved or maintained to at least 90 percent of its natural potential. At least 90 percent of the natural bank stability of streams that support a fishery, particularly threatened, endangered, and sensitive species, and all trout species, should be maintained. Streambank vegetation should be maintained to 80 percent of its natural potential condition. Habitat occupied by existing and reintroduced populations of Snake River fine-spotted cutthroat trout should be managed to protect species purity.

Habitat for the Snake River fine-spotted cutthroat is present along the Snake River and Hoback River and their tributaries throughout of the Project Area.

## Effects of the Proposed Action

**Direct:** The proposed action would result in the pipeline crossing the Hoback River and other perennial or intermittent streams located along the route. The project would require nine crossings of the Hoback River. Damage to riparian areas and erosion and siltation from pipeline construction during stream crossings could lead to direct injury or mortality of the Snake River fine-spotted cutthroat trout. However, the river and stream crossings have been aligned to minimize impacts on riparian and wetland vegetation. To minimize effects to riparian areas mitigation measures for streams, wetland, and riparian areas would be implemented during construction and operation of the pipeline.

Operation and maintenance of the pipeline would include periodic aerial and ground patrols of the pipeline corridor and corrosion/leak detection surveys to detect conditions that may endanger the integrity of the pipeline. If pipeline maintenance were required at a river crossing the same mitigation measures as listed for pipeline construction, would be implemented to protect riparian areas and fish habitat.

**Indirect:** Habitat modification through construction and development activities may indirectly impact the Snake River fine-spotted cutthroat by altering prey in aquatic habitat. Short-term disturbance would result from construction of the pipeline corridor and temporary work areas. In the short-term, 15 acres of disturbance is anticipated within riparian vegetation throughout the Project Area (**Table F-3**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. In the long-term, only 6 acres of disturbance is anticipated within riparian vegetation throughout the Project Area (**Table F-3**). Because the BTNF guidelines for fish habitat management will be followed during stream crossings, no long-term modifications to aquatic habitat are anticipated within the Project Area. Disturbance to riparian habitat is minimal when compared with the amount of available riparian habitat that occurs within the Project Area (**Table F-1**). To minimize effects to riparian areas mitigation measures

for streams, wetland, and riparian areas would be implemented during construction and operation of the pipeline.

**Cumulative:** The proposed action may cause a slight increase in short-term disturbance to Snake River fine-spotted cutthroat habitat in conjunction with all other past, present, and reasonably foreseeable future activities in the region. Cumulatively, other land uses or activities on adjacent lands may negatively affect riparian habitat. Riparian cottonwood communities depend on periodic flooding to remain vigorous. Specific existing and future actions in the same region as the Project Area that may affect the Snake River fine-spotted cutthroat trout are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for the Snake River fine-spotted cutthroat. This determination is based on the potential for direct and indirect effects to the Snake River fine-spotted cutthroat within the Project Area. However, mitigation measures implemented during pipeline construction and operations would mitigate any possible effects.

## Colorado River Cutthroat Trout

### Distribution

Colorado River cutthroat trout were the only trout native to the Green and Little Snake River drainages in Wyoming. The historic range of this subspecies was the clear-water tributaries of the Colorado River drainage, including the Green River, in Wyoming, Colorado, Utah, New Mexico, and Arizona. This subspecies now occupies only a fraction of its historic range. Conservation populations in Wyoming are found in the Green River, which enclave consist primarily of headwater streams entering the Green River from the west between LaBarge and Daniel in Sublette County (Baxter and Stone 1995). Colorado River cutthroat populations in the BTNF appear to be steady (USFS 2004).

### Habitat

Preferred habitat for the Colorado River cutthroat trout is cold, clear water, a relatively steep gradient, and a rubble-boulder substrate (Baxter and Stone 1995). Aquatic and terrestrial invertebrates comprise the majority of items in the diet of Colorado River cutthroat populations in small headwater streams of Wyoming (Baxter and Stone 1995).

### Threats

Colorado River cutthroat trout spawning tributaries have been altered by erosion, siltation, and irrigation diversions related to agricultural practices (Spahr et al. 1991). Original numbers and distribution of Colorado River cutthroat trout were reduced through hybridization and competition with non-native trout and habitat alterations associated with human activities (Baxter and Stone 1995). Habitat alterations included livestock grazing, irrigation, logging, and oil and gas exploration activities. Increased road access has also led to increased fishing pressure (Baxter and Stone 1995).

## Existing Conditions

The Forest Plan (USFS 1990) contains standards for the protection of fish habitat and populations within the Project Area. For fish habitat providing a fishery at or near its potential, fish populations should be maintained at existing levels. For habitat below its potential, habitat should be improved or maintained to at least 90 percent of its natural potential. At least 90 percent of the natural bank stability of streams that support a fishery, particularly threatened, endangered, and sensitive species, and all trout species, should be maintained. Streambank vegetation should be maintained to 80 percent of its natural potential condition. Habitat occupied by existing and reintroduced populations of Colorado River cutthroat should be managed to protect species purity.

The Colorado River cutthroat trout are known to inhabit the Beaver Creek drainage within the southern portion of the Project Area. Within this drainage, a core conservation population of Colorado River cutthroat trout are known to occur in South Beaver Creek (Neal 2005), about 2 miles south of the Project Area (**Figure 3-6 from the FEIS**).

## Effects of the Proposed Action

**Direct:** A core conservation population of Colorado River cutthroat trout are known to occur in South Beaver Creek (Neal 2005), about 2 miles south of the Project Area. (**Figure 3-6 from the FEIS**). Under Alternative B, no direct impacts to Colorado River cutthroat trout populations are expected because they are currently not found within Middle or North Beaver Creeks, which cross the southern portion of the Project Area.

**Indirect:** Disturbance to riparian areas and potential erosion and siltation from pipeline construction could adversely affect Colorado River cutthroat habitat found downstream of the Project Area, however, project design criteria and best management practices for watershed protection would greatly reduce potential fisheries impacts. The alignment of river and stream crossings to reduce disturbance to riparian and wetland vegetation, channels, and banks, and minimize the duration of the disturbance would minimize the effects on Colorado River cutthroat. The implementation of the design criteria in would reduce effects on streams, wetlands, and riparian areas. If pipeline maintenance were required at a river crossing, mitigation measures would be implemented to protect riparian areas and fish habitat.

Equipment would operate instream only where the width of the crossing exceeds the reach of the equipment and equipment would be limited to that needed to construct the crossing. Streambanks would be restored to preconstruction elevations and stabilized within 24 hours of completing instream activities. Temporary sediment barriers would be installed at the edges of banks and maintained until adjacent upland disturbance areas have been successfully restored. Instream construction activities, such as excavation, pipe installation, backfill, and streambed restoration, would typically be completed at a crossing within 48 hours. BTNF guidelines for fish habitat management, streambank stability, sensitive cutthroat trout habitat, and fish passage standards would be followed during pipeline construction.

In the short-term, 15 acres of disturbance are anticipated within riparian vegetation throughout the Project Area (**Table F-3**). In the long-term, the pipeline corridor would be reclaimed and the amount of habitat loss would be reduced. In the long-term, only 6 acres of disturbance are anticipated within riparian vegetation throughout the Project Area (**Table F-3**). Because the BTNF guidelines for fish habitat management will be followed during stream crossings, no long-term modifications to aquatic habitat are anticipated within the Project Area. Disturbance to riparian habitat is minimal when compared with the amount of available riparian habitat that occurs within the Project Area (**Table F-1**). To minimize effects to riparian areas mitigation measures for streams, wetland, and riparian areas would be implemented during construction and operation of the pipeline.

**Cumulative:** The proposed action may cause a slight increase in short-term disturbance to Colorado River cutthroat habitat in conjunction with all other past, present, and reasonably foreseeable future activities in the region. Cumulatively, other land uses or activities on adjacent lands may negatively affect riparian habitat. Specific existing and future actions in the same region as the Project Area that may affect the Colorado River cutthroat trout are found on pages F-12 to F-13.

### Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for the Colorado River cutthroat. This determination is based on possible indirect effects to the Colorado River cutthroat downstream of the Project Area. However, mitigation measures implemented during pipeline construction and operations would mitigate any possible effects.

## Sweet-flowered Rock Jasmine

### Distribution

Sweet-flowered rock jasmine occurs from Alaska and western Canada south to Colorado. In Wyoming, it is known from the east slope of the Wind River Range, eastern Absaroka Mountains, and Owl Creek Mountains in Fremont, Park, and Hot Springs Counties. It is known from six extant occurrences in Wyoming and one historical report from Yellowstone National Park (last observed in 1892). All extant populations have been relocated since 1991 (Fertig 2001a).

### Habitat

This species occurs in rock crevices and rocky soils derived from limestone or dolomite in mountains. It may be found in the open or in patches of juniper or bearberry. Wyoming populations typically occur at 8,500-10,800 feet (Fertig 2001a).

### Threats

Most populations are secure due to rugged terrain. Low elevation sites near wet meadows may be affected by grazing or recreation.

### Existing Conditions

Surveyed populations range in size from several hundred to tens of thousands of individuals. Trend data are mostly lacking, but populations appear to be stable. Although listed as Sensitive on the BTNF, no populations have ever been documented there (Fertig 2001a).

#### Effects of the Proposed Action

**Direct:** Effects to this species are not anticipated because the Project Area is at the lower end of the elevation range for this species and because rocky soils would be avoided where possible because of stability issues. Additionally, no populations have been documented within the Project Area.

**Indirect:** Indirect effects are not anticipated because surface disturbing activities are not expected to occur in or near potential habitats.

**Cumulative:** There would be no additional cumulative effects to this species because road improvement projects and fuels reduction projects are the only projects proposed in the area, neither of which would affect habitat for the species.

### Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for sweet-flowered rock jasmine. This determination is based on the potential for direct and indirect effects to sweet-flowered rock jasmine within the Project Area.

## Soft Aster

### Distribution

This species is endemic to the Bighorn Mountains and Hoback Canyon in Wyoming (Fertig et. al. 1994).

### Habitat

Soft aster occurs in sagebrush grasslands and mountain meadows on deep, calcareous soils at the edge of aspen or pine woodlands from 6,400 to 8,500 feet (Fertig et al. 1994).

### Threats

Some occurrences may be threatened by grazing or trampling (NatureServe 2004). Other evidence suggests that light grazing and fire may be stimulatory.

### Existing Conditions

There is one known occurrence of this species within the Project Area in the NE¼ of Section 22 in Township 38 North, Range 115 West (WYNDD 2004).

### Effects of the Proposed Action

**Direct:** Known populations are located within the Project Area but outside of the construction corridor. Currently unknown populations of this species may occur in the construction corridor. Surveys would not be conducted for this species. Therefore, construction activities may impact individuals of the species.

**Indirect:** Habitat modification through construction and development activities may indirectly affect soft aster by removing potential habitat. Habitat for the species is common throughout the Project Area because it uses edge habitat between pine or aspen woodland and grassland.

**Cumulative:** New road construction and road improvements from other projects proposed in the area could potentially affect this species because roads often follow forested edges. These activities could potentially cause the spread of weeds into habitat for soft aster. There are also fuels treatment projects proposed in the area. These could potentially occur within habitat for the species, and destroy individuals or alter the habitat so that it is no longer suitable for the species.

### Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for soft aster. This determination is based on the potential for direct and indirect effects to soft aster within the Project Area.

## Meadow Milkvetch

### Distribution

Meadow milkvetch is found from central Idaho to northern Utah. There is one known historical occurrence discovered in 1838 from the Green River Basin in western Wyoming (probably in Sublette or Sweetwater County). This species may be extirpated from Wyoming (Handley and Fertig 2001).

### Habitat

It occurs in moist, often alkaline meadows and swales in sagebrush valleys from 4,400 to 6,300 feet (Handley and Fertig 2001).

### Threats

This species is considered very threatened in adjacent states, especially due to habitat loss to agriculture (Handley and Fertig 2001).

### Existing Conditions

This species has not been documented within the Project Area (WYNDD 2004), though potential habitat exists.

### Effects of the Proposed Action

**Direct:** Meadow milkvetch typically occurs in moist meadows in sagebrush valleys. Currently unknown populations of this species may occur in the construction corridor because of its widespread habitat. Surveys would not be conducted for this species. Therefore, construction activities may affect individuals of the species.

**Indirect:** Habitat modification through construction and development activities may indirectly impact meadow milkvetch by removing potential habitat.

**Cumulative:** New road construction and road improvements from other projects proposed in the area could potentially cause the spread of weeds into habitat for meadow milkvetch. There are also fuels treatment projects proposed in the area. These could potentially occur within habitat for the species, and destroy individuals or alter the habitat so that it is no longer suitable for the species.

### Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for meadow milkvetch. This determination is based on the potential for direct and indirect effects to meadow milkvetch within the Project Area.

# Starveling Milkvetch

## Distribution

This species is known from multiple occurrences in southwest Wyoming (Fertig 1994).

## Habitat

It occurs on dry barren ridges and bluffs of shale, sandstone, clay, or cobblestones from 6,000 to 7,100 feet (Fertig 1994).

## Threats

Livestock grazing does not seem to be much of a direct threat to this species due to sparse vegetation characterizing its habitat. In Idaho the species is more or less restricted to shaley, erosive outcrops of Twin Creek Limestone, which was unsuccessfully prospected at one time; mining is not known to be a current threat. Some plants may have been killed (in about 1989) at a site during a prescribed burn to eradicate sagebrush. Another small occurrence is surrounded by a crested wheatgrass planting; it is unknown whether portions of this population were destroyed with that planting. Threats at other locations are unknown (NatureServe 2005).

## Existing Conditions

This species has not been documented within the Project Area (WYNDD 2004), though potential habitat exists.

## Effects of the Proposed Action

**Direct:** Starveling milkvetch typically occurs in dry barren ridges and bluffs. Effects to this species are not anticipated because the rocky soils would be avoided where possible because of stability issues. Additionally, no populations have been documented within the project area.

**Indirect:** Indirect effects are not anticipated because surface disturbing activities are not expected to occur in or near potential habitats.

**Cumulative:** There would be no additional cumulative effects to this species because road improvement projects and fuels reduction projects are the only projects proposed in the area, neither of which would affect habitat for the species.

## Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for starveling milkvetch. This determination is based on the potential for direct and indirect effects to starveling milkvetch within the Project Area. However, mitigation measures implemented during pipeline construction across streams would mitigate any possible effects.

# Payson's Milkvetch

## Distribution

This species is a regional endemic of the Clearwater Mountains of north-central Idaho, the Palisades Reservoir area of east-central Idaho, the Wyoming, Salt River, and Gros Ventre Ranges of western Wyoming in Lincoln, Teton, and Sublette Counties (Fertig 2000a).

## Habitat

It occurs in disturbed areas and recovering burns, clear cuts, and road cuts on sandy soils with low cover of herbs and grasses from 6,700 to 9,600 feet (Fertig 2000a).

## Threats

Payson's milkvetch is threatened primarily by succession, which makes habitats unsuitable for long-term persistence. This species requires periodic disturbances to create new habitat or keep competing late-seral species or weeds at bay (Fertig 2000a).

## Existing Conditions

Average occurrences are extremely small and restricted in area, often with fewer than 20 plants in ½-acre of habitat. Only 3 to 4 Wyoming occurrences are notably large, containing over 100 plants. One occurrence is protected within the Fall Creek Special Botanical Area in the BTNF (Fertig 2000a). There is one known occurrence within the Project Area near in the SW¼ of Section 32 in T37N R111W, and two additional occurrences within four miles of the Project Area (WYNDD 2004).

## Effects of the Proposed Action

**Direct:** Known populations are located within the Project Area but outside of the construction corridor. Currently unknown populations of this species may occur in the construction corridor. Surveys would not be conducted for this species. Therefore, construction activities may impact individuals of the species. These activities could also create habitat for the species because it thrives in disturbance associated with roadcuts, clearcuts, and burns.

**Indirect:** Habitat modification through construction and development activities may indirectly impact Payson's milkvetch by removing potential habitat.

**Cumulative:** New road construction and road improvements from other projects proposed in the area could potentially affect this species. These activities could potentially cause the spread of weeds into habitat for Payson's milkvetch. There are also fuels treatment projects proposed in the area. These could potentially occur within habitat for the species and destroy individuals. These activities could also create habitat for the species because it thrives in disturbance associated with roadcuts, clearcuts, and burns.

## Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for Payson's milkvetch. This determination is based on the potential for direct and indirect effects to Payson's milkvetch within the Project Area.

# Slender Moonwort

## Distribution

This species is known from one occurrence in the Black Hills National Forest in Crook County, Wyoming (Reyher 2003).

## Habitat

It occurs on disturbed sites such as old roadbeds on coarse textured limestone derived soils up to 10,000 feet (Reyher 2003).

## Threats

Some threats may exist from road maintenance activities and other disturbances; however, the species may be a habitat generalist and is found in disturbed habitats (USFWS 2003).

## Existing Conditions

This species has not been documented within the Project Area (WYNDD 2004), though potential habitat exists.

## Effects of the Proposed Action

**Direct:** Slender moonwort typically occurs in disturbed settings though little is known about its preferred habitat in the area. Currently unknown populations of this species may occur in the construction corridor. Surveys would not be conducted for this species. Therefore, construction activities may impact individuals of the species. Activities associated with pipeline installation could also create new habitat for the species.

**Indirect:** Habitat modification through construction and development activities may indirectly impact the slender moonwort by removing potential habitat.

**Cumulative:** New road construction and road improvements from other projects proposed in the area could potentially affect this species. These activities could potentially cause the spread of weeds into habitat for slender moonwort. There are also fuels treatment projects proposed in the area. These could potentially occur within habitat for the species, and destroy individuals or alter the habitat so that it is no longer suitable for the species.

## Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for slender moonwort. This determination is based on the potential for direct and indirect effects to slender moonwort within the Project Area.

# Wyoming Tansymustard

## Distribution

This species is endemic to the Absaroka Mountains and Rock Springs Uplift in Wyoming, and Fremont, Park, Sweetwater, and Teton Counties. It is known from 8 to 11 occurrences in Wyoming, several of which, are in the same general area and might be better treated as metapopulations rather than individual occurrences. One population at Carter Mountain (Park County) may not represent this species (Fertig 2004).

## Habitat

It occurs in sparsely vegetated sandy slopes at base of cliffs of volcanic breccia or sandstone from 8,300 to 10,000 feet (Fertig 2004).

## Threats

Anthropogenic threats are minimal due to the plants rugged habitat, although some sites could potentially be impacted by exotic plant species.

## Existing Conditions

The total population of this species probably numbers less than 1,500. Most populations average less than 40 individuals and may be restricted to a single ledge. Numbers may vary from year to year. Overall, the species is probably stable although follow-up surveys by the BLM Rock Springs Field Office suggest at least a severe short-term decline (Fertig 2004). This species has not been documented within the Project Area (WYNDD 2004), though potential habitat exists.

## Effects of the Proposed Action

**Direct:** Wyoming tansymustard typically occurs on sparsely vegetated sandy slopes at the base of cliffs. Effects to this species are not anticipated because the Project Area is at the lower end of the elevation range for this species. Additionally, no populations have been documented within the project area.

**Indirect:** Indirect effects to Wyoming tansymustard are not anticipated because surface disturbing activities are not expected to occur in or near potential habitats.

**Cumulative:** New road construction and road improvements from other projects proposed in the area could potentially affect this species. These activities could potentially cause the spread of weeds into habitat for Wyoming tansymustard. There are also fuels treatment projects proposed in the area. These could potentially occur within habitat for the species, and destroy individuals or alter the habitat so that it is no longer suitable for the species.

## Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for Wyoming tansymustard. This determination is based on the potential for direct and indirect effects to Wyoming tansymustard within the Project Area.

# Payson Bladderpod

## Distribution

Payson bladderpod is a regional endemic of west central Wyoming, eastern Idaho, and southwestern Montana. In Wyoming, this species is found in the Gros Ventre, Salt River, Snake River, Teton, Wind River, and Wyoming Ranges, the northern Green River Basin, and Jackson Hole, in Lincoln, Sublette, and Teton Counties. Twenty-five populations have been discovered or relocated since 1990 (Fertig 2000c).

## Habitat

Payson's bladderpod is found primarily on windswept, gravelly, calcareous ridgecrests, semi-open slopes, and rocky floodplains. These populations are often associated with *Artemisia tridentata* var. *vaseyana* grassland communities with total vegetative cover between 25 to 50 percent. Populations also occur on talus slopes, disturbed roadsides, dried stream channels, rocky clearings within conifer forests, and travertine outcrops at 5,500-10,600 feet (Fertig 2000c).

## Threats

Impacts from recreation (hiking and off-road vehicles), ski development, grazing, and mining are potential threats in lower elevation populations. Overall, however, threats are low to most occurrences (Fertig 2000c).

## Existing Conditions

Thirteen occurrences are found within the Gros Ventre Wilderness Area, Grand Teton National Park, Kendall Warm Springs Special Interest Area (SIA), and Afton Front Research Natural Area (RNA). Three other occurrences are found just outside other RNAs and SIAs on Bridger-Teton National Forest (Fertig 2000c). There are two known occurrences within the Project Area, in the NE¼ of Section 5 and the NE¼ of Section 22, both in T38N R115W (WYNDD 2004).

## Effects of the Proposed Action

**Direct:** Payson bladderpod typically occurs on rocky sparsely vegetated slopes. Effects to this species are not anticipated because rocky soils would be avoided where possible because of stability issues. Known populations are located within the Project Area but outside of the construction corridor. Currently unknown populations of this species may occur in the construction corridor. Surveys would not be conducted for this species. Therefore, construction activities may impact individuals of the species.

**Indirect:** Indirect effects are not anticipated because surface disturbing activities are not expected to occur in or near potential habitats.

**Cumulative:** New road construction and road improvements from other projects proposed in the area could potentially affect this species. These activities could potentially cause the spread of weeds into habitat for Payson bladderpod. There are also fuels treatment projects proposed in the area. These could potentially occur within habitat for the species, and destroy individuals or alter the habitat so that it is no longer suitable for the species.

### Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for Payson's bladderpod. This determination is based on the potential for direct and indirect effects to Payson's bladderpod within the Project Area.

## Creeping Twinpod

### Distribution

This species is endemic to eastern Idaho and the mountains of west central Wyoming (Lincoln and Sublette Counties) (Fertig 1994).

### Habitat

It occurs on barren, rocky, calcareous hills and slopes from 6,500 to 8,600 feet (Fertig 1994).

### Threats

Anthropogenic threats are minimal due to the plants rugged habitat, although some sites could potentially be impacted by exotic plant species (Fertig 1994).

### Existing Conditions

This species has not been documented within the Project Area (WYNDD 2004), though potential habitat exists.

### Effects of the Proposed Action

**Direct:** Creeping twinpod typically occurs in barren, rocky, calcareous hills and slopes. Effects to this species are not anticipated because rocky soils would be avoided where possible because of stability issues. Additionally, no populations have been documented within the project area. Currently unknown populations of this species may occur in the construction corridor. Surveys would not be conducted for this species. Therefore, construction activities may impact individuals of the species.

**Indirect:** Indirect effects are not anticipated because surface disturbing activities are not expected to occur in or near potential habitats.

**Cumulative:** New road construction and road improvements from other projects proposed in the area could potentially affect this species. These activities could potentially cause the spread of weeds into habitat for creeping twinpod. There are also fuels treatment projects proposed in the area. These could potentially occur within habitat for the species, and destroy individuals or alter the habitat so that it is no longer suitable for the species.

### Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species**

**viability rangewide"** for creeping twinpod. This determination is based on the potential for direct and indirect effects to creeping twinpod within the Project Area.

# Greenland Primrose

## Distribution

Greenland primrose is known to occur from Greenland and Northern Canada to northeastern Asia. In Wyoming it is known only from the Clarks Fork Valley in the northern Absaroka Mountains and the Upper Green River Valley on the west slope of the Wind River Range (Fertig 2000e).

## Habitat

It is known to occur in wet meadows along waterways and in montane fens, often on hummocky terrain that is locally drier than its wet, marshy surroundings (Fertig 2000e).

## Threats

Greenland primrose is threatened by loss or damage to wetland habitats by livestock or recreational users (Fertig 2000e).

## Existing Conditions

This species has not been documented within the Project Area (WYNDD 2004), though potential habitat exists.

## Effects of the Proposed Action

**Direct:** Greenland primrose typically occurs in wet meadows and bogs along streams. Effects to this species are not anticipated because of the reduced construction disturbance in streamside habitats. Additionally, no populations have been documented within the project area. Currently unknown populations of this species may occur in the construction corridor. Surveys would not be conducted for this species. Therefore, construction activities may impact individuals of the species.

**Indirect:** Indirect effects are not anticipated because surface disturbing activities are not expected to occur in or near potential habitats.

**Cumulative:** New road construction and road improvements from other projects proposed in the area could potentially affect this species. These activities could potentially cause the spread of weeds into habitat for Greenland primrose. There are also fuels treatment projects proposed in the area. These could potentially occur within habitat for the species, and destroy individuals or alter the habitat so that it is no longer suitable for the species.

## Determination

Implementation of the proposed action **"may adversely impact individuals, but is not likely to result in a loss of viability on the planning area, or cause a trend toward federal listing or a loss of species viability rangewide"** for Greenland primrose. This determination is based on the potential for direct and indirect effects to Greenland primrose within the Project Area.

# REFERENCES

Baxter, G.T. and M.D. Stone. 1995. Fishes of Wyoming. Wyoming Game and Fish Department (WGFD). 290 pages.

Cerovski, A.O., M. Grenier, B. Oakleaf, L. Van Fleet, and S. Patla. 2004. Atlas of Birds, Mammals, Amphibians, and Reptiles in Wyoming. Wyoming Game and Fish Department (WGFD) Nongame Program, Lander, Wyoming. 206 pages.

Clark, K. A. 1994. Habitat Use and factors affecting vocalizations of owls in western Wyoming. M.S. Thesis, University of Wyoming, Laramie, Wyoming.

DeGraaf, R. M., V. E. Scott, R. H. Hamre, L. Ernst, and S. H. Anderson. 1991. Forest and Rangeland Birds of the United States: Natural History and Habitat Use. USDA Forest Service Agriculture Handbook 688. 625 pages.

Dorn, J.L. and R.D. Dorn. 1999. Wyoming Birds Second Edition - 1999. Mountain West Publishing, Cheyenne, Wyoming. 187 pages.

Fertig, W., C. Refsdal, and J. Whipple. 1994. Wyoming Rare Plant Field Guide. Wyoming Rare Plant Technical Committee, Cheyenne. Jamestown, North Dakota. Northern Prairie Wildlife Research Center Home Page (Version 16JUL97). [Web page]. Located at http://www.npwrc.usgs.gov/resource/distr/others/wyplant/wyplant.htm Accessed: Friday, December 19, 2005.

Fertig, W. 1999. State Species Abstract: Draba borealis (Boreal draba). Wyoming Natural Diversity Database (WYNDD), Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/D/Draba_borealis.pdf. Accessed: Friday, December 19, 2005.

Fertig, W. 2000a. State Species Abstract: Astragalus paysonii (Payson's astragalus). Wyoming Natural Diversity Database (WYNDD), Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/A/Astragalus_paysonii.pdf. Accessed: Friday, December 19, 2005.

Fertig, W. 2000b. State Species Abstract: Cryptogramma stelleri (Fragile rockbrake). Wyoming Natural Diversity Database (WYNDD), Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/C/Cryptogramma_stelleri.pdf. Accessed: Friday, December 19, 2005.

Fertig, W. 2000c. State Species Abstract: Lesquerella paysonii (Payson bladderpod). WYNDD, Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/L/Lesquerella_paysonii.pdf. Accessed: Friday, December 19, 2005.

Fertig, W. 2000d. State Species Abstract: Orobanche corymbosa var. corymbosa (Flat-top broomrape). WYNDD, Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/O/Orobanche_corymbosa.pdf. Accessed: Friday, December 19, 2005.

Fertig, W. 2000e. State Species Abstract: Primula egaliksensis (Greenland primrose). WYNDD, Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/P/Primula_egaliksensis.pdf. Accessed: Friday, December 19, 2005.

Fertig, W. 2001a. State Species Abstract: Androsace chamaejasme ssp. carinata (Sweet flowered rock jasmine). WYNDD, Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/A/Androsace_chamaejasme_carinata.pdf. Accessed: Friday, December 19, 2005.

Fertig, W. 2001b. State Species Abstract: Silene repens var. australis (Creeping campion). WYNDD, Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/S/Silene_repens_australis.pdf. Accessed: Friday, December 19, 2005.

Fertig, W. 2004. State Species Abstract: Descurainia torulosa (Wyoming Tansymustard). WYNDD, Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/D/Descurainia_torulosa.pdf. Accessed: Friday, December 19, 2005.

Handly, J., and W. Fertig. 2001. State Species Abstract: Astragalus diversifolius var. diversifolius (Meadow milkvetch). WYNDD, Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/A/Astragalus_diversifolius_diversifolius.pdf. Accessed: Friday, December 19, 2005.

Heidel, B., and W. Fertig. 2001. State Species Abstract: Astragalus shultziorum (Shultz milkvetch). WYNDD, Laramie, Wyoming [Web page]. Located at http://uwadmnweb.uwyo.edu/wyndd/Plants/state_spp_abstracts/A/Astragalus_shultziorum.pdf. Accessed: Friday, December 19, 2005.

Kennedy, P. L. 2003. Northern Goshawk (*Accipiter gentiles atricapillus*): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region [Web Page]. Located at: http://www.fs.fed.us/r2/projects/scp/assessments/northerngoshawk.pdf. Accessed: January 14, 2005. 142 pages.

Linkhart, B. 2001. Life History Characteristics and Habitat Quality of Flammulated Owls (Otus Flammeolus) in Colorado. Ph.D. Thesis, Department of Environmental, Population, and Organismic Biology, University of Colorado. Boulder, Colorado.

Moody, D.S., D. Hammer, M. Bruscino, D. Bjornlie, R. Grogan, and B. Debolt. 2002. Wyoming Grizzly Bear Management Plan. Wyoming Game and Fish Department. 52 pages.

NatureServe. 2004. NatureServe Explorer: An online encyclopedia of life. Version 1.8. NatureServe, Arlington, Virginia [Web Application]. Located at http://www.natureserve.org/explorer. Accessed: December 18, 2004.

Neal, J. 2004. Personal communication [*September 9* telephone conversation with J. MacDonald, Greystone Environmental Consultants, Greenwood Village, Colorado. *RE*: Colorado River cutthroat distribution within the LVE Project Area]. Fisheries Biologist, Region 4, Bridger-Teton National Forest, Big Piney Ranger District, Pinedale, Wyoming. 1 page.

Reyher, D. 2004. Botrychium lineare (Narrowleaf grapefern) Confirmed in Wyoming. Castilleja - Wyoming Native Plant Society, Laramie, Wyoming. 10 pages.

Ruggiero, L. F., K. B. Aubry, S. W. Buskirk, L. J. Lyon, and W. J. Zielinski, tech. eds. 1994. The scientific basis for conserving forest carnivores: American marten, fisher, lynx and wolverine in the western United States. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. General Technical Report RM-254. 184 pages.

Spahr, R., L. Armstrong, D. Atwood, and M. Rath. 1991. Threatened, Endangered, and Sensitive Species of the Intermountain Region. United States Department of Agriculture Forest Service (USFS), Intermountain Region, Ogden, Utah. unnumbered pages.

Squires, J.R. and L.F. Ruggiero. 1996. Nest-site preference of Northern Goshawks in southcentral Wyoming. Journal of Wildlife Management. 60(1): 170-177.

United States Department of Agriculture Forest Service (USFS). 1990. Bridger-Teton National Forest Land and Resource Management Plan. 446 pages.

United States Department of Agriculture Forest Service. 2001. Porcupine Creek Bald Eagle Territory Nest Site Management Zone Plan. Teton Division, Bridger-Teton National Forest. 8 pages.

United States Department of Agriculture Forest Service (USFS). 2003. Teton Division Landscape Scale Assessment. Bridger-Teton National Forest. 506 pages.

United States Department of Agriculture Forest Service (USFS). 2004. Draft Hoback Basin Landscape Scale/Watershed Assessment. Bridger-Teton National Forest. Sublette County, Wyoming. 303 pages.

United States Department of the Interior Fish and Wildlife Service (FWS). 1984. American Peregrine Falcon Recovery Plan (Rocky Mountain/Southwest Population). Prepared in cooperation with the American Peregrine Falcon Recovery Team [Web Page]. Located at: http://ifw2es.fws.gov/Documents/R2ES/AmerPeregrineFalcon.pdf. Accessed: January 14, 2005. 105 pages.

---. 1993. Grizzly Bear Recovery Plan. Missoula, Montana. 181 pages.

---. 1999 Endangered and threatened wildlife and plants; Final Rule to Remove the American Peregrine Falcon From the Federal List of Endangered and Threatened Wildlife, and To Remove the Similarity of Appearance Provision for Free-Flying Peregrines in the Conterminous United States; Final Rule, 50 CFR Part 17. Federal Register 64(164): 46541-46588.

---. 2004. Personal Communication [*August 13* letter to Greg Clark, District Ranger, Big Piney Ranger District, Big Piney, Wyoming. *RE*: Comments on (1) threatened and endangered species, (2) migratory birds, and (3) wetlands and riparian areas, for the Lower Valley Energy Natural Gas Pipeline, Bridger-Teton National Forest, Sublette and Teton Counties, Wyoming]. Brian Kelly, Field Supervisor, Wyoming Field Office, United States Department of the Interior Fish and Wildlife Service. 13 pages.

---. 2005. Status Review Completed: Greater Sage-Grouse Not Warranted for Listing as Endangered or Threatened. News Release [Web Page]. Located at:

http://news.fws.gov/NewsReleases/R9/4D0B98E6-DE22-18A8-5FBC25A1E928B298.html. Accessed: January 17, 2005. 3 pages.

---. 2007a. Endangered and Threatened Wildlife and Plants; Final Rule Designating the Greater Yellowstone Area Population of Grizzly Bears as a Distinct Population Segment; Removing the Yellowstone Distinct Population Segment of Grizzly Bears From the Federal List of Endangered and Threatened Wildlife; 90-Day Finding on a Petition To List as Endangered the Yellowstone Distinct Population Segment of Grizzly Bears News Release [Web Page]. Located at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2007_register&docid=fr29mr07-14 Accessed: August 28, 2007.

---. 2007b. Endangered and Threatened Wildlife and Plants; Removing the Bald Eagle in the Lower 48 States From the List of Endangered and Threatened Wildlife; Final Rule; Endangered and Threatened Wildlife and Plants; Draft Post–Delisting and Monitoring Plan for the Bald Eagle (Haliaeetus leucocephalus) and Proposed Information Collection; Notice. News Release [Web Page]. Located at: http://www.fws.gov/migratorybirds/issues/BaldEagle/baldeaglefinaldelisting.pdf Accessed: August 28, 2007. 28 pages.

---. 2007c. National Bald Eagle Management Guidelines. May, 2007. 23 pages.

Wiggins, D. 2004. American Three-toed Woodpecker (Picoides dorsalis): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region [Web Page]. Located at: http://www.fs.fed.us/r2/projects/scp/assessments/americanthreetoedwoodpecker.pdf. Accessed: January 13, 2005. 41 pages.

Wyoming Natural Diversity Database (WYNDD). 2004. Natural heritage elements documented from the vicinity of Lower Valley Energy Project Area. University of Wyoming, Laramie, Wyoming.

This page intentionally left blank.