
Threatened, Endangered, and Sensitive Species Specialist Report

Garkane Energy Cooperative, Inc. Tropic to Hatch 138 kV Transmission Line

Prepared For:

US Forest Service – Dixie National Forest
National Park Service – Bryce Canyon National Park
Bureau of Land Management – Kanab Field Office
Bureau of Land Management – Grand Staircase-Escalante National Monument

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December 2009

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1.1. INTRODUCTION

Garkane Energy Cooperative, Inc. (Garkane) proposes to construct a 138 kV circuit transmission line supported by wood pole H-frame structures between the communities of Tropic and Hatch in Garfield County, Utah. The proposed new transmission line would replace portions of an existing 69 kV transmission line between the Tropic and Hatch Substations that currently provides service west of Tropic.

1.1.1. Purpose of Specialist Report

The purpose of this Specialist Report is to characterize existing Threatened, Endangered, and Sensitive (TES) animals or plants within the Project Area and to analyze and disclose potential environmental effects on TES species that would occur under the Proposed Action and Alternatives as described below. These data and impact analyses will be used to develop an Environmental Impact Statement (EIS) for the Garkane 138 kV Transmission Line proposal.

1.1.2. Proposed Action and Alternatives

1.1.2.1. Alternative A: Proposed Action

Alternative A would be constructed within a right-of-way crossing public lands administered by the U.S. Forest Service (USFS) Dixie National Forest (DNF), Bureau of Land Management (BLM) Kanab Field Office (KFO), and the Grand Staircase-Escalante National Monument (GSENM); Utah State lands administered under the State Institutional Trust Lands Administration (SITLA); and private lands.

The Alternative A 100-foot-wide right-of-way would extend 30.41 miles. The route would begin at the proposed East Valley Substation located east of Tropic and extend northeast to adjoin the Rocky Mountain Power/PacifiCorp 230 kV transmission line right-of-way. The route would then parallel the west side of the Rocky Mountain Power/PacifiCorp transmission line route to the northwest across GSENM land and through Cedar Fork Canyon through a planning window for a utility right-of-way identified in the 1986 Land Resource Management Plan (LRMP). The route would diverge from the 230 kV line access route and extend west across John's Valley and skirt just to the north of the Bryce Canyon Airport. The route would continue west for approximately 4 miles and turn south, crossing SR 12, and extend southwest across the Johnson Bench area, passing to the south of Wilson Peak. The route would continue west down Hillsdale Canyon through a planning window for a utility right-of-way identified in the 1986 LRMP and turn north for approximately 0.5 mile. The route would continue to the west, crossing private property (Sunset Cliffs), and extend west to cross U.S. 89 where it would turn to the southwest for approximately 2 miles to the Hatch Substation. The proposed route would cross 17.35 miles of DNF, 3.31 miles of KFO, 3.68 miles of GSENM, 4.23 miles of SITLA, and 1.84 miles of private lands.

In addition to construction of the proposed transmission line, the proposed project includes the development of a new substation (East Valley) east of Tropic and the expansion of the Hatch Substation. Garkane's existing 69 kV transmission line between the Bryce Canyon Substation and Hatch Mountain Switch Station would be unnecessary once the proposed 138 kV transmission line is operational and would be removed (approximately 16.23 miles) and the right-of-way rehabilitated.

The Proposed Action would involve the development of overland access routes in portions of the right-of-way where a suitable route is not available and where development of an access route is permitted by the authorizing agency. Access to the Rocky Mountain Power/PacifiCorp 230 kV transmission line in the

Cedar Fork Canyon area would need to be improved. In *limited access areas*, the alignment would be accessed via helicopter and/or foot, and there would be no centerline access.

Implementation of the Proposed Action would also require the amendment of the GSENM Management Plan (BLM 2000) by changing the designation of a 100-foot-wide 3.68-mile stretch (44.58 acres) of the Primitive Zone to Passage Zone, and within this area, changing the existing Visual Resource Management (VRM) Class designation from Class II to Class III.

1.1.2.2. Alternative B: Parallel Existing 69 kV Route

The Alternative B 100-foot-wide right-of-way would be constructed within a right-of-way crossing public lands administered by the DNF and KFO, National Park Service (NPS) Bryce Canyon National Park (BRCA), and SITLA and private lands. This route would have no surface impacts on the GSENM.

Alternative B would extend 29.11 miles. This alternative route would begin at the proposed East Valley Substation located east of Tropic and extend west through the Tropic Substation (the Tropic Substation would be decommissioned) and then cross SR 12 and continue across BRCA (deviating slightly from the existing right-of-way for approximately 1.5 miles) to a point near the current Bryce Canyon Substation near Bryce Canyon City. For this Alternative, the Bryce Canyon Substation would be decommissioned and a new replacement substation would be built at a new location approximately 1 mile to the west to allow for needed expansion. The route would extend approximately 0.5 mile to the north around Bryce Canyon City, west across SR 63 and then parallel Garkane's existing 69 kV line right-of-way predominately across private and SITLA lands. The alternative route would parallel the existing right-of-way just to the south across the plateau in a northwest direction to Red Canyon, where it would generally follow the existing right-of-way through Red Canyon into Long Valley where it would cross U.S. 89 and continue to the Hatch Mountain Substation. From there the route would follow the existing line south to the Hatch Substation. This route would cross 5.58 miles of DNF, 8.29 miles of KFO, 2.81 miles of BRCA, 3.63 miles of SITLA, and 8.80 miles of private lands.

The proposed project includes the development of a new substation (East Valley) east of Tropic and the expansion of the Hatch Substation. The Tropic Substation would be removed. One new substation would be required in Bryce Valley. The existing Bryce Canyon Substation would be decommissioned, and a new replacement substation to the west of Ruby's Inn would be built. It would be located in one of two new locations (Option 1 on DNF land or Option 2 on private land). Once the proposed 138 kV transmission line is operational, the entire existing 69 kV line from approximately 1 mile east of the existing Tropic Substation to the Hatch Mountain Substation would be removed (approximately 21.57 miles) and the right-of-way rehabilitated.

In addition, under Alternative B approximately 9 miles of distribution lines would need to be constructed primarily on private and SITLA lands in 50-foot rights-of-way in conjunction with the new substations.

A 22.75-mile long two-track access route along the centerline of the proposed right-of-way would provide construction access. Centerline access would not be developed within *limited access areas*, including BRCA and portions of Red Canyon.

Under this alternative the GSENM Management Plan would not be amended.

1.1.2.3. Alternative C: Cedar Fork Southern Route

Like Alternative A, Alternative C would be constructed within a right-of-way crossing public lands administered by the DNF, KFO, GSENM, SITLA, and private lands.

The Alternative C 100-foot-wide right-of-way would extend 29.78 miles. This alternative route would begin at the proposed East Valley Substation located east of Tropic and extend northeast to adjoin the Rocky Mountain Power/PacifiCorp 230 kV transmission line right-of-way. The route would then parallel the west side of the Rocky Mountain Power/PacifiCorp transmission line access to the northwest across

GSENM land and through Cedar Fork Canyon through a planning window for a utility right-of-way identified in the 1986 LRMP. The route would diverge from the 230 kV line access and extend west across John's Valley and follow the south side of State Route (SR) 22 for just under 2 miles and then follow the western boundary of BRCA for approximately 1 mile. The route would then extend west to the north of Bryce Canyon City and across SR 63. The route would continue west across the southern portion of Johnson Bench and to the upper reaches of Right Fork Blue Fly Creek. The route would drop off the plateau at this point and traverse an unnamed canyon to Hillsdale Canyon and would extend south of private property and continue west, crossing U.S. 89, where it would turn to the southwest for approximately 2 miles to the Hatch Substation. This route would cross 13.58 miles of DNF, 3.43 miles of KFO, 3.68 miles of GSENM, 2.06 miles of SITLA, and 7.03 miles of private lands.

In addition to construction of the proposed transmission line, the proposed project includes the development of a new substation (East Valley) east of Tropic and the expansion of the Hatch Substation. Garkane's existing 69 kV transmission line between the Bryce Canyon Substation and Hatch Mountain Switch Station would be unnecessary once the proposed 138 kV transmission line is operational and would be removed (approximately 16.23 miles) and the right-of-way rehabilitated.

The Proposed Action would involve the development of overland access routes in portions of the right-of-way where a suitable route is not available and where development of an access route is permitted by the authorizing agency. Access to the Rocky Mountain Power/PacifiCorp 230 kV transmission line in the Cedar Fork Canyon area would need to be improved. In *limited access areas*, the alignment would be accessed via helicopter and/or foot, and there would be no centerline access.

Alternative C would also require the amendment of the GSENM Management Plan (BLM 2000) by changing the designation of a 300-foot-wide 3.68-mile stretch (133.81 acres) of the Primitive Zone to Passage Zone to accommodate both the proposed right-of-way and the existing 230 kV Rocky Mountain Power/PacifiCorp transmission line, as well as provide for future utility needs; and within this area, changing the existing VRM Management Class designation from Class II to Class III.

1.1.2.4. Interconnect Options

The purpose of the interconnect route options is to provide flexibility to decision makers to combine segments of the action alternatives to select the most appropriate route among the various alternatives to minimize impacts to resource values.

The North-South Interconnect option would extend 1.84 miles across DNF land west of Johnson Bench and could connect segments of Alternatives A and C together.

The East-West Interconnect option would extend 3.70 miles across DNF land south of Johnson Bench and could connect segments of Alternatives A and C together.

1.1.2.5. Alternative D: No Action

Though it does not meet the purpose and need statement, the No Action alternative is required under Council of Environmental Quality regulations for implementing the National Environmental Policy Act (NEPA) [40 CFR 1502.14(d)]. For this analysis, the No Action alternative is considered to be the continued operation of the existing 69 kV transmission line and future circumstances that would occur without federal approval of Garkane Energy's proposal to construct and operate a 138 kV transmission line from Tropic to Hatch. Specifically, it means that "no action" would be achieved by any one of the federal agencies declining to grant Garkane permission to build in the agency's respective jurisdiction. Thus, in the case of DNF, "no action" means denying the transmission line easement; for BLM, "no action" means denying approval of the proposed plan amendment and granting of a right-of-way permit for BLM lands; and, for BRCA, "no action" means denying a right-of-way permit. Each agency makes its decision independent of the others, so it is possible that one or more agencies could grant permission for

the proposal while another could deny permission. Thus, if any agency denied permission for the proposed transmission line, it would not be built.

The existing 69 kV transmission line has already passed its life expectancy. To maintain system stability and reliability, Garkane would need to overhaul the line within its existing right-of-way and permit conditions. Overhaul of the existing 69 kV transmission line would involve replacement of conductor and poles. Each pole would be inspected; Garkane estimates as much as 90 percent of the poles would need to be replaced. Overhaul would involve disturbance to the centerline access outside *limited access areas* using vehicles and equipment. Overhaul would require the use of temporary disturbance areas identified in conjunction with Alternative B, as the sites would be needed for pulling and splicing of wire and overall project staging. Total cost would range from 1.4 to 2.1 million dollars.

These activities would increase the amount of trucks, heavy equipment, and crews within the right-of-way far above average annual activity levels.

1.1.3. Impact-Inducing Activities on Threatened, Endangered, and Sensitive Species

The Proposed Action includes installation, operation, and maintenance of facilities related to the new transmission line. Some activities could have effects on Threatened, Endangered, and Sensitive animals or plants. General impacts from these activities are described below.

1.1.3.1. Construction of Facilities

Direct Disturbance/Mortality

Direct mortality would be possible during construction for some TES wildlife, particularly smaller or less mobile species such as reptiles or birds. Sensitive plants could also be removed during construction where populations are dense in the disturbance areas.

Temporary Habitat Loss

Temporary disturbance to TES wildlife habitats would be reclaimed after construction. Temporary disturbances would occupy between 150 and 350 acres, depending on the alternative, and would be used for staging areas, pulling sites, splicing sites, and laydown areas during line installation. All temporarily disturbed habitats would be unavailable for TES wildlife species for the duration of the installation. Temporarily disturbed habitats would also preclude establishment by sensitive plants. Recovery time of temporarily disturbed habitats would depend on the type of habitat: most shrub and grassland areas would regenerate after reseeding in about 2-5 years, whereas any forest habitats that were disturbed may or may not be reseeded with tree species. Some trees would be cleared for safety reasons (within the 'Hazard Tree Zone' described in the Vegetation Specialist Report within a distance equal to or less than the height of the tree), and thus forest disturbances would be long-term, and replanting trees may or may not be part of the agency-approved reclamation program. Temporary disturbance to habitats such as lek areas, nests and nest territories, colony areas, or Designated Critical Habitat would be most likely to cause direct adverse impacts to TES wildlife.

Increase in Noise Levels and Human Presence

Noise from construction/installation and general human presence associated with construction activities could disturb TES wildlife; noise would increase the amount of unsuitable habitat beyond the direct disturbance area for the duration of construction activities; the amount of increased habitat disturbance would depend on the species' tolerance to noise. Specific construction/installation activities that would create noise disturbances include sounds from heavy machinery (e.g., graders, cranes, power augers, drill rigs, excavators, cement trucks, tractors), flatbed trucks, and other vehicles; and other human disturbances that could take the form of (depending on access issues) helicopter approaches, landings, and takeoffs; mule, horse, or foot traffic through undisturbed areas; or ATV use through undisturbed areas. Dynamite

blasts may be necessary for installation of the line in rocky terrain. All noise impacts would last for the duration of construction activities (3 months for vegetation clearing, 12-18 months for each line, up to 24 months for substations, 2-3 spring/summer seasons for removal of 69 kV line)' but would be temporary at any one location. Approximately 20 or more total workers and a helicopter crew would be needed, with about six workers on average at the site at one time.

Invasive Plant Infestations

Invasive plants that may be introduced or spread by construction vehicles not properly cleaned of seed would remove habitat for TES wildlife and plant species in the proposed disturbance areas. Lightweight vehicles used to pull the sock line from one supporting structure to the next (where access along the line is available) would be relatively more likely to spread invasive species into new areas because they would be covering more ground than heavier vehicles stationed at each pole. When invasive plants replace native species (including sensitive species), functional habitat components for wildlife are lost.

1.1.3.2. Operation and Maintenance of Facilities

In general, routine maintenance of facilities would not impact TES wildlife or plants if it can be scheduled around sensitive periods. Human disturbance would be minimal in most cases and consist of single vehicle entries over established project roads. Unforeseen maintenance such as major or emergency repairs could have similar impacts as construction (installation) because heavy equipment would be necessary, and in addition, may not be feasibly scheduled around sensitive periods so that more adverse impacts to wildlife could occur, relative to construction activities that would be scheduled to avoid TES wildlife.

Long-term Habitat Loss

The new transmission line would remove a maximum of approximately 60 acres of habitat for Utah prairie dog, Mexican spotted owl, pygmy rabbit, sensitive bats, sensitive raptors, sensitive woodpeckers, greater sage grouse, and sensitive plants that would be replaced with new access routes, erosion control features, multiple H-frame structures, and substation locations. Long-term disturbance to habitats such as lek areas, nest territories, or Designated Critical Habitat would be most likely to cause direct adverse impacts to TES wildlife. Some populations of TES wildlife may no longer be present in the area after the power line is installed, due to reduced habitat suitability. Trees in the Hazard Tree Zone would be removed for the long-term. Routine maintenance activities would utilize existing rights-of-way, although overland travel to previously disturbed (and reclaimed) areas would occur.

Increase in Noise Levels and Human Presence

Routine maintenance activities that can be scheduled around sensitive periods would generally have minimal impacts on TES wildlife. Many activities would utilize relatively small crews, a minimum amount of equipment, and would occur over a short time frame (few hours – a few days). Activities occurring on an annual basis would include ground and aerial inspections of the line, which would cause temporary noise impacts and would last for less than one or a few days. These activities could likely be scheduled. Major or emergency maintenance activities, however, may not be feasibly scheduled around sensitive periods for wildlife and thus may disturb TES species and cause adverse effects on reproduction of individuals or populations. Activities that may involve larger equipment and more extended disturbance include replacements of poles, insulators, cross arms, anchors, or anchor wires; vegetation management, road maintenance, or hardware tightening. These activities may require back hoes, boom trucks, excavators, graders, or mowers/cutters. Major activities such as structure relocations, conductor replacements, and access route reconstructions may involve disturbances similar to those described for construction activities, or may be of longer duration and larger scope, and would require large crews. If these activities are required to mitigate an emergency situation, impacts to TES species may occur because timing restrictions would not be adhered to. An agency representative may be present during

emergency operations or may conduct a post-event site visit to assess impacts to TES species and propose remedial measures.

Fragmentation of Habitat

Habitat for less mobile species (e.g., prairie dogs) could be fragmented by the power line and associated right-of-way, whereas the movements of more mobile species, such as raptors, would probably not be affected by the power line disturbance any more than these species would be affected by a two-track access route.

Facilitating Access and Predation

Road construction associated with the proposed action may facilitate human or predator access to TES wildlife by providing new routes into TES species habitat. New power poles also provide new perch sites for raptors, and this can increase the predation rate of small TES wildlife (e.g., prairie dogs and sage-grouse) by raptors. Perch deterrents would be installed on power poles as required by regulating agencies to prevent increases in raptor predation on sage grouse and other species.

Electrocution Risk

Electrocution risk to sensitive raptor species would be minimized because the transmission line would be designed and constructed according to raptor-safe design standards, which meet or exceed recommendations from the Avian Power Line Interaction Committee (APLIC 1996). The goal of these design standards is to provide 60 inches of separation between energized conductors or energized parts and grounded equipment. This measurement greatly reduces risk and allows for the large size and wingspan of raptors.

1.1.4. Threatened, Endangered, and Sensitive Species Issue Statement

Transmission line construction activities could impact threatened, endangered, and sensitive animal species and their habitat.

- *Threatened, endangered, and sensitive animal species - especially Utah prairie dog, greater sage-grouse, burrowing owl, ferruginous hawk, pygmy rabbit, Mexican spotted owl, northern goshawk, three-toed woodpecker, peregrine falcon, flammulated owl, spotted bat, and western big-eared bat, and their habitat - could be affected by construction and operation of the transmission line and temporary and permanent access roads. Impacts may include habitat loss, noise associated with human presence and construction equipment, and increased mortality.*
- *Threatened, endangered, and sensitive plant species - especially Dana milkvetch (A. Henrimontanensis), Penstemon parvus, Table Cliff milkvetch, yellow-eyed catseye, Cedar Breaks biscuitroot, podunk groundsel, and Maguire champion - could be affected by construction and operation of the transmission line and temporary and permanent access roads. Direct impacts include removal of vegetation during clearing activities.*

1.2. DESCRIPTION OF AFFECTED ENVIRONMENT

1.2.1. Project and Study Area

The Project Area is in Garfield County, between the communities of Tropic and Hatch in southern Utah. The Project Area includes the following:

- Proposed Action and alternative transmission line right-of-way.
- Temporary work areas.
- Proposed substation sites.

- Proposed access roads and routes, and access improvements.
- Existing 69 kV transmission line right-of-way.

The Study Area provides context for resource effects that may occur within the Project Area in order to quantify the magnitude of effects. The Study Area for special status species includes an area 0.5 mile either side of the alternative alignments.

1.2.2. Data Sources

The DNF, BLM, Utah Division of Wildlife Resources (UDWR), and NPS were consulted to identify biological resources, issues, and concerns. The U.S. Fish and Wildlife Service (USFWS) was consulted on species protected by the Endangered Species Act (ESA). Scientific literature was used whenever possible to provide baseline data on each species. Publications and other agency documents used for many different species include Rodriguez (2008), for TES species on the DNF; Bosworth (2003), for vertebrates in Utah, compiled by the Utah Natural Heritage Program (UNHP); Parrish et al. (2002), for birds of concern in Utah, compiled by UDWR; Welsh et al. (1987) and Franklin (2005), for plants in Utah; NPS (2008a) for plants in BRCA; UDWR (2005), for all species of concern in Utah; and UNHP (2008), which is a website containing information on most animals in Utah maintained by UDWR. All other information sources are cited in the text.

Biologists from Transcon Environmental (Transcon) performed pedestrian field surveys of the proposed disturbance areas between April and June of 2008 to document TES wildlife occurrences and habitats. Habitat was evaluated for its potential to accommodate special status species with a concentrated effort to identify signs and or the presence of special status species (Transcon 2008a, Biological resources report). Dedicated surveys were conducted for greater sage-grouse (Transcon 2008b) and northern goshawk (Transcon 2008c).

1.2.3. Resource Management Direction

1.2.3.1. US Forest Service

Dixie National Forest LRMP (USFS 1986 as amended)

The LRMP contains direction only for specific power line projects. Regarding the 69kV Garkane line, it states that Garkane Power Association's 69kV transmission line, from Henrieville substation to Escalante substation, "meets DNF standards for corridor designation" (II-54).

Regarding the goshawk amendment, the Biological Evaluation process should document findings, recommend mitigation measures, and evaluate consistency with the intent of the Conservation Strategy and Agreement for the Management of Northern Goshawk Habitat in Utah (USFS et al. 1998).

Red Canyon Botanical Area Conservation Assessment (USFS 2000a)

Regarding roads, the assessment states that new roads will be carefully evaluated for adherence to management objectives (i.e., sensitive plant persistence) of Red Canyon and that the Biological Evaluation process is relied upon to analyze impacts of any project.

Dixie National Forest Motorized Travel Plan (USFS 2008a)

The Motorized Travel Plan (USFS 2008a) contains the following direction for cumulative effects to aquatic biota from utilities projects:

Utility corridors are common features on the Forest. In general, currently existing corridors are causing very limited impacts to the aquatic biota resource. What impacts there are, are associated with utility corridor stream crossings and do not tend to be related to the motorized travel system. The greatest potential for detrimental effects to aquatic biota occurs during utility corridor construction. During these periods, ground disturbance is common and the potential for erosion

and sediment deposition within aquatic habitats is high. Following construction, disturbed ground tends to recover quickly as vegetation and ground cover is reestablished.

1.2.3.2. Bureau of Land Management

Kanab Field Office RMP (BLM 2008)

Utah Prairie Dog

1. Permit no surface disturbing activities or surface occupancy within ½ mile of active, suitable (currently inactive), or potential reintroduction Utah prairie dog habitats/sites.
2. Require deterrent devices designed to prevent raptors from perching on power line structures on all new construction (including upgrades and reconstruction) to discourage predation on Utah prairie dogs.
3. Reroute renewed or amended rights-of-way on public land that have the potential to disturb active and inactive Utah prairie dog colonies.

Western Yellow-billed Cuckoo and Southwestern Willow Flycatcher

Where possible, co-locate roads, new trails, and rights-of-way and develop stream crossings at right angles to yellow-billed cuckoo and Southwestern willow flycatcher habitat to minimize impacts.

Greater Sage-Grouse

Avoid new rights-of-way with high-profile structures (e.g., buildings, storage tanks, overhead power lines, wind turbines, towers, and windmills) within 1 mile of an active greater sage-grouse lek or in brood rearing habitat.

Grand Staircase-Escalante National Monument Management Plan (BLM 2000)

Two guidelines provide direction for utility rights of way, one for riparian areas and one for special status species populations:

- RIPA-4 Communication sites, and utility rights-of-way will avoid riparian areas whenever possible.
- SSP-9 Communication sites, utility rights-of-way, and road rights-of-way will not be permitted in known special status species populations. As permits are granted for these sites and rights-of-way, surveys will be completed to determine the presence of special status species in the area. If they are found, these activities will be moved to another location.

1.2.3.3. National Park Service

Bryce Canyon National Park General Management Plan (NPS 1987)

No specific guidelines are put forth regarding utilities and special status species because utility projects were not among the issues identified at the time the plan was initiated. Specific special status species goals for BRCA include 1) regular surveys and monitoring of peregrine falcon eyrie sites and 2) monitoring of prairie dog colonies and development of a Prairie Dog Management Plan (II-55).

National Park Service *Management Policies* (2006)

Section 8.6.4.2 – Utilities

If not incompatible with the public interest, rights-of-way issued under 16 USC 5 or 79 are discretionary and conditional upon a finding by the Service that the proposed use will not cause unacceptable impacts on park resources, values, or purposes.

Section 9.1.5.3 – Utility Lines

When placed aboveground, utility lines and appurtenant structures will be located and designed to minimize their impact on park resources and values.

Section 4.4 – Biological Resource Management

Many provisions for biological resources would be made under any action in BRCA, including 1) no outdoor lights would be installed that may interfere with nocturnal animal behaviors, 2) no biological resources would be collected or removed from BRCA, 3) all park closures for natural resource protection would be observed, 4) BRCA revegetation and restoration procedures will be followed, 5) herbicide use requests would be submitted to BRCA before use of herbicides, and 6) a BRCA-approved fire management plan will be followed to prevent fires during construction (NPS 2006). All Resource Protection Measures include measures being taken in BRCA and are described in **Appendix A**.

Regarding Threatened or Endangered species, NPS will determine all management actions for the protection and perpetuation of federally, state, or locally listed species through the park management planning process, and will include consultation with lead federal and state agencies as appropriate.

1.2.4. Vegetation and Habitat

Vegetation in the Project Area is made up primarily of four types of habitat that may be used by special status species: (1) cliff/canyon areas, (2) pinyon-juniper woodland, (3) ponderosa pine woodland, or (4) sagebrush (either sagebrush steppe or shrubland with a dominant sagebrush component). These four types make up 88–100 percent of each right-of-way area (**Table 1.2-1**) with about 50 percent of each area consisting of sagebrush steppe/shrubland (**Table 1.2-1**). Refer to the Vegetation Specialist Report for locations of vegetation types along each alignment (A, B, and C).

Table 1.2-1. Percentage of Each Vegetation/Habitat Type within Each Alternative’s Project Area (Used to Analyze Long-Term Disturbance)

VEGETATION TYPE	VEGETATION TYPE PERCENTAGE* OF PROJECT AREA				
	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH INTERCONNECT	EAST-WEST INTERCONNECT
Grassland	0.3	0.8	0.4	0.0	0.4
Mixed conifer (includes aspen/conifer)	0.0	0.3	0.0	0.0	0.5
“Other” (includes disturbed areas, water, ¹ agriculture)	1.2	6.6	2.1	0.0	0.0
Pinyon-juniper woodland	12.6	17.4	10.6	0.7	5.0
Ponderosa pine woodland	20.6	12.5	21.1	56.6	36.0
Cliff or canyon ²	3.0	4.8	3.6	0.0	0.0
Other rock or dune	4.2	7.2	4.7	0.0	0.0
Sagebrush steppe or shrubland with	52.3	48.4	53.1	43.5	58.0

VEGETATION TYPE	VEGETATION TYPE PERCENTAGE* OF PROJECT AREA				
	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH INTERCONNECT	EAST-WEST INTERCONNECT
dominant sagebrush					
Other shrub or scrub	5.5	1.4	3.0	0.0	0.0
Spruce fir	0.2	0.0	0.1	0.0	0.0
Wetland or riparian	0.1	0.6	1.3	0.0	0.1
TOTAL Primary habitats³	85.5	78.3	84.8	100	99
GRAND TOTAL³	100%	100%	100%	100%	100%

Note: Primary habitat types are bolded.

*Percentage of Project Area was calculated using Tables 1.2-4 through 1.2-7 in the Vegetation Specialist Report by dividing the acres of each vegetative type by the total Project Area acreage.

¹Open water makes up 1–2 percent of the “Other” type.

²Cliff or canyon habitats were not a separate type in the Vegetation Specialist Report but were included in “Rock or Dune.”

³May not add up exactly due to rounding.

Specific data related to vegetation communities is found in the Vegetation Specialist Report.

Unique Habitats in the Analysis Area

Designated Critical Habitat for the Mexican spotted owl makes up 20 percent of the proposed rights-of-way for Alternatives A and C due to their overlap with Colorado Plateau Unit Number 12 in Cedar Fork Canyon.

About 50 percent of the rights-of-way for each alternative are made up of brooding habitat or “use” areas for greater sage-grouse. UDWR-mapped brooding habitat for greater sage-grouse covers more than one-third of the Alternative A, B and C rights-of-way (**Table 1.2-2**).

Sensitive plant occurrences and habitat are also found throughout the Project Area (**Table 1.2-2**). For all sensitive plants discussed in this report (including BRCA sensitive species), these numbers are a conservative estimate because suitable habitats and occurrences of species are mapped only on the DNF and those in BRCA are not included. Most of the Project Area in the BRCA is made up of the Claron Formation and can be considered suitable habitat for sensitive plants.

Table 1.2-2. Percentage of Unique Habitats within Each Alternative’s Project Area that is Unique Habitat

HABITAT TYPE	PERCENT HABITAT IN EACH PROJECT AREA				
	ALTERNATIVE A (483 ACRES)	ALTERNATIVE B (416 ACRES)	ALTERNATIVE C (495 ACRES)	N-S INTERCONNECT (27 ACRES)	E-W INTERCONNECT (48 ACRES)
Designated Critical Habitat for Mexican spotted owl	15.0% (72 acres)	0.0	14.6% (72 acres)	0.0	0.0
Utah prairie dog colonies	3.1% (15 acres)	7.9% (33 acres)	2.2% (11 acres)	0.0	0.0
Sage-grouse UDWR-mapped brooding habitat	38.7% (187 acres)	42.6% (177 acres)	40.0% (197 acres)	29.6% (8 acres)	58.3% (28 acres)
Sage-grouse use areas (DNF and surrounding) ¹	22.0% (106 acres)	26.9% (112 acres)	10.0% (48 acres)	0.0	0.0
Sensitive plant occurrences and suitable habitat	11.0% (53 acres)	12.7% (53 acres)	7.5% (37 acres)	81.5% (22 acres)	50.0% (24 acres)

¹Sage-grouse brooding habitat was mapped by UDWR across Utah and described as “brooding use.” Sage-grouse use areas were mapped by DNF and UDWR biologists and described as “areas used in and around the DNF.”

All Endangered, Threatened, or Candidate species that may occur in Garfield County are presented in **Table 1.2-3**.

The BLM adopts the State (UDWR) Sensitive List for sensitive species. For BLM-Sensitive plants, BLM has a Utah State Director’s Sensitive Plant Species List that was completed in 2002, to be updated again in December 2009. NPS Sensitive plants described below include taxa for which “current information indicates that proposing to list as Endangered or Threatened is possible” (NPS 2008a); species on the list were generated for an internal NPS report. There are no GSENM-sensitive species on lands within the Project Area. Sensitive species that may occur on the DNF, KFO, and BRCA are listed in **Table 1.2-3**. Species descriptions follow **Table 1.2-3**.

1.2.5. Species Descriptions

Special status species described in this report include Federally (USFWS)-listed species protected under the ESA, which may be designated as Endangered, Threatened, or Candidate (only Endangered and Threatened species receive full protection under the ESA). According to the USFWS, endangered species are animals or plants in danger of extinction within the foreseeable future throughout all or a significant portion of their range. Threatened species are those that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range. Candidate species have been studied and the USFWS has concluded that they should be proposed for addition to the federal

endangered and threatened species list (USFWS 2007a). All Endangered, Threatened, or Candidate species that may occur in Garfield County are presented in **Table 1.2-3**.

Special status species also include those species designated as Sensitive by the USFS or BLM. The Regional Forester identifies Sensitive species as those for which population viability (“persistence”) is a concern, as evidenced by significant current and predicted downward trends in population numbers, density, and/or habitat capability that would reduce a species’ existing distribution. Sensitive species must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that could result in the need for federal listing (FSM 2672.1).

BLM sensitive species are species that require special management consideration to avoid potential future listing under the ESA. In compliance with existing laws, including the BLM multiple use mission, the BLM shall designate Bureau sensitive species and implement measures to conserve these species and their habitats and reduce the likelihood and need for such species to be listed pursuant to the ESA. The BLM refers to the State (UDWR) Sensitive List for sensitive species. NPS sensitive plants in this Specialist Report are taxa for which “current information indicates that proposing to list as Endangered or Threatened is possible” (NPS 2008a); species on the list were generated for an internal NPS report. There are no GSENM-sensitive species on lands within the proposed disturbance areas. Sensitive species on the Powell or Escalante Ranger Districts of the DNF, and State-listed species that may occur on the KFO District area, and sensitive plant species in BRCA listed in **Table 1.2-3**. Species descriptions follow **Table 1.2-3**.

Table 1.2-3. Occurrence of Special Status Species along Each Alternative Route.

SPECIES	TYPE & STATUS ¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH	EAST-WEST
Threatened (T), Endangered (E), and Candidate (C)						
Autumn buttercup <i>Ranunculus aestivalis</i>	Plant (E)	NO—No suitable habitat. This species prefers low, herbaceous wet meadow communities on islands of dry, peaty hummocks. Only two populations are known; the closest is Sevier River Valley area north of Panguitch.				
Bonytail chub <i>Gila elegans</i>	Fish (E)	NO—No suitable habitat. This species occurs in mainstem rivers within deep, swift, rocky canyon regions; also found in reservoirs.				
Colorado pikeminnow <i>Ptychocheilus lucius</i>	Fish (E)	NO—No suitable habitat. This species is endemic to the Colorado River system and occurs in large mainstem rivers and lower reaches of major tributaries and deep-water habitats.				
Humpback chub <i>Gila cypha</i>	Fish (E)	NO—No suitable habitat. This species occurs in large rivers and primarily canyon-bound reaches of the Colorado River drainage. Adults are found in deep water habitats.				
Razorback sucker <i>Xyrauchen texanus</i>	Fish (E)	NO—No suitable habitat. This species is endemic to the Colorado River system and occurs in Lake Mojave and Lake Mead, Nevada; individuals inhabit pools, slow runs, backwaters, and flooded off-channel areas.				
Jones cycladenia <i>Cycladenia humilis</i> var <i>jonesii</i>	Plant (T)	NO—No occurrences known. Grows on gypsiferous soils derived from the Summerville, Cutler, and Chinle Formations. Closest occurrence is near Escalante, Utah.				
Maguire daisy <i>Erigeron maguirei</i>	Plant (T)	NO—No occurrences known. This species grows on sand and detritus weathered from Navajo sandstone. Closest occurrence is on the Fishlake National Forest, northeast of the proposed disturbance areas.				
Ute ladies' tresses <i>Spiranthes diluvialis</i>	Plant (T)	NO—No occurrences known. This species prefers stable wetland and wet, seepy areas within historical floodplains of major rivers or near freshwater lakes or springs. Closest occurrence is along Henrieville Creek, about 5 miles northeast of Henrieville and about 7 miles east of the Project Area.				
Utah prairie dog <i>Cynomys parvidens</i>	Mammal (T)	YES—Habitat and colonies mapped (all areas)	YES—Habitat and colonies mapped (all areas) Present—3 active colonies found	YES—Habitat and colonies mapped (all areas)	YES—Habitat	YES—Habitat
Mexican spotted owl <i>Strix occidentalis</i>	Bird (T)	POSSIBLE—Designated Critical Habitat in Cedar Fork	UNLIKELY—No Designated Critical Habitat and very little	POSSIBLE—Designated Critical Habitat in Cedar Fork	UNLIKELY—No Designated Critical Habitat and very little	UNLIKELY—No Designated Critical Habitat and very little

SPECIES	TYPE & STATUS ¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH	EAST-WEST
		Canyon (A-1)	suitable habitat in Bryce Canyon	Canyon (C-1)	suitable habitat	suitable habitat
Southwestern Willow flycatcher <i>Empidonax traillii extimus</i>	Bird (T)	NO—No suitable habitat. None of the 5 riparian areas in the Project Area have vegetation dense or extensive enough from the streambank to be suitable for this species.				
Western yellow-billed cuckoo <i>Coccyzus americanus</i>	Bird (C)	NO—No suitable habitat. Riparian habitat patches are not dense or extensive (25+ acres) enough to support the species.				
Sensitive Animal Species						
Colorado River cutthroat trout <i>Oncorhynchus clarki pleuriticus</i>	Fish DNF-S	NO—No suitable habitat. This species requires cool, well-oxygenated waters typical of high elevation mountain streams.				
Bonneville cutthroat trout <i>Oncorhynchus clarki utah</i>	Fish DNF-S	NO—No suitable habitat. This species requires cool, well-oxygenated waters typical of high elevation mountain streams.				
Bluehead sucker <i>Catostomus discobolus</i>	Fish BLM-S	NO—Outside species' distribution. This species is found in mainstem rivers and tributary streams from mouth of the Grand Canyon upstream to the Green and Colorado River headwaters.				
Flannelmouth sucker <i>Catostomus latipinnis</i>	Fish BLM-S	NO—Outside species' distribution. This species is found in pools and deeper runs of larger rivers in the Colorado Basin; cool waters not usually above 6,000 feet.				
Roundtail chub <i>Gila robusta</i>	Fish BLM-S	NO—Outside species' distribution. This species is found in pool-riffle habitats with sand-gravel substrates in mainstem and larger tributaries of the Colorado River Basin.				
Black Canyon springsnail <i>Pyrgulopsis plicata</i>	Mollusk BLM-S	NO—No occurrences known. The species is known only from a complex of springs in East Fork Sevier River (Black Canyon), 20 miles north of the Project Area.				
Utah physa <i>Physella utahensis</i>	Mollusk BLM-S	NO—No occurrences known. The species occurs in small pools associated with springs; two known populations in Box Elder Co.				
Pygmy rabbit <i>Brachylagus idahoensis</i>	Mammal DNF-S BLM-S	Habitat (A-1, A-3) burrows [no rabbits observed]—East Valley Substation (A-1)	Habitat	Habitat (C-1, C-2, C-3) burrows [no rabbits observed]—East Valley Substation (C-1)	Habitat	Habitat

SPECIES	TYPE & STATUS ¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH	EAST-WEST
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Mammal DNF-S BLM-S	Habitat (all areas); most likely in Cedar Fork and Hillsdale canyons (A-1)	Habitat (all areas); most likely in BRCA	Habitat (all areas); most likely in Cedar Fork Canyon (C-1)	Habitat	Habitat
Spotted bat <i>Euderma maculatum</i>	Mammal DNF-S BLM-S	Habitat (all areas); most likely in Cedar Fork Canyon (A-1)	Habitat (all areas); most likely in BRCA	Habitat (all areas); most likely in Cedar Fork Canyon (C-1)	Habitat	Habitat
Allen's big-eared bat <i>Idionycteris phyllotis</i>	Mammal BLM-S	Habitat (all areas); most likely in Cedar Fork Canyon (A-1)	Habitat (all areas); present in BRCA	Habitat (all areas); most likely in Cedar Fork Canyon (C-1)	Habitat	Habitat
Fringed myotis <i>Myotis thysanodes</i>	Mammal BLM-S	Habitat (all areas); most likely in Cedar Fork Canyon (A-1)	Habitat (all areas); present in BRCA	Habitat (all areas); most likely in Cedar Fork Canyon (C-1)	Habitat	Habitat
Kit fox <i>Vulpes macrotis</i>	Mammal BLM-S	NO—Out of species' distribution; occurs in desert scrub mainly west of I-15				
Northern goshawk <i>Accipiter gentilis</i>	Bird DNF-S BLM-S	Habitat (all areas) Present (A-1)	Habitat (all areas); observed in BRCA and Red Canyon	Habitat (all areas) Present (C-1, C-2)	Habitat	Habitat
Short-eared owl <i>Asio flammeus</i>	Bird BLM-S	NO—No occurrences known. Short-eared owls breed (and sometimes winter) in wetland habitats and are generally absent from the DNF and not known to occur in the Project Area				
Burrowing owl <i>Athene cunicularia</i>	Bird BLM-S	Yes—present in Johns Valley. Habitat in grassland, shrub/scrub and agricultural (A-1) Also may occur in prairie dog	Yes—suspected. Habitat in grassland, shrub/scrub and agricultural Also may occur in prairie dog habitat (all areas)	Yes—suspected. Habitat in grassland, shrub/scrub and agricultural (C-1) Also may occur in prairie dog habitat (all areas)	Yes—suspected.	Yes—suspected.

SPECIES	TYPE & STATUS ¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH	EAST-WEST
		habitat (all areas)				
Ferruginous hawk <i>Buteo regalis</i>	Bird BLM-S	Habitat in grassland, shrub/scrub and agricultural (A-1)	Habitat in grassland, shrub/scrub and agricultural	Habitat in grassland, shrub/scrub and agricultural (C-1)	Habitat	Habitat
Greater sage-grouse <i>Centrocercus urophasianus</i>	Bird DNF-S BLM-S	Brood-rearing habitat (A-1, A-3); use areas habitat (A-1, A-3)present (A-1)	Brood-rearing habitat; use areas habitat Present	Brood-rearing habitat (all areas); use areas habitat (C-3) present (C-2)	Brood-rearing habitat	Brood-rearing habitat
Black swift <i>Cypseloides niger</i>	Bird BLM-S	NO—No suitable habitat; this species requires waterfalls surrounded by coniferous forests for nesting.				
Bobolink <i>Dolichonyx oryzivorus</i>	Bird BLM-S	NO—Out of species' range; this species nests and forages in wet meadows, wet grassland, and irrigated agricultural areas in northern Utah. It does not occur on the DNF and is not known to occur in the Project Area.				
Peregrine falcon <i>Falco peregrinus</i>	Bird DNF-S	Habitat (A-1, A-3)	Habitat; present in BRCA	Habitat (C-1, C-3)	Habitat	Habitat
Bald eagle <i>Haliaeetus leucocephalus</i>	Bird DNF-S BLM-S	Habitat in Sevier River Valley (wintering)	Habitat in Sevier River Valley and BRCA (wintering)	Habitat in Sevier River Valley (wintering)	NO—No suitable habitat.	NO—No suitable habitat.
Lewis's woodpecker <i>Melanerpes lewis</i>	Bird BLM-S	Potential habitat in ponderosa pine (all areas)	Potential habitat in ponderosa pine (all areas)	Potential habitat in ponderosa pine (all areas)	Potential habitat in ponderosa pine	Potential habitat in ponderosa pine
Long-billed curlew <i>Numenius americanus</i>	Bird BLM-S	NO—Out of species' range. The species is a summer resident and migrant mainly in central and northern valleys of Utah.				
Flammulated owl <i>Otus flammeolus</i>	Bird DNF-S	Potential habitat in ponderosa pine (all areas)	Potential habitat in ponderosa pine (all areas)	Potential habitat in ponderosa pine (all areas)	Potential habitat in ponderosa pine	Potential habitat in ponderosa pine
Three-toed woodpecker <i>Picoides tridactylus</i>	Bird DNF-S BLM-S	Potential habitat in spruce-fir (A-2)	NO—No suitable habitat.	Potential habitat in spruce-fir	NO—No suitable habitat.	Potential habitat in spruce-fir
American white pelican <i>Pelecanus erythrorhynchos</i>	Bird BLM-S	NO—No suitable habitat. This species nests colonially on islands; foraging areas are shallow lakes, marshlands, and rivers. American white pelicans are an uncommon summer resident on DNF water bodies and may occur at Tropic Reservoir, 4 miles south of the Project Area.				
Arizona toad	Amphibia n	NO—No known occurrences. The species occurs in scattered lowland riparian areas; the closest				

SPECIES	TYPE & STATUS ¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH	EAST-WEST
<i>Bufo microscaphus</i>	BLM-S	occurrence is Moody Wash on the DNF (Pine Valley Ranger District)				
Common chuckwalla <i>Sauromalus ater</i>	Reptile BLM-S	NO—No known occurrences. The species occurs in low-elevation Mojave desert scrub and blackbrush scrub in southwestern Utah, near cliffs, boulders, or rocky slopes.				
Desert night lizard <i>Xantusia vigilis</i>	Reptile BLM-S	NO—No known occurrences. This species occurs in low-elevation Mojave desert scrub and blackbrush scrub across southern Utah.				
Western toad <i>Bufo boreas</i>	Amphibia n BLM-S	NO—No known occurrences. The species occurs in high-elevation wetlands and woodland habitat (seasonal); the closest occurrence is Tropic Reservoir on the DNF (4 miles south of the alignments). It is unlikely that western toads would traverse the distance from Tropic Reservoir to the Project Area because although individuals have been found to use a variety of terrestrial habitat types, western toads have generally not been found to migrate distances longer than 1.6 miles between breeding sites and hibernacula (Keinath & McGee 2005).				
Sensitive Plant Species						
Dana's milkvetch <i>Astragalus henrimontanensis</i>	Plant DNF-S	NO—No known occurrences. This species occurs in washouts and gravelly loam soil between 7,000 and 9,200 feet. The closest known occurrences in the area are the Henry Mountains and other locations on the Aquarius Plateau (Escalante Ranger District).				
Table Cliff milkvetch <i>Astragalus limnocharis tabulaeus</i>	Plant DNF-S	NO—No known occurrences. This species occurs on steep, unstable limestone slopes of pink Wasatch Limestone between 9,200-10,170 feet. The closest known occurrence in the area is the Table Cliff Plateau (Escalante Ranger District).				
Ward's milkvetch <i>Astragalus wardii</i>	Plant BRCA-S	No known occurrences on the DNF or in the Project Area	Suitable habitat	No known occurrences on the DNF or in the Project Area	No known occurrences on the DNF or in the Project Area	No known occurrences on the DNF or in the Project Area
Reveal paintbrush <i>Castilleja parvula revealii</i>	Plant DNF-S BRCA-S	Suitable habitat (central Paunsaugunt Plateau)	Suitable habitat (central Paunsaugunt Plateau)	Suitable habitat (central Paunsaugunt Plateau); Present (C-2)	Suitable habitat (central Paunsaugunt Plateau)	Suitable habitat (central Paunsaugunt Plateau)
Yellow-white catseye <i>Cryptantha ochroleuca</i>	Plant DNF-S BRCA-S	Suitable habitat; Present (A-1)	Suitable habitat	Suitable habitat; Present (C-2)	Suitable habitat	Suitable habitat
Pinnate spring-parsley <i>Cymopterus beckii</i>	Plant BLM-S	NO – No known occurrences.				
Cedar Breaks biscuitroot <i>Cymopterus minimus</i>	Plant DNF-S BRCA-S	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)

SPECIES	TYPE & STATUS ¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH	EAST-WEST
Hole-in-the-Rock prairie-clover <i>Dalea flavescens</i> var. <i>epica</i>	Plant BLM-S	NO – No known occurrences.				
Abaho daisy <i>Erigeron abajoensis</i>	Plant BRCA-S	No known occurrences on the DNF or in the Project Area	Suitable habitat	No known occurrences on the DNF or in the Project Area	No known occurrences on the DNF or in the Project Area	No known occurrences on the DNF or in the Project Area
Widtsoe wild buckwheat <i>Eriogonum aretioides</i>	Plant DNF-S BRCA-S	Suitable habitat (Paunsaugunt Plateau); Present (A-1)	Suitable habitat	Suitable habitat (Paunsaugunt Plateau); Present (A-1)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)
Cronquist's buckwheat <i>Eriogonum corymbosum</i> var. <i>cronquistii</i>	Plant BLM-S	NO – No known occurrences.				
Utah spurge <i>Euphorbia nephradenia</i>	Plant BLM-S	NO – No known occurrences.				
Jones' gentian <i>Gentianella tortusa</i>	Plant BRCA-S	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat
Cataract gilia <i>Gilia latifolia</i> var. <i>imperialis</i>	Plant BLM-S	NO – No known occurrences.				
Alcove bog-orchid <i>Habenaria zothecina</i>	Plant BLM-S	NO – No known occurrences.				
Cedar Breaks goldenbush <i>Haplopappus zionis</i>	Plant BRCA-S	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat
Jones golden-aster <i>Heterotheca jonesii</i>	Plant DNF-S BRCA-S	Suitable habitat (lower Paunsaugunt Plateau)	Suitable habitat	Suitable habitat (lower Paunsaugunt Plateau)	Suitable habitat (lower Paunsaugunt Plateau)	Suitable habitat (lower Paunsaugunt Plateau)
Paria iris <i>Iris pariensis</i>	Plant BLM-S	NO – No known occurrences.				
King's ivesia <i>Ivesia kingii</i>	Plant BRCA-S	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat
Sevier ivesia <i>Ivesia sabulosa</i>	Plant BRCA-S	Suitable habitat; Present (A-1)	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat
Claron pepperplant	Plant	Present (A-1)	Present (Red	Present (C-1, C-	Suitable habitat	Suitable habitat

SPECIES	TYPE & STATUS ¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH	EAST-WEST
<i>Lepidium montanum</i> var. <i>claronense</i>	BLM-S		Canyon)	3)	(Paunsaugunt Plateau)	(Paunsaugunt Plateau)
Breaks bladderpod <i>Lesquerella rubicundula</i>	Plant BRCA-S	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)
Least lomatium <i>Lomatium minimum</i>	Plant BRCA-S	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)
Jones' oxytrope <i>Oxytropis oreophila</i> var. <i>jonesii</i>	Plant BRCA-S	Suitable habitat; Present (A-1)	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat
Paria breadroot <i>Pediomelum pariense</i>	Plant DNF-S	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat
Sand-loving penstemon <i>Penstemon ammophilus</i>	Plant BLM-S	NO – No known occurrences.				
Red Canyon Beardtongue <i>Penstemon bracteatus</i>	Plant DNF-S	Suitable habitat (central Paunsaugunt Plateau); present (A-1)	Suitable habitat (central Paunsaugunt Plateau)	Suitable habitat (central Paunsaugunt Plateau); present (C-2)	Suitable habitat (central Paunsaugunt Plateau)	Suitable habitat (central Paunsaugunt Plateau)
Markagunt penstemon <i>Penstemon leiophyllus</i>	Plant BRCA	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)
Little (aquarius) penstemon <i>Penstemon parvus</i>	Plant DNF-S	NO—No known occurrences. This species is associated with sagebrush-grass, pinyon-juniper, and spruce communities and occurs on Tertiary volcanic gravels in sandy, gravelly loam between 8,200 and 11,500 feet elevation. The closest known occurrence is on the Aquarius Plateau between Cyclone and Big Lake (Escalante Ranger District).				
Cedar Canyon phlox <i>Phlox gladiformis</i>	Plant BRCA-S	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)
Lepidote twinpod <i>Physaria chambersii</i> var. <i>membranacea</i>	Plant BRCA-S	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)
Podunk goundsel <i>Senecio malmstenii</i>	Plant DNF-S BRCA-S	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)

SPECIES	TYPE & STATUS¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	NORTH-SOUTH	EAST-WEST
Peterson catchfly <i>Silene petersonii</i>	Plant DNF-S BRCA-S	Suitable habitat; Present (A-1)	Suitable habitat	Suitable habitat	Suitable habitat	Suitable habitat
Rock tansy <i>Sphaeromeria capitata</i>	Plant DNF-S BRCA-S	Suitable habitat	Suitable habitat	Suitable habitat; Present (C-2)	Suitable habitat	Suitable habitat
Bryce Canyon townsendia <i>Townsendia Montana var. minima</i>	Plant BRCA-S	Suitable habitat (Paunsaugunt Plateau); Present (A-1)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)	Suitable habitat (Paunsaugunt Plateau)

¹(E) = Endangered, (T) = Threatened, (C) = Candidate; DNF-S = Dixie National Forest Sensitive, BLM-S = BLM Sensitive, and BRCA-S = BRCA Sensitive plant.

1.2.5.1. Utah prairie dog

Utah prairie dogs are highly sociable, herbivorous rodents that live in underground burrow colonies called “towns.” Towns are organized into discrete family units. Prairie dogs require deep, well-drained soils in which to dig burrows, vegetation low or sparse enough to see over or through, and suitable forage. Prairie dogs prefer alfalfa and grasses as forage but also eat insects, particularly cicadas. In general, drought or the lack of sufficient moist vegetation is thought to be one of the most important factors influencing the distribution of Utah prairie dogs (Rodriguez 2008). Utah prairie dogs are concentrated in the Paunsaugunt region along the east fork of the Sevier River (Powell Ranger District; USFWS 1991), which falls within the Project Area. The UDWR initiated biannual census counts in 1975 and annual counts in 1978. According to the 2000 annual report, prairie dogs in the Paunsaugunt Recovery Units have declined. From 1972 to 2000, over 18,638 animals were live-trapped and transplanted; however, the success of this program has been poor (UDWR 2002). Utah prairie dog recovery has been slowed by plague, drought, poor habitat conditions, and disturbance from human activities (USFWS 2007b). Habitat for the Utah prairie dog is found throughout the proposed alignments but mainly within the Paunsaugunt Plateau and in Hatch Valley. The most suitable habitat occurs within sagebrush and grassland communities, and prairie dog habitat occurs along each alternative (Transcon 2008a). Ponderosa pine and pinyon-juniper habitats may also support limited prairie dog populations. A June 2008 field investigation identified three active colonies associated with the existing 69 kV line (Parallel 69 kV Route) that were relatively small, consisting of five to ten burrows. The estimated number of prairie dogs associated with each colony was ten (Transcon 2008a). Protocol surveys will be conducted again in 2009 along the Preferred Alternative and the portion of the 69kV line that would be removed.

1.2.5.2. Mexican spotted owl

The Mexican spotted owl is a large owl that typically roosts and nests in shady, mature forests, but in southern Utah prefers the cracks of deep slot canyons (USFWS 1995). In Utah, breeding spotted owls typically utilize deep, steep-walled canyons that contain mature coniferous or deciduous trees within the canyon bottom. Nest sites are generally found in Douglas-fir (*Pseudotsuga menziesii*) trees and, to a lesser extent, ponderosa pine (*Pinus ponderosa*) or Gambel’s oak (*Quercus gambelii*). During winter, owls tend to move out of the canyons and onto mesa-tops, benches, and warmer slopes (Rodriguez 2008). Owls forage in mature forests of mixed conifers and Gambel’s oak, possibly due to the availability of preferred prey (woodrats, *Neotoma sp.*) as well as avoidance of great horned owls (*Bubo virginianus*). The proposed disturbance areas overlap the northeastern edge of Critical Habitat unit CP-12 (Colorado Plateau-12) for Mexican spotted owls (**Figure 1.2-1**), one of five Critical Habitat units in Utah that cover more than 2 million total acres. Seventy-two acres of CP-12 overlaps the eastern ends of the proposed alignments (Cedar Fork Canyon area) and falls within the 100-foot right-of-way. A 732-acre Protected Activity Center (PAC) for Mexican spotted owls occurs 3-4 miles to the east of the alignments and is surveyed on a yearly basis. Two spotted owls have been detected in the Escalante Ranger District of the DNF (east of the proposed disturbance areas) during winter. No nesting owls have been located. Marginal habitat for the Mexican spotted owl is located along Cedar Fork Canyon on the DNF and along the existing 69kV line located on BRCA. The west end of the plateau does not have the narrow, densely vegetated canyon structure that provides suitable habitat. Surveys in BRCA and in other areas of the alignment in 2008 did not detect any Mexican spotted owls (NPS 2008b). Surveys are planned in Cedar Fork Canyon and BRCA in 2009.

1.2.5.3. Pygmy rabbit

Pygmy rabbits are small, secretive rabbits that dig their own burrows. Pygmy rabbits are limited to habitat characterized by deep, friable soils and tall (often >6 feet), dense sagebrush, which provides both food (95percent of the diet) and cover. Burrows are usually located on slopes at the base of sagebrush plants. Pygmy rabbits do not reproduce in great numbers and do not disperse over great

distances, thus colonization of new habitats is slow and small populations can frequently become isolated (ONE 2008a). Suitable sagebrush habitat for the Pygmy rabbit is found in several areas along the proposed alignments, including near the proposed East Valley Substation, near the bottom of Cedar Fork Canyon, along SR 12 in Tropic Valley, along the East Fork Sevier River, and along the Sevier River in Hatch Valley. Pygmy rabbit burrows were found in Hatch Valley and near the East Fork Sevier River, but no pygmy rabbits were observed (Transcon 2008a).

1.2.5.4. Allen's big-eared bat

Allen's big-eared bat is a rare species that reaches the northern limit of its range in Utah; occurring throughout the southeastern and the extreme southwestern corners of the state. It was the last of the 18 bat species to be discovered in Utah. Allen's big-eared bat has been reported from a moderately wide range of habitats in Utah despite its rarity, including lowland riparian, desert shrub, sagebrush, piñon–juniper, mountain brush, and mixed forest habitats (Oliver 2000). Little is known about the breeding activity of the species, but females have been found with single young during the late spring and early summer. Allen's big-eared bat is a nocturnal insectivore and roosts in caves or rock crevices during the day (UNHP 2008). There are no known occurrences in the Project Area; however, one Allen's big-eared bat was captured and tracked south of the Project Area, to the north part of Johnson Canyon on the Skutumpah terrace, and bats have also been captured near Escalante and have been confirmed in BRCA.

1.2.5.5. Fringed myotis

The fringed myotis is widely distributed throughout Utah, and records are concentrated in the south and south-central part of the state. It is the most abundant bat in some Utah locations and apparently is absent from other locations that provide suitable habitat (Oliver 2000). Water sources are important to the species and may affect its distribution (Bosworth 2003). The species inhabits caves, mines, and buildings, most often in desert and woodland areas, occurring in colonies of several hundred individuals (UNHP 2008). The fringed myotis has also been found in lowland riparian, desert shrub, sagebrush, pinyon–juniper, mountain meadow, ponderosa pine forest, and Douglas–fir–aspen habitat (Oliver 2000). Populations also tend to be associated with areas having rocky outcroppings, cliffs, and canyons (Bosworth 2003). Maternity roosts in Utah have been reported in an attic of a building and (possibly) a cave, and the same cave has been speculated to be a day or night roost (Oliver 2000). Beetles are the major prey item and the species is nocturnal (UNHP 2008). Fringed myotis has been found in the BRCA area near Alternative B (Bosworth 2003) and may occur in canyon habitat within the Project Areas.

1.2.5.6. Townsend's big-eared bat

Townsend's big-eared bat is one of the most common bat species in Utah, roosting in a variety of desert and forest communities at elevations between sea level and 10,000 feet elevation. Roosts occur in caves, rocky outcrops, old buildings, and mine shafts (Rodriguez 2008). In winter, both sexes hibernate in mines or caves, either alone or in small groups. In a survey of 820 potential roosting sites in northern Utah, abandoned mines and caves with small to midsize openings located at low to mid elevations, in areas dominated by sagebrush, grassland, juniper woodlands, or mountain brush communities, were most likely to be occupied by Townsend's big-eared bats (Sherwin et al. 2000). Several individuals were located and monitored on the DNF from 1997 to 2001. According to potential bat habitat mapped by the DNF, habitat is scattered in a few areas within 0.5 mile of Alternatives A and C, and the East-West Interconnect and totals about 12 acres. Bats may be present in Cedar Fork Canyon and BRCA.

Figure 1.2-1. Special Status Species Habitat

1.2.5.7. Spotted bat

Spotted bats occur in a wide variety of habitats, including ponderosa pine forests, pinyon-juniper woodlands, canyon bottoms, open pastures, and hayfields. Limited observations indicate that spotted bats roost in relatively remote and undisturbed areas, typically in rock crevices located high on steep rock faces in limestone or sandstone cliffs (Rodriguez 2008). Spotted bats forage primarily over dry, open coniferous forest (Groves et al. 1997). Migration patterns are poorly understood, but populations from lower elevation habitats apparently do not migrate. Surveys conducted on six sites on the DNF in 1994 resulted in documented occurrence on the Cedar City Ranger District (Rodriguez 2008). Spotted bats may be present in Cedar Fork Canyon and have been confirmed in BRCA.

1.2.5.8. Northern goshawk

Northern goshawks inhabit montane coniferous and deciduous woodland in the West, nesting in stands of intermediate to high canopy-closure with a thin understory, interspersed with small openings, fields, or wetlands. Important internal components of forests where goshawks nest in Utah include snags, multiple canopies, and down woody debris. In southern Utah, goshawks are most often associated with mature to old growth stands of Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*), followed by aspen (*Populus tremuloides*; Graham et al. 1999). Goshawks generally nest in large trees adjacent to open flight corridors; they appear to prefer north to east aspects as well as flat to moderately sloped land for nest sites because stands are typically denser (Shuster 1980 and Weber 2006). Goshawk habitat is located mainly on the DNF and recent DNF data shows that there are at least 152 known goshawk territories across the Forest (Rodriguez 2008). The highest quality habitat for goshawk along the project alignments is found in Cedar Fork, Blue Fly, and Hillsdale Canyons, and consists of high density, mature stands of ponderosa pine or mixed conifer forest with intermittent streams and steep slopes (Transcon 2008c). Less suitable habitat is present along the Alternative B alignment (J Schoppe, DNF wildlife biologist, personal communication 17 November 2008). Seventy four acres of a Protected Fledgling Area (PFA) near Wilson Peak is within 0.5 miles of the Proposed Action route. Approximately 32 miles of habitat along the alignments were surveyed by Transcon and two positive responses were heard. One response occurred east of the top of Blue Fly Canyon and the other occurred in the middle of Cedar Fork Canyon. A goshawk sighting was also reported near the existing 69kV line within the park by BRCA staff in July, 2008. No nests were located (Transcon 2008c).

1.2.5.9. Greater sage-grouse

Sage-grouse are large, chicken-like birds that are brownish grey with conspicuous black and white markings (Parrish et al. 2002). The following habitat information is paraphrased from Connelly et al. (2004; unless cited otherwise), which provides the most recent and comprehensive information on the species. Sage-grouse are closely associated with sagebrush habitats, specifically big sagebrush (*Artemisia tridentata*) and silver sagebrush (*A. cana*) for food and cover. Suitable sagebrush habitat is limited by elevation and topography (USFS 1995:25). Sage-grouse breeding habitats are defined as those where lek attendance, nesting, and early brood-rearing occur. Breeding occurs on “leks” or relatively open areas with less herbaceous shrub cover than surrounding areas. Leks are typically surrounded by potential nesting habitat and are adjacent to relatively dense sagebrush stands used for escape, thermal, and feeding cover. Sage-grouse females nest in many different sagebrush-dominated cover types and most nests are located under sagebrush plants. An understory of native grasses and forbs provides productive nesting habitat. Early brood-rearing habitat is defined as sagebrush habitat within the vicinity of the nest used by hens with chicks up to 3 weeks following hatch. The availability of forb-rich habitats in close proximity to protective cover appears to be an important consideration for early brood-rearing. Late brood-rearing habitats are those used by sage-grouse starting later in the summer, following desiccation of herbaceous vegetation in sagebrush uplands. Sage-grouse usually select late-summer habitats based on the availability of forbs; these areas are

often wet meadows or irrigated pastures adjacent to sagebrush. Winter habitats of sage-grouse are dominated by sagebrush that can provide shelter and food. Habitat selection during winter is influenced by snow depth and hardness, topography, and vegetation height and cover. Sagebrush plants must be exposed above the snow to provide forage. Sage-grouse may roost in snow burrows during this period to conserve energy.

UDWR-mapped “brooding” or brood-rearing habitat for sage-grouse is found throughout the Paunsaugunt Plateau (DNF) and the Sevier River Valley (BLM; Transcon 2008b) and occurs along all three alignments (**Figure 1.2-1**). “Use areas (includes known leks) mapped within and around the DNF is concentrated in Hatch Valley and John’s Valley and also occurs along all three alignments (**Figure 1.2-1**). In the Project Area, suitable sage-grouse habitat occurs in smaller patches than most areas within its range and contains varied topography and adjacent (unsuitable) vegetation communities, such as forest, are often in close proximity. Adjacent tall trees currently provide raptor perch sites, which contribute to predation at some leks.

During 2008, Transcon completed a three-survey Western Association of Fish and Wildlife Agencies protocol survey for the species (Transcon 2008b, Appendix B). Surveys identified three active lek sites, including one known lek along the Proposed Action route (John L. Swale lek) and what were later identified as two historic leks (called Lek 1, in Johnson Bench area 2 miles south of SR 22, and Lek 2, on the east side of Forest Road 111), on the Paunsaugunt Plateau. The John L. Swale lek is 0.5 miles from alternative segment A-1, 0.25 miles from alternative segment A-2, and 0.03 miles from alternative segment A-3. Lek 1 is 0.90 miles from the Parallel 69 kV route and 0.40 miles from the Cedar Fork Southern route, while Lek 2 is 0.25 miles from the Proposed Action route and 0.20 miles from the Parallel 69 kV route. From 4-17 individual grouse were counted on each lek; 16 on the John L. Swale, 4 on Lek 1, and 17 on Lek 2.

1.2.5.10. Peregrine falcon

Peregrine falcons occupy a wide variety of open habitats. They forage wherever prey concentrate, usually along marshes, streams, and lakes within a 10-mile radius of the nest (Rodriguez 2008). Marshes, croplands, meadows, river bottoms, and lakes that support good populations of small- to medium-sized terrestrial birds, shorebirds, and waterfowl are important hunting sites. Cliffs are preferred nesting sites, although nests also occur on river banks, tundra mounds, stick nests of other species, tree cavities, and man-made structures (USDA 2003:E-76). Eight nest sites are known on the Forest, three are known on adjacent private/BLM lands, and numerous sightings have occurred within the Forest boundary (Rodriguez 2008). Habitat for the Peregrine falcon is found along all three alternative alignments: in Cedar Fork Canyon, Hillsdale Canyon, Blue Fly Canyon, Red Canyon, and BRCA. No peregrine falcons or nests were observed during field surveys (Transcon 2008a), although one non-active stick nest on a cliff face in Blue Fly Canyon was identified as a potential, abandoned peregrine nest. Peregrines are known to occur near Tom Best Springs (north of the proposed disturbance areas; Keith Day, Utah Department of Wildlife Resources biologist, personal communication 09 September 2008) and in BRCA.

1.2.5.11. Bald eagle

Bald eagles occur in Utah generally on a migratory or wintering basis. Bald eagles are opportunistic predators, especially in winter, when they will feed on any available fish, waterfowl, small mammal, or carrion. Bald eagles tend to concentrate wherever food is available, roosting in large groups in forested stands that provide protection from harsh weather. They may also winter in upland habitats, feeding on small mammals and deer carrion. Marginal roosting habitat occurs wherever large trees occur along bodies of water. Bald eagles have been observed on the DNF and surrounding lands, including BRCA, during late winter (winter residents) or during fall and spring months (thought to be northern migrants). Generally, when water bodies freeze in late fall or early winter, eagles move down in elevation to forage (Rodriguez 2008). No nesting pairs are known on the DNF, although one

pair has been observed for two summers at Panguitch Lake (without nesting). Potential bald eagle wintering sites within or near the proposed disturbance areas include Tropic Reservoir (south of the proposed disturbance areas), Pine Lake (Escalante Ranger District), and the Sevier River Valley (BLM). The bald eagle is a winter migrant that will roost in trees, snags, and cliffs throughout the Project Area. The Sevier River Valley is the only area where communal roosts may occur.

1.2.5.12. Flammulated owl

Flammulated owls inhabit montane forest, specifically mature and old growth ponderosa pine and Douglas-fir habitats with open stand structure. This species typically nests in large cavities made by woodpeckers and feeds on nocturnal arthropods (USDA 2003:F-73). Flammulated owls have a low reproductive rate, with a large variation in adult survival. Timber harvesting can have negative impacts on flammulated owls if large old trees, open stand structure, and some dense vegetation for roosting are not retained (McCallum 1994). Flammulated owl habitat is mainly on the DNF; detections are most concentrated within the Paunsaugunt Plateau (Powell Ranger District) and the Aquarius Plateau (Escalante Ranger District). The presence of flammulated owls is assumed within suitable habitat in the Project Area. The Paunsaugunt Plateau is known for high concentration of flammulated owls based on field surveys on the Powell Ranger District.

1.2.5.13. Lewis's woodpecker

Lewis's woodpecker is an uncommon species in Utah that occurs mainly in northeastern and southeastern parts of the state (UDWR 2005). The species breeds in open, park-like ponderosa pine forests in dead trees or stumps, but can also be found in burned-over mountain shrub or riparian assemblages (Bosworth 2003), aspen forests (UDWR 2005), or Douglas-fir, mixed conifer, pinyon-juniper, and oak woodlands (Parrish et al. 2002). Areas with a good understory of grasses and shrubs to support insect prey are preferred (Parrish et al. 2002). Lewis's woodpecker may be found in ponderosa pine habitats within the proposed disturbance areas. No individuals were incidentally observed during surveys (Transcon 2008a).

1.2.5.14. Three-toed woodpecker

Northern three-toed woodpeckers are primarily associated with dense subalpine fir and Engelmann spruce forests at high elevations. They prefer mature to old-growth stands due to an abundance of insect prey in large snags and down woody debris. Three-toed woodpeckers excavate their own nest cavities in snags or occasionally in live trees. Nests are found in cavities located 5 to 12 feet above the ground in dead spruce, tamarack pine (*Larix* spp.), cedar (*Thuja* spp.), and aspen trees (Rodriguez 2008). Up to 75 percent of their diet consists of wood-boring beetles and caterpillars that attack dead or dying conifers (USDA 2003:F-80). Populations have been shown to increase in some areas 3–5 years after forest fires, presumably in response to spruce beetle outbreaks (Koplin 1969). Formal surveys for three-toed woodpecker have been conducted on the DNF and a total of 131 detections have been documented since 1996, and the numbers of individuals are increasing presumably due to the increase of spruce bark beetle infestations. Three-toed woodpeckers have also been detected consistently on the Breeding Bird Survey Route #85020 (Navajo Lake; southwest of the proposed alignments). An average of five woodpeckers was detected each year along this route from 2000 to 2004. In the Escalante Ranger District, two nests were found along Barney Top northwest of the Table Cliff Plateau and individuals have been detected east of Antimony Creek, northeast of the Project Area. There is very little spruce-fir habitat within the Project Area, although some occurs near Wilson Peak. No individuals were incidentally observed during surveys (Transcon 2008a).

1.2.5.15. Burrowing owl

The burrowing owl is a BLM sensitive species and Species of Concern in Utah. Burrowing owls occupy open areas, such as grasslands, desert scrub, and the edges of agricultural fields. They also inhabit golf courses, airports, cemeteries, vacant lots, and road embankments or wherever there is

sufficient friable soil for a nesting burrow. Burrowing owls use burrows dug by badgers, ground squirrels, or prairie dogs. Their breeding habitat is distributed across much of western North America as far east as Texas, extending south through Mexico, Central America, and South America. Owls use burrows for nesting and also require access to alternate burrows for escape cover. Habitat for burrowing owls is found along the project alignment within areas associated with prairie dog towns and in the Tropic Valley. The most suitable habitat within the alignments occurs within greasewood-salt scrub and sagebrush-grassland communities; all three alternative alignments contain suitable habitat. In general, burrowing owls are present in many areas of the project alignments in low density (J. Schoppe, DNF wildlife biologist, personal communication 17 November 2008). No burrowing owls were observed during field investigations (Transcon 2008a); however, burrowing owls have been observed along John's Valley Road, which overlaps all three alternative alignments, and in Panguitch Valley (north of Hatch and the western end of the alignments). The Alternative A and C alignments pass relatively close to a high-density area of burrowing owls on SITLA land 4 miles north of Ruby's Inn along John's Valley Road (J. Schoppe, DNF wildlife biologist, personal communication 17 November 2008).

1.2.5.16. Ferruginous hawk

Ferruginous hawks can be found in open country, occurring in grasslands, agricultural lands, sagebrush/saltbrush/greasewood shrub, and at the periphery of pinyon-juniper forests. They avoid high elevations, forests, and narrow canyons. Nest sites vary from trees and shrubs, cliffs and utility structures, to ground outcrops. Nests may also occur in haystacks, abandoned buildings, or directly on the ground. During breeding, ferruginous hawks can most often be found in flat, rolling terrain within grassland or shrub steppe (UNHP 2008). Individuals are not perch predators, but range over open areas, and frequently hunt several kilometers away from the nest (Hawkwatch 2008). During winter, ferruginous hawks use open farmlands, grasslands, deserts, and other arid regions where lagomorphs, prairie dogs, or other major prey items are present (UNHP 2008). Habitat for ferruginous hawk is found throughout the project alignment. No ferruginous hawks were observed during field investigations (Transcon 2008a).

1.2.5.17. Sensitive plants

Sensitive plants occur on the DNF and in BRCA. No DNF-sensitive plants are found on the GSENM or on BLM lands within the proposed disturbance areas, but some BRCA-sensitive species are found on Forest lands. Sensitive plant habitat and occurrences are shown (by quadrangle section) on **Figure 1.2-1**. Most sensitive plants (DNF and BRCA) are associated with the Clarion Soil Formation. DNF Botanists completed a survey along the proposed alignments in 2007 and 2008 and encountered the following species: yellow-white catseye (*Cryptantha ochroleuca*), rock tansy (*Sphaeromeria capitata*), Reveal paintbrush (*Castilleja parvula* var. *revealii*), widtsoe wild buckwheat (*Eriogonum aretioides*), Sevier ivesia (*Ivesia sabulosa*), Jones' oxytrope (*Oxytropis oreophila* var. *jonesii*), Peterson catchfly (*Silene petersonii*), Red Canyon beardtongue (*Penstemon bracteatus*), and Bryce Canyon townsendia (*Townsendia montana* var. *minima*; USFS 2008b). Transcon encountered widtsoe wild buckwheat and Jones' oxytrope during biological surveys (Transcon 2008a). The sensitive plants in **Table 1.2-4** are either found or are expected in suitable habitat within the Project Area.

Table 1.2-4. Description of sensitive plants along the proposed alignments

SPECIES	DESCRIPTION	HABITAT	KNOWN OCCURRENCES
Ward's milkvetch	Perennial herb; whitish flowers open May-Sept	Sagebrush, cottonwood, pinyon-juniper, ponderosa pine, spruce-fir; 5,000–	BRCA (confirmed)

SPECIES	DESCRIPTION	HABITAT	KNOWN OCCURRENCES
		9,000 feet	
Reveal paintbrush	Perennial herb; magenta to rose bracts; "flowers" open mid June to mid July	Associated with bristlecone and ponderosa pine; heavy clay soils from pink Wasatch Limestone; west to southwest-facing slopes; 7,800–8,500 feet	Central Paunsaugunt Plateau (all alternatives); Bryce Main Amphitheater Areas (confirmed); found along Segment C-2
Yellow-white catseye	Perennial herb; pale yellow flowers open May–late June	Dry, open sites on southern, warm slopes; pink Wasatch Limestone; 6,500–9,000 feet	Powell and Escalante Ranger Districts (all alternatives); BRCA (confirmed); found along A-1 and C-2
Pinnate spring parsley	Perennial; flowers open April–July	Pinyon-juniper, mountain brush, or conifer communities with sandy or stony substrate; often rock crevices and near cliff bases; 5,600–7,500 feet	Monticello and Richfield BLM
Cedar Breaks biscuitroot	Perennial; flowers pink or pale purple with white margins open July–Aug	Associated with bristlecone, ponderosa pine, and spruce-fir; Wasatch Limestone; 8,000–10,400 feet	Paunsaugunt Plateau (all alternatives); BRCA (suspected)
Hole-in-the-Rock prairie-clover	Perennial; flowers open May–June	Sandstone bedrock and sandy areas in blackbrush and mixed desert shrub communities; 4,700–5,000 feet	BLM KFO
Abajo daisy	Perennial herb; blue or white flowers open June–Aug	Dry, rocky slopes; Navajo sandstone; 7,500–11,150 feet	BRCA (confirmed)
Widtsoe wild buckwheat	Perennial herb; yellow flowers open late May–June	Dry, open ridge tops; pink Wasatch Limestone; 7,500–9,000 feet	Paunsaugunt Plateau (all alternatives); BRCA (suspected); encountered during Transcon surveys and DNF surveys (A-1)
Cronquist's buckwheat	Perennial; flowers open Sep	Pinyon, <i>Holodiscus</i> , rabbitbrush, mountain brush, and rock-spiraea communities on steep talus slopes; 8,800–8,900 feet	Henry Mountains; BLM Richfield
Utah spurge	Annual herb; flowers	Mixed sandy desert	BLM GSENM

SPECIES	DESCRIPTION	HABITAT	KNOWN OCCURRENCES
	open June-Aug	shrub and grassland communities, on dark clay hills, sand dunes; Tropic Shale and Entrada Formations; 3,800-4,800 feet	
Jones' gentian	Annual herb; blue or yellow-white flowers open July-Aug	Sagebrush, grass-forb, ponderosa pine, limber and bristlecone pine, and spruce-fir, on Claron Limestone Formation; 6,500-11,150 feet	BRCA (confirmed), occurs on the Central Paunsaugunt Plateau in isolated population on all alternatives (not a USFS Sensitive plant)
Cataract gilia	Annual herb; flowers open June-Oct	Mixed desert shrub communities, especially wash bottoms and at the base of ledges; 3,800-5,200 feet	BLM GSENM
Alcove bog-orchid	Perennial; flowers open late July-Aug	Seeps, hanging gardens, and moist streambanks in mixed desert shrub, pinyon-juniper, and oakbrush; 4,000-6,200 feet	BLM Moab Monticello
Cedar Breaks goldenbush	Shrub; greenish gray flowers open mid July-August	Spruce-fir and ponderosa pine on Claron Limestone Formation; 8,000-10,000 feet	BRCA (suspected) found along A-1—Escalante RD in the Claron Limestone; not USFS-sensitive
Jones golden-aster	Perennial herb; yellow ray flowers open May-Sep	On sandstone or in sand on south and west-facing slopes; 4,000-9,400 feet	Lower Paunsaugunt Plateau (all alternatives); BRCA (confirmed); Escalante Ranger District: Hell's Backbone Road
Paria iris	Perennial; flowers open May	Grass-shrub community; 4,600 feet	Known from one type collection in Kane County; State lands
King's ivesia	Perennial herb; white flowers open June-Aug	Saline meadows and pans in rabbitbrush, saltgrass, shadscale, greasewood, and sedge communities; 4,800-7,800 feet	BRCA (confirmed) found along A-1—Powell RD; not USFS-sensitive
Sevier ivesia	Perennial herb; flowers open June-Aug	Sagebrush, pinyon-juniper, pygmy sagebrush, ponderosa pine, and spruce; on	BRCA (confirmed); found along Segment A-1, occurs on all Tertiary Claron

SPECIES	DESCRIPTION	HABITAT	KNOWN OCCURRENCES
		limestone; 5,700–9,000 feet	Limestone throughout the Project Area; not USFS Sensitive
Claron pepperplant	Perennial; flowers open May-June	Sagebrush, pinyon-juniper, and ponderosa pine/bristlecone pine communities on Claron Wasatch Limestone and other fine-textured substrates; 6,400-8,000 feet	Found along Segments A-1, C-1, and C-3.
Breaks bladderpod	Perennial herb; yellow or white flowers open May–July	Bristlecone pine, ponderosa pine, and spruce-fir communities; pink and white Wasatch Limestone; 7,700–11,000 feet	Paunsaugunt Plateau (all alternatives); BRCA (confirmed)
Least lomatium	Perennial herb; yellow or white flowers open May–June	Open, barren clay slopes in forb-grass, ponderosa pine, and bristlecone pine community; often on limestone; 7,100–10,400 feet	Paunsaugunt Plateau (all alternatives); BRCA (confirmed)
Jones' oxytrope	Perennial herb; cream or pink-purple flowers open May–Aug	Ponderosa pine, western bristlecone pine, and mixed desert shrub communities; on pink Wasatch Limestone; 6,300–7,800 feet	BRCA (confirmed); encountered during Transcon surveys and DNF surveys (A-1)
Paria breadroot	Perennial herb; cream to yellow-white flowers with purple open June–July	Ponderosa pine or pinyon-juniper; calcerous or sandy soils on Wasatch Limestone, Navajo Sandstone, and Quaternary alluvium; 5,500–8,000 feet	Associated with the Kaipairowits Formation (probably not found on Powell RD); central portion of BRCA (confirmed) and No Mans Mesa (White Cliffs—BRCA)
Sand-loving penstemon	Perennial herb; flowers open late May-June	Ponderosa pine and mixed desert shrub communities; on blow sand derived from Navajo Sandstone, 5,900-7,200 feet	BLM GSENM, KFO
Red Canyon beardtongue	Perennial herb; blue to violet flowers open May–early June	Pine needle duff on clay loam soils of calcerous, gravelly slopes and rock slides	Central Paunsaugunt Plateau (all alternatives); Powell Ranger District: Bryce

SPECIES	DESCRIPTION	HABITAT	KNOWN OCCURRENCES
		along pink Wasatch Limestone; 6,900–8,300 feet	Main Amphitheater Area (confirmed); found along A-1 and C-2
Markagunt penstemon	Perennial herb; blue-purple flowers open in spring	Wide variety of vegetation associations, in BRCA, on open meadows in the Markagunt Range of the Cedar Breaks area, across Bryce Canyon; 6,600–11,500 feet	Paunsaugunt Plateau (all alternatives); BRCA (confirmed)
Cedar Canyon phlox	Perennial herb; whitish pink-lavender flowers open May–June	Cliffs and rocky slopes in ponderosa pine, pinyon-juniper, and bristlecone pine communities; 6,500–8,300 feet	Paunsaugunt Plateau (all alternatives); BRCA (suspected)
Lepidote twinpod	Perennial herb; white flowers open June–Aug	Various plant communities: pinyon-juniper, salt desert shrub, mountain brush, ponderosa pine, and aspen; 5,000–8,000 feet	Paunsaugunt Plateau (all alternatives); BRCA (confirmed)
Podunk goundsel	Perennial herb; yellow discoid flowers open June–Aug	Associated with bristlecone pine, spruce, fir, other conifers; talus slopes of Claron Limestone; 8,000–10,000 feet	Powell and Escalante Ranger Districts: Paunsaugunt Plateau and Canaan Mountain (all alternatives) On Forest land—none found anywhere in the Project Area
Peterson catchfly	Perennial herb; bright pink flowers open late July–Aug	Associated with ponderosa pine, aspen, and spruce-fir; open calcareous limestone and igneous gravels; 7,000–11,200 feet	Powell and Escalante Ranger Districts (all alternatives); BRCA (confirmed); found along A-1, A-3, and C-2
Rock tansy	Perennial herb; yellow flowers open in July	Occurs with bristlecone pine on exposed slopes of Cedar Breaks Limestone; 5,000–7,800 feet	Garfield County only (all alternatives); found along C-2
Bryce Canyon townsendia	Perennial herb; blue, pink, lavender, or white	Ponderosa pine, western bristlecone,	Paunsaugunt Plateau (all alternatives); not

SPECIES	DESCRIPTION	HABITAT	KNOWN OCCURRENCES
	flowers open April–June	limber pine, and Douglas-fir/white fir; white and pink Cedar Breaks Formation; 7,800–10,200 feet	USFS Sensitive; BRCA, (confirmed); found along A-1

1.3. IMPACT ANALYSIS

1.3.1. Direct and Indirect Effects

The Proposed Action and Alternatives outlined in previous sections may cause, directly or indirectly, changes in the human environment. This report assesses and analyzes these potential changes for inclusion in the EIS prepared for this proposal.

The terms “effect” and “impact” are synonymous under NEPA. Effects may refer to adverse or beneficial ecological, aesthetic, historical, cultural, economic, social, or health-related phenomena that may be caused by the Proposed Action or Alternatives (40 CFR 1508.8). Effects may be direct, indirect, or cumulative in nature. A direct effect occurs at the same time and place as the action (40 CFR 1508.8(a)). Direct and indirect effects are discussed in combination under each affected resource. Indirect effects are reasonably foreseeable effects that occur later in time or are removed in distance from the action (40 CFR 1508(b)). In this report, direct and indirect effects are discussed in combination.

1.3.1.1. Indicators and Methods of Analysis

The magnitude and duration of impacts in this analysis are based on the following criteria listed in Tables 1.3-1 to 1.3-6.

Table 1.3-1. General resource impact criteria

ATTRIBUTE OF EFFECT		DESCRIPTION RELATIVE TO SPECIAL STATUS SPECIES
Magnitude	Negligible	Not a perceptible change.
	Minor	A change perceptible to individuals of a particular species.
	Moderate	A change that is large enough to affect many individuals of a species and may potentially affect the viability of a population.
	Major	A change that would affect population viability.
Duration	Short-term	1-5 years; Time for most grassland and shrub habitats to regenerate.
	Long-term	10+ years; Time needed for most forest (and some shrub) habitats to regenerate.

For special status species, six specific metrics (“indicators”) were used to measure impacts. The specific criteria used for each indicator and the methods used for each part of the analysis are described below.

Indicator (1): Acres of Habitat Disturbed

Acres of direct disturbance of habitat and indirect habitat loss were compared to available habitat. Habitat disturbances were analyzed in the context of the Project Area. The acreage of habitat

disturbance was divided by the total acreage of that habitat in the Project Area. Impacts were determined directly from calculated percentages.

Indicator (2): Habitat Fragmentation

Regarding changes to habitat and populations related to fragmentation, known life histories of species were used (e.g., migration patterns, home ranges, and population sizes) to assess the impact of linear disturbances on habitat and populations.

Indicator (3): Noise Levels

The predicted number and duration of visits were used as indicators of human disturbance, as well as information regarding noise levels for transmission line installation projects, to estimate the duration, frequency, and increases in noise levels above ambient. Documented influence distances from published literature were used to judge the probability of impacts to as many species of concern as best available science allowed.

Indicator (4): Invasive Plants

Known invasive plant infestations were used to identify areas vulnerable to further infestation and as a possible source to spread weed seeds to new areas. Infested areas within current or proposed access rights-of-way were assumed to be the most likely sources of increased infestation; areas crossed with potentially infested vehicles and equipment were assumed to be the most likely to contain a new invasive plant infestation.

Indicator (5): Reproductive Sites

Maps of known raptor nests and other important sites found during surveys were used to compare these locations to the location of the alignment. More proximate nests in other reproductive areas were generally assumed to be most likely to be adversely impacted, depending on known sensitivities of each species to human proximity.

Indicator (6): Compliance with National Park Service Management Policies

NPS Management Policies (2006) was used to compare policy guidance with predicted impacts to special status species within park boundaries. Any relevant standard, guideline, or policy, including mitigation measures that would not be met under was determined to be not in compliance. Relevant mitigation measures are discussed for sensitive raptors.

Impacts were determined as either (1) “in compliance” or (2) “not in compliance” with *NPS Management Policies*.

1.3.1.2. Direct and Indirect Effects by Alternative

General project acreage tables are provided in **Appendix A**.

Impacts Common to All Action Alternatives

Construction

Indicator (1): Direct disturbance of habitat would have an effect on any special status species that utilize the proposed disturbance areas. Disturbances in common and unique habitat types among the three proposed alternatives are summarized in **Table 1.3-7**. For the most abundant types (sagebrush and ponderosa pine), disturbances between Alternatives A and C alignments are similar, and are slightly greater than those under Alternative B. Special status species that may use these habitats include Utah prairie dog, burrowing owl, pygmy rabbit, greater sage-grouse, and ferruginous hawk (sagebrush habitat); and northern goshawk, flammulated owl, and Lewis’s woodpecker (ponderosa pine habitat; **Table 1.3-7**).

Table 1.3-7. Disturbance to the Most Common Habitats in the Project Area by Alternative

SPECIES	HABITAT TYPE	ACRES OF PROJECT AREA DISTURBANCE				
		ACRES OF LONG-TERM DISTURBANCE (PERCENTAGE OF PROJECT AREA)			NORTH-SOUTH	EAST-WEST
		ACRES OF SHORT-TERM DISTURBANCE (PERCENTAGE OF PROJECT AREA)				
		ALT A	ALT B	ALT C		
Common Habitats						
Utah prairie dog,* Burrowing owl, Pygmy rabbit, Greater sage grouse,* Ferruginous hawk	Sagebrush	232.31 30.29 (13%)	219.01 29.44 (13%)	255.57 30.75 (12%)	11.75 1.24 (11%)	28.5 3.35 (12%)
		108.32 (47%)	94.30 (43%)	127.03 (50%)	6.36 (54%)	15.53 (54%)
Northern goshawk, Flammulated owl, Lewis's woodpecker	Ponderosa pine	89.08 8.59 (10%) 36.20 (41%)	56.48 2.94 (5%) 22.61 (40%)	103.78 9.79 (9%) 53.19 (51%)	15.28 1.64 (11%) 7.36 (48%)	17.27 2.17 (13%) 7.90 (46%)
Ferruginous hawk	Pinyon/juniper	58.01 6.05 (10%) 25.38 (44%)	78.54 7.71 (10%) 29.64 (38%)	50.36 5.30 (11%) 25.27 (50%)	0.20 0.03 (15%) 0.07 (35%)	2.38 0.26 (11%) 1.35 (57%)
Peregrine falcon, Sensitive bats	Cliff/canyon	14.19 0.85 (6%) 5.10 (36%)	21.8 0.00 0.68 (3%)	18.78 0.76 (4%) 7.50 (40%)	0.00	0.00
Unique Habitats						
Mexican spotted owl	Designated Critical Habitat	80.00 7.80 (10%) 14.70 (18%)	0.00	81.81 7.80 (10%) 14.70 (18%)	0.00	0.00
Utah prairie dog	Existing colonies	16.62 1.50 (9%) 2.90 (17%)	43.63 3.30 (8%) 14.30 (33%)	21.84 1.10 (5%) 13.40 (61%)	0.00	0.00
Greater sage grouse	UDWR-mapped Brooding habitat	223.43 20.80 (9%) 47.10 (21%)	223.37 21.30 (10%) 47.80 (21%)	257.01 21.70 (8%) 84.00 (33%)	7.57 0.80 (10%) 0.90 (12%)	29.45 2.30 (8%) 5.30 (18%)
Greater sage grouse	Use areas (DNF and surrounding)	126.59 10.60 (8%) 25.90 (20%)	122.25 11.20 (9%) 14.50 (12%)	67.18 4.80 (7%) 14.50 (22%)	0.00	0.00

SPECIES	HABITAT TYPE	ACRES OF PROJECT AREA DISTURBANCE				
		ACRES OF LONG-TERM DISTURBANCE (PERCENTAGE OF PROJECT AREA)			ACRES OF SHORT-TERM DISTURBANCE (PERCENTAGE OF PROJECT AREA)	
		ALT A	ALT B	ALT C	NORTH-SOUTH	EAST-WEST
Sensitive plants	Mapped occurrences and suitable habitat (DNF only)	62.46	55.52	45.61	27.23	25.54
		5.00 (8%)	1.0 (2%)	3.07 (8%)	2.20 (8%)	2.40 (9%)
		14.10 (23%)	3.2 (6%)	13.50 (30%)	6.00 (22%)	4.30 (17%)

*Note that a general habitat discussion alone is not representative of overall impacts to Utah prairie dog and greater sage grouse among alternatives. Each of these species has occupied specifically mapped habitat along the alignments, and disturbance within these specific habitats is more indicative of how each alternative would impact these species.

Substation Distribution Lines

Construction of distribution lines in conjunction with removal of the existing Tropic Substation and in conjunction with either of the new Bryce Substation options has the potential to impact Utah prairie dog colonies and habitat. Impacts would be similar in type and duration to those described under Alternative B, as Utah prairie dog colonies are concentrated in this general area (Johnson Bench).

Construction and maintenance of distribution lines would employ Resource Protection Measures as described in **Appendix A** to minimize impacts.

Operations and Maintenance

Operations and maintenance impacts on special status species would be similar under all Action Alternatives. Operation of the transmission line would not affect any special status species with the exception of greater sage-grouse, and sensitive raptors or other birds that are vulnerable to predation from ground predators along the centerline disturbance or from raptors perched on the transmission line. Routine maintenance of facilities would disturb any special status species in the vicinity of activities for the duration of the activity and individuals may be temporarily displaced. However, human disturbance would be minimal in most cases and consist of single vehicle entries over established access routes. Machinery noise would disturb any special status individual in the vicinity but displacement, if it occurred, would be short term and impacts would be negligible.

Emergency maintenance has potential for adverse impacts because, due to public safety concerns, it cannot be scheduled around sensitive times such as breeding or nesting periods for TES species. In most cases, pre-activity surveys would not be feasible prior to emergency maintenance activities. Emergency maintenance impacts would be more adverse than construction impacts for most special status species due to the potential for disturbance during a sensitive period (i.e., greater sage-grouse during lekking or brood-rearing, all TES raptors during nesting, big game during calving or fawning). For all species, emergency maintenance impacts would be more adverse than for construction because the presence of a special status individual in the vicinity of activities is more likely (due to the infeasibility of pre-activity surveys).

Alternative A: Proposed Action

Construction

Utah Prairie Dog (T). Some Utah prairie dog colony areas (mapped by UDWR) would be disturbed by Alternative A: 1.5 acres would be lost for the long term (10 percent of colony areas in the Project Area), and 3 acres (17 percent of the Project Area) would be disturbed for the short term. Alternative A would pass through the Johns Valley and Johnson Bench areas that contain concentrations of Utah

prairie dogs. Impacts to prairie dogs may include increased predation by raptors perched on power poles. Perch deterrents would be installed on poles only in Utah prairie dog, sage grouse, and pygmy rabbit habitats, if deemed necessary by the agencies. Raptor perch deterrents would be expected to reduce but not altogether eliminate perching and predation associated with the transmission line; even with perch deterrents raptor predation may still be expected to increase in prairie dog habitats crossed by the transmission line.

- **Indicator (1): Acres of habitat disturbed.** Thirty-four acres of suitable habitat for Utah prairie dog (grassland, sagebrush, and scrub/shrub habitats) would be lost for the long term (13 percent of these habitats in the Project Area), including 30 acres of sagebrush. Including grassland, sagebrush, and other shrub habitats, 119 acres of suitable habitat (46 percent of these habitats in the Project Area) would be occupied for the short term during construction. Native grasses, which are the most important vegetative component of prairie dog habitat, would recover relatively quickly after reclamation. Habitat loss impacts would be moderate due to the large amount of temporary disturbance during construction.
- **Indicator (2): Fragmentation.** Utah prairie dog families generally occupy territories about 1 acre in size (Rodriguez 2008); thus the transmission line may reduce the size of potential territories if prairie dogs avoided the lines and limit the distribution or number of prairie dogs that could occupy a habitat area, or that could disperse into a new area. Prairie dog colonies are not likely to be adversely affected by fragmentation resulting from transmission line disturbances, however, because the species is attracted to disturbed soils and would be likely to use disturbed areas cleared of vegetation for new burrows. Impacts to Utah prairie dogs from fragmentation would be minor and short-term.
- **Indicator (3): Noise.** Utah prairie dogs in the vicinity of the proposed transmission line would be temporarily disturbed by construction noise. The distance from which prairie dogs respond to human disturbance and noise is 350 feet (USFWS 2007c). Prairie dog vocalizations are an important part of survival (e.g., predator warnings); outside noise can mask these sounds and prevent warning systems and other communications between prairie dogs. Impacts caused by noise associated with construction of the transmission line would be short-term and minor, because only a few individuals would probably be affected by interrupted communications. These individuals may be displaced during construction by noise disturbances, although it is more likely that prairie dogs would retreat deeper into their burrows as a reaction to loud noises. Prairie dogs are not likely to enter hibernation early due to noise disturbances above-ground. However, impacts of early hibernation in a few individuals would be long-term and moderate, if it occurred, as the loss of some individuals could adversely affect reproductive success the following year.
- **Indicator (4): Invasive plants in TES habitats.** Construction vehicles may transport invasive plant seeds to the disturbance areas, which could lead to increases in these undesirable species. As part of Alternative A, Resource Protection Measures (**Appendix A**) require that pre-construction weed inventories and treatments (if necessary) be performed prior to construction, and that vehicles be power-washed off-site (see **Appendix A** regarding weed control) before entering the disturbance areas. Invasive plants present on site or along access routes to the alignments that are not treated beforehand may be spread by construction vehicles. Seeds from other locations outside the disturbance areas could also spread along the alignments if Resource Protection Measures (e.g., vehicle washing) are not completely effective.

Along the Proposed Action route, infestations of thistle (*Cirsium* spp.), hoary cress (*Cardaria draba*), and brome grass (*Bromus* spp.) occur in suitable prairie dog habitat and further infestations may degrade prairie dog habitat by replacing native grasses and forbs with plants

that do not provide the required nutrients and habitat structure (e.g., prairie dogs prefer the young shoots and leaves and flowers of certain forb species; USFWS 1991:10). These impacts would be long-term and moderate because suitable forage availability is an essential habitat characteristic and an important factor in Utah prairie dog survival (USFWS 1991, Rodriguez 2008). However, monitoring and treatment of invasive species during operation and maintenance, bi-annual surveys by Garkane for invasive species for 10 years after construction, and weed control where necessary would minimize the likelihood of invasive species spreading further into Utah prairie dog habitat.

Mexican Spotted Owl (T).

- **Indicator (1): Acres of habitat disturbed.** Eight acres of Designated Critical Habitat for Mexican spotted owl would be lost for the long term (10 percent of Critical Habitat in the Project Area), and 15 acres of Critical Habitat (18 percent of Critical Habitat in the Project Area) would be occupied for the short term during construction. Habitat losses for Mexican spotted owl from construction activities would be long-term because most habitats contain forests that would not reach their pre-disturbance condition within a 10-year timeframe. Construction-related disturbance of rock or cliff habitat components would be short-term because cliff areas could be used immediately after construction was completed. Impacts would be minor to moderate because Designated Critical Habitat is essential for the survival and reproduction of this species. Although Mexican spotted owls have not yet been detected, any losses could limit the likelihood of a spotted owl population establishing in the future or diminish the available habitat for existing, undetected populations.
- **Indicator (3): Noise.** Noise from construction under Alternative A could disturb Mexican spotted owls that are roosting within 0.5 mile of activities. Pre-construction surveys in suitable habitats would document the presence of nesting spotted owls in the area (see committed mitigation measures outlined in **Appendix A**). Any spotted owls present in the area could be disturbed by the noises and be displaced or diverted for short distances for the duration of activities. These displacement impacts would be minor, if owls were roosting or foraging, because there would be no reproductive impacts (no nesting). Impacts to nesting owls would be short-term and moderate.

Pygmy Rabbit (S). Impacts to pygmy rabbit in some areas may include destruction of burrows that are not detected before construction begins. Pygmy rabbit burrows tend to be shallow and would be removed by one pass of heavy machinery during construction or maintenance activities.

- **Indicator (1): Acres of habitat disturbed.** Thirty-four acres of pygmy rabbit habitats (sagebrush and other shrub/scrub) would be lost for the long term (13 percent of habitat in the Project area), and 118 acres of pygmy rabbit habitats (46 percent of suitable habitats in the Project Area) would be occupied for the short term during construction. According to suitable habitat designations by the DNF, less than 0.1 acre of suitable pygmy rabbit habitat would be disturbed for the long term and 2 acres would be disturbed for the short term. Pygmy rabbit habitat on BLM land in the Project Area is not mapped. Some habitat losses may be long-term because tall sagebrush areas are less likely to regenerate within 10 years than less mature sagebrush. Impacts could be moderate due to the large amount of short-term disturbance but would be minor to moderate depending on the suitability of the habitat disturbed.
- **Indicator (2): Fragmentation.** The transmission line would fragment pygmy rabbit habitat if the line passed through a patch of suitable sagebrush for the species. The habitat patch near the proposed East Valley Substation (part of Alternative A) could be impacted by fragmentation during and after the substation is installed. Impacts to pygmy rabbits from fragmentation would be long-term and moderate because pygmy rabbit populations are

generally vulnerable to isolation and local extinction due to their short dispersal distances and slow pace of re-colonization in new habitats (ONE 2008a); thus populations could be disturbed.

- **Indicator (3): Noise.** Pygmy rabbits in the vicinity of the proposed transmission line would be disturbed by construction noise. Noise in the vicinity of burrows could interfere with rabbits' ability to detect predators. Noise would have population-level impacts if activities took place in a high-density area and many pygmy rabbits were exposed to a predator; thus impacts from noise, although short-term, could be moderate.
- **Indicator (4): Invasive plants in TES habitats.** Construction vehicles may transport invasive plant seeds to the disturbance areas and lead to increases in these undesirable species. As part of Alternative A, Resource Protection Measures (those pertinent to wildlife described in **Appendix A**) require that pre-construction weed inventories and treatments (if necessary) be performed prior to construction, and that vehicles be power-washed off-site before entering the disturbance areas. Invasive plants present on site or along access routes to the alignments that are not treated beforehand may be spread by construction vehicles. Seeds from other locations outside the disturbance areas could also spread along the alignments if Resource Protection Measures (e.g., vehicle washing) are not completely effective. Along the Proposed Action route, infestations of thistle, hoary cress, and cheatgrass occur in suitable pygmy rabbit habitat. Invasive plants, particularly cheatgrass, would decrease the amount of functional habitat for pygmy rabbit, because brome grasses are not as nutritious a forage plant (it is only palatable for a short time while green) and cannot provide shelter or cover for pygmy rabbits. Cheatgrasses could replace sagebrush because the presence of a dense, dry layer of cheatgrass in the understory of sage habitat increases the risk of fire in these habitats that can lead to a rapid replacement of sagebrush with cheatgrass after fire (ONE 2008b). Impacts from the spread of invasive species, particularly cheatgrass, in native pygmy rabbit habitat would be long-term and moderate due to the relatively small amount of sagebrush habitat currently free of invasive species. Monitoring and treatment of invasive species during operation and maintenance, bi-annual surveys by Garkane for invasive species for 10 years after construction, and weed control where necessary (see Appendix A to the Special Status Species Specialist Report in the project record) would minimize the likelihood of invasive species spreading further into pygmy rabbit habitat.

Sensitive Bats. No known maternity roosts, caves, or other possible reproductive sites would be disturbed by Alternative A.

- **Indicator (1): Acres of habitat disturbed.** No USFS-mapped suitable bat habitat (on DNF only) would be disturbed by Alternative A. Across the entire Project Area (USFS, BLM, State, etc.), less than one (0.85) acre of cliff/canyon habitat would be lost for the long term (8 percent of cliff/canyon in the Project Area), and 5 acres of cliff/canyon habitat would be occupied for the short term during construction (36 percent of cliff/canyon habitat in the Project Area). Impacts from construction-related habitat losses on rocky areas would be short-term because cliff areas could be used immediately after construction was completed. Other suitable bat habitats such as grasslands and shrub habitats (used for foraging) that are disturbed may regenerate over the short-term after reclamation. Other habitats that bats may use for foraging (shrublands, forest, riparian) would be disturbed for the long term. Impacts to sensitive bats from habitat loss would be moderate due to the large amount of short-term disturbance.
- **Indicator (3): Noise.** Sensitive bats that are roosting in the vicinity of the proposed transmission line would be disturbed by construction noise. Foraging bats would be less likely to be disturbed by such activities because their activity levels would not coincide with

construction (daylight) hours. Foraging bats would not be measurably affected by small displacements caused by noise due to the wide variety of habitats suitable for foraging; impacts to foraging bats would be negligible. Impacts to roosting bats from construction and other heavy machinery noise would be short-term and minor to moderate, depending on the species and the number of roosting bats that were displaced (e.g., some bat species roost communally).

Greater Sage-Grouse. Alternative A would pass through or close to important areas used by sage grouse for breeding and brood rearing in Johns Valley. Impacts to greater sage grouse may include increased predation by raptors perched on power poles. Perch deterrents would be installed in sage grouse habitats, if deemed necessary by the agencies. Raptor predation is currently impacting populations and this predation rate is likely to increase despite the implementation of perch deterrents. Predation impacts under Alternative A would be long-term and major because a decline in the local population is likely if the line was installed in this area of Johns Valley and increased the predation rate further.

- **Indicator (1): Acres of habitat disturbed.** Thirty acres of sagebrush would be disturbed for the long term (13 percent of sagebrush in the Project Area), and 108 acres of sagebrush (47 percent of sagebrush in the Project Area) would be occupied for the short term during construction. There are 21 acres of brood-rearing habitat for greater sage grouse that would be disturbed for the long term and 47 acres that would be disturbed during construction. Regarding use areas, 11 acres would be disturbed for the long term and 26 acres would be disturbed during construction. The Project Area for Alternative A contains 223 acres of brood-rearing habitat and 127 acres of use areas. All habitat losses, including losses of brood-rearing habitat and use areas, would be long-term because sagebrush vegetation may not regenerate within 10 years if disturbed. Impacts would be moderate under Alternative A due to the amount of disturbance to greater sage grouse habitats during construction.
- **Indicator (2): Fragmentation.** The transmission line would fragment greater sage-grouse habitat if sage-grouse utilized the disturbed area less frequently than surrounding areas or avoided it altogether. The degree to which sage-grouse may avoid a transmission line is not known, but in general non-continuous habitat deters dispersal and normal migration patterns (Connelly et al. 2004). Many sage-grouse populations are migratory and populations that are non-migratory utilize large home ranges (Connelly et al. 2000); thus linear disturbances that isolate portions of habitat would disrupt seasonal movements or could prevent sage-grouse from using all parts of their habitat if transmission lines were avoided. Sage-grouse may be prevented from returning to a breeding or nesting area, for instance, as they tend to exhibit site fidelity. Impacts from fragmentation would be long-term and would most likely be minor if only a few individuals were restricted in their movements by the line. Alternative A passes through use areas for greater sage-grouse that include leks; thus impacts would be major if most greater sage-grouse individuals avoid the line and are restricted in their movements.
- **Indicator (3): Noise.** Greater sage-grouse in the vicinity of the proposed transmission line would be disturbed by construction noise and by possible emergency maintenance activities that required heavy machinery (e.g., line replacement) and occurred during breeding or brood-rearing periods (emergency maintenance activities, due to human safety concerns, cannot be scheduled around breeding periods). In general, sage-grouse would be displaced by such activities but would probably return to the area after the disturbance, unless birds in the vicinity were nesting, in which case nesting activities could be disrupted and adverse reproductive effects could occur. Impacts from a disruption in nesting activities would be short-term and moderate because the reproductive rate of a population could be affected if many nests were impacted by noise. Alternative A would pass through or near important habitat areas for this species and thus would be in proximity to individuals. Noise impacts

would be avoided by implementation of seasonal buffers during the nesting season wherever sage-grouse are nesting. Buffers and locations would be determined in the Biological Evaluation and in consultation with the DNF but would likely occur between May 1 and July 15 (see committed mitigation measures outlined in **Appendix A**). With such restrictions, the impacts on nesting greater sage-grouse would be negligible or minor.

- **Indicator (4): Invasive plants in TES habitats.** Construction vehicles may transport invasive plant seeds to the disturbance areas and lead to increases in these undesirable species. As part of Alternative A, Resource Protection Measures (**Appendix A**) require that pre-construction weed inventories and treatments (if necessary) be performed prior to construction, and that vehicles be power-washed off-site before entering the disturbance areas. Invasive plants present on site or along access routes to the alignments that are not treated beforehand may be spread by construction vehicles. Seeds from other locations outside the disturbance areas could also spread along the alignments if Resource Protection Measures (e.g., vehicle washing) are not completely effective. Along the Proposed Action route, infestations of thistle and cheatgrass occur in greater sage-grouse habitat and could further diminish the value of the sagebrush habitat for sage-grouse if invasive species were to spread further. Invasive species do not provide the same level of nutritious forage as sagebrush plants, and invasive grasses facilitate fire, after which sagebrush plants that rely on seed to reestablish are out-competed by the abundance of brome grass seeds in the soil. Impacts of invasive species invading greater sage-grouse habitat would be long-term and moderate because essential qualities of the habitat would be lost, making the infested sagebrush less suitable for greater sage-grouse. Monitoring and treatment of invasive species during operation and maintenance, bi-annual surveys by Garkane for invasive species for 10 years after construction, and weed control where necessary (**Appendix A**) would minimize the likelihood of invasive species spreading further into greater sage grouse habitat.
- **Indicator (5): Proximity to reproductive sites.** Alternative A would pass to within 0.5 mile of an established lek (the John L. Swale lek; Transcon 2008b) and to within 0.25 mile of another lek (Lek 2; Transcon 2008b) in the Coyote Hollow area. Proximity to the John L. Swale lek would diminish lek attendance unless construction took place outside of the breeding period (part of March and April; see **Appendix A**). Installation of raptor perch deterrents would be expected to reduce but not altogether eliminate perching and predation associated with the transmission line; even with perch deterrents raptor predation may still increase in sage-grouse habitats crossed by the transmission line. Proximity to Lek 2 (and the John L. Swale lek) may increase the predation of non-raptor species by providing additional access for ground predators (coyotes and a killed grouse were observed during surveys of Lek 2). Ground predation would increase at both leks under Alternative A. Impacts from decreased lek attendance at Lek 2 and the John L. Swale lek would be major and long-term, due to the chance for predation and other (human) access to increase via two-track access routes along the centerline in addition to raptor predation with or without the installation of perch deterrents.

All Sensitive Raptors.

- **Indicators (3) and (5): Noise and proximity to reproductive sites.** The Utah Raptor Guide (Romin and Muck 2002) provides recommended spatial and seasonal buffer distances for raptor species in Utah, within which impacts to species' reproduction (nesting) is possible. Dates and spatial buffers are listed in **Table 1.3-8**.

Table 1.3-8. Nesting Periods and Recommended Buffers for Sensitive Raptors in the Proposed Disturbance Areas

SPECIES	SPATIAL BUFFER (MILE)	NESTING PERIOD	KNOWN NESTS WITHIN 0.5-MILE OF PROPOSED TRANSMISSION LINES?
Northern goshawk	0.50	03/01 – 08/15	Yes
Burrowing owl	0.25	03/01 – 08/31	No, but expected
Peregrine falcon	1.00	02/01 – 08/31	Potential
Ferruginous hawk	0.50	03/01 – 08/01	No, but expected
Bald eagle	1.00	01/01 – 08/31	No
Flammulated owl	0.25	04/01 – 09/30	No, but expected

Within the nesting period for each raptor species, noise disturbances that occur within the spatial buffer listed in **Table 1.3-8** could impact the nesting raptor. Recommended buffers are considered the optimal stipulation to protect nesting and roosting activities under a wide range of conditions. Therefore, in the case of the transmission line under Alternative A, the relatively short duration of proposed activities (use of heavy machinery and human disturbance for a few days for initial construction), and the position of any topographic or vegetative features that may shield the disturbance from possible nesting raptors would be considered before implementing the recommended buffers. Surveys for nesting raptors would be conducted in the disturbance areas and spatial buffer (**Table 1.3-8**) prior to construction and species-specific buffers would be implemented if nests are found. All local factors (e.g., topography) would be taken into consideration before a buffer was implemented and would ultimately be decided by the appropriate agency. Impacts with regard to noise and proximity to raptor nests would be negligible to minor and short-term, depending on the location, because surveys would be conducted and avoidance measures followed if nests were found.

Impacts specific to sensitive raptor species (e.g., habitat losses – *Indicator (1)*) are described below.

Northern Goshawk. Along the Proposed Action route, a goshawk response was heard in Cedar Fork Canyon (Transcon 2008c); thus the alignment could pass within 0.5 mile of a goshawk nest in this area. Surveys prior to construction would verify the presence of goshawks or a nest within 0.5 mile at any point along Alternative A within suitable habitat. Construction would be modified or discontinued within the nesting period (1 March – 15 August; **Table 1.3-8**) in this area. The Post-Fledging Area near Wilson’s Peak would not be disturbed by Alternative A.

- **Indicator (1): Acres of habitat disturbed.** Nine acres of goshawk habitats (mixed conifer and ponderosa pine) would be disturbed for the long term (10 percent of goshawk habitat in the Project Area), and 36 acres of goshawk habitat (40 percent of goshawk habitat in the Project Area) would be occupied for the short term construction. All habitat losses would be long-term because forested areas would not regenerate within 10 years. Impacts would be moderate due to the large amount of construction-related habitat disturbances. Some edge habitat would be created by the linear disturbance, and foraging habitat for goshawk would be improved. Beneficial impacts of increased edge habitat would be long-term and minor.

Burrowing Owl.

- **Indicator (1): Acres of habitat disturbed.** Thirty-four acres of suitable habitats (grassland, sagebrush, and scrub/shrub habitats) would be lost for the long term (13 percent of suitable habitat in the Project Area) including 30 acres of sagebrush. Including grassland, sagebrush,

and other shrub habitats, 119 acres of suitable habitat (46 percent of these habitats in the Project Area) would be occupied for the short term during construction. One acre of grassland habitat would be disturbed for the short term. Habitat losses in grassland and shrub or scrub areas that could regenerate within 10 years after reclamation would be short-term. Impacts within sagebrush may be long-term due to longer recovery times. Habitat impacts would be moderate due to the large amount of short-term habitat disturbance.

Peregrine Falcon.

- **Indicator (1): Acres of habitat disturbed.** Less than 1 (0.85) acre of cliff/canyon habitat would be lost for the long term (6 percent of cliff/canyon in the Project Area), and 5 acres of cliff/canyon habitat would be occupied for the short term during construction (36 percent of cliff/canyon habitat in the Project Area). Cliffs would be available immediately after construction. Impacts to peregrine falcon from habitat losses would be negligible because short-term disturbance of cliff/canyon habitat would not affect this species.

Ferruginous Hawk.

- **Indicator (1): Acres of habitat disturbed.** Forty acres of ferruginous hawk habitats (pinyon-juniper, grassland, sagebrush, and other shrub/scrub) would be disturbed for the long term (13 percent of these habitats in the Project Area), and 145 acres of ferruginous hawk habitat (46 percent of these habitats in the Project Area) would be occupied for the short term during construction. Habitat losses would be minor and long-term because pinyon-juniper and some shrubland areas would not regenerate within 10 years. Short-term habitat disturbance impacts would be moderate due to the large area of habitat disturbed.

Bald Eagle.

- **Indicator (1): Acres of habitat disturbed.** Less than 1 (0.1) acre of riparian or wetlands would be disturbed for the long term by Alternative A (14 percent of the Project Area). Only 0.23 acre of riparian/wetland (32 percent of the Project Area) would be occupied for the short term. No open water habitats would be disturbed, but tall trees in the vicinity of open water and near the line (between 0 and 300 feet, depending on tree height) may be removed if the tree occurs within the Hazard Tree Zone. Losses of roost trees would be long-term because the trees would be permanently removed. Impacts to bald eagle from roost tree removal would be minor as other suitable root trees are available, or major if it is a communal roost. No communal roosts are known along Alternative A project Area. Impacts from the loss of riparian/wetland habitats would be negligible to minor. Some edge habitat would be created by the linear disturbance, and foraging habitat for bald eagle would be improved. Beneficial impacts of increased edge habitat would be long-term and minor.

Flammulated Owl.

- **Indicator (1): Acres of habitat disturbed.** Nine acres of flammulated owl habitats (mixed conifer and ponderosa pine) would be lost for the long term (10 percent of the Project Area), and 36 acres of flammulated owl habitat (40 percent of these habitats in the Project Area) would be occupied for the short term during construction. According to DNF data, 3 acres of suitable flammulated owl habitat would be disturbed for the long term and 2 acres would be occupied during construction for the short term (6 percent of the USFS-mapped habitat in the Project Area). All habitat losses would be long-term because forested areas would not regenerate within 10 years if disturbed. Impacts would be minor to moderate depending on the suitability of the habitat disturbed. Some edge habitat would be created by the linear disturbance, and foraging habitat for flammulated owl would be improved. Beneficial impacts of increased edge habitat would be long-term and minor.

Three-Toed Woodpecker.

- **Indicator (1): Acres of habitat disturbed.** Less than 1 (0.1) acre of three-toed woodpecker habitat (spruce-fir) would be lost for the long term, and no spruce-fir habitat would be occupied for the short term under Alternative A. Eighty snags (standing dead trees) were encountered along the Project Area and several may have been spruce or fir trees. Impacts to three-toed woodpecker from losses of snags within the Project Area would be negligible to minor and long term, depending on the number of spruce-fir snags that fall within the Hazard Tree Zone and need to be removed.
- **Indicator (3): Noise.** Construction noise may interrupt communications between three-toed woodpeckers (Lohr 2008) if construction took place near snags, but probably would not affect nesting or breeding behavior or cause three-toed woodpeckers to be displaced. The impacts of noise on woodpeckers are not known but woodpeckers have sensitivity to noise similar to that of other small migratory birds (Lohr et al. 2000). If three-toed woodpeckers are detected during pre-construction surveys, a general nesting period restriction (dates between May and July) may be imposed on construction activities. Impacts to three-toed woodpecker are not expected because suitable habitat is scarce along the alignments; however, Alternative A passes near spruce-fir near Wilson Peak that is the largest patch of this habitat across the alternatives. Impacts are likely to be negligible but could be short-term and minor if three-toed woodpeckers are present in this area.

Lewis's Woodpecker.

- **Indicator (1): Acres of habitat disturbed.** Nine acres of ponderosa pine would be lost for the long term (10 percent of ponderosa pine in the Project Area), and 36 acres of ponderosa pine (40 percent of ponderosa pine in the Project Area) would be occupied for the short term during construction. Eighty snags (standing dead trees) were encountered along the Proposed Action route within the Project Area and it is likely that many were ponderosa pine trees. Any ponderosa pine snags within the Hazard Tree Zone would be removed and would reduce the available habitat for Lewis's woodpecker. Habitat losses would be long-term because forested areas would not regenerate within 10 years if disturbed. Impacts would be moderate due to the large amount of short-term habitat disturbance.
- **Indicator (3): Noise.** As for three-toed woodpecker, construction noise may interrupt communications between Lewis's woodpecker individuals, if construction took place near snags. Lewis's woodpeckers would probably not be displaced by construction noise; impacts would be short-term and minor. As for three-toed woodpecker, if woodpeckers are detected during pre-construction surveys for migratory birds, a general nesting period restriction may be imposed during dates in May, June, or July at the discretion of the appropriate agency. Impacts to the species would then likely be negligible. Ponderosa pine habitats are abundant across the Proposed Action route; thus the presence of the species is possible. If individuals are present but not found during surveys, noise impacts would be minor and short-term.

Sensitive plants. Sensitive plants could be disturbed by construction activities because although lines may be sited to avoid sensitive plant populations, most populations of sensitive plants on Claron Limestone are relatively dense and locally abundant; thus avoiding all individuals would be impossible in some areas. Along the Proposed Action route, sensitive plants occur in the areas north of the Pine Hills and in the Coyote Hollow area (Segment A-1), east of the East Fork Sevier River. Impacts from direct losses of individual plants would be long-term and minor because sensitive plants would not be affected at the population level, and thus the persistence of sensitive plant species would not be threatened by Proposed Action disturbances.

- **Indicator (1): Acres of habitat disturbed.** Five acres of USFS-mapped sensitive plant habitat would be lost for the long term (8 percent of habitat in the Project Area), and 14 acres

- Indicator (4): Invasive plants in TES habitats.** Construction vehicles may transport invasive plant seeds to the disturbance areas and lead to increases in these undesirable species. As part of Alternative A, Resource Protection Measures (**Appendix A**) require that pre-construction weed inventories and treatments (if necessary) be performed prior to construction, and that vehicles be power-washed off-site before entering the disturbance areas. Invasive plants present on site or along access routes to the alignments that are not treated beforehand may be spread by construction vehicles. Seeds from other locations outside the disturbance areas could also spread along the alignments if Resource Protection Measures (e.g., vehicle washing) are not completely effective. Along the Proposed Action route, infestations of thistle and cheatgrass occur in sensitive plant habitat. If invasive species were to spread further, their presence would diminish the likelihood that sensitive plants would establish, and that established populations of sensitive plants would expand into those areas. Invasive species take up space, water, and nutrients from sensitive plants species and generally out-compete them. Impacts of invasive species invading sensitive plant habitat would be long-term and moderate because essential qualities of suitable sensitive plant habitat would be lost if invasive species were present. Monitoring and treatment of invasive species during operation and maintenance, bi-annual surveys by Garkane for invasive species for 10 years after construction, and weed control where necessary (**Appendix A**) would minimize the likelihood of invasive species spreading further into sensitive plant habitat.

Removal of 69 kV Transmission Line

Transmission line removal would have short-term impacts from noise and human presence similar to construction activities. There would be no new permanent disturbance to habitat from removal of the 69kV transmission line.

Short-term disturbance from removal of the 69kV line would total 447.19 acres, including 26 acres of sagebrush, 14 acres of ponderosa pine, and 5 acres of pinyon-juniper woodland (**Table 1.3-9**). In addition, 14 acres of Utah prairie dog colony areas, 38 acres of greater sage-grouse brooding habitat, 10 acres of greater sage-grouse use area, and 3 acres of sensitive plant habitat would be disturbed for the short term by the 69kV line removal (**Table 1.3-9**).

Table 1.3-9. Short-Term Disturbances in Special Status Species' Habitats from Removal of the 69kV line

SPECIES	HABITAT	69KV REMOVAL – SHORT-TERM DISTURBANCE ACRES
Common Habitats		
Utah prairie dog,* Burrowing owl, Pygmy rabbit, Greater sage grouse,* Ferruginous hawk	Sagebrush	26.30
Northern goshawk, Flammulated owl, Lewis's woodpecker	Ponderosa pine	13.57

SPECIES	HABITAT	69kV REMOVAL – SHORT-TERM DISTURBANCE ACRES
Ferruginous hawk	Pinyon-juniper	4.69
Peregrine falcon, Sensitive bats	Cliff/canyon	0.70
Unique Habitats		
Mexican spotted owl	USFWS Critical Habitat	0.00
Utah prairie dog	Existing colonies	14.30
Greater sage grouse	Brooding habitat	37.80
	use areas	9.50
Sensitive plants	Mapped occurrences and suitable habitat (DNF only)	3.20

*Note that a general habitat discussion alone is not representative of overall impacts to Utah prairie dog and greater sage grouse among alternatives. Each of these species has occupied and specifically mapped habitat along the alignments, and disturbance within these specific habitats are more indicative of how each alternative would impact these species.

Adverse impacts from invasive species establishing along the 69kV Project Area as a result of line removal would be as described under Alternative A in the Wildlife Specialist Report. Adverse impacts from noise during removal of the 69kV line would also be as described under Alternative A.

After the transmission line is removed, beneficial impacts in TES species would be minor and long-term as habitat is restored and the previously disturbed Project Area becomes less distinguishable from the surrounding vegetation. Utah prairie dog habitat would be suitable within 1-3 years after removal is complete. Sagebrush habitat would be suitable for greater sage-grouse over the long term, although some sagebrush plants may regenerate within a few years (short-term). Raptor predation on Utah prairie dog and greater sage-grouse facilitated by the 69kV line would be eliminated after the line was removed; this would be a long-term and minor beneficial impact to greater sage-grouse and Utah prairie dog as well as other small mammals such as pygmy rabbit. Beneficial impacts to other TES species would be negligible.

Alternative B: Parallel Existing 69 kV Route

The two substation location options of Alternative B, “B-1” and “B-2,” are equivalent in terms of impacts to special status species and so are discussed as Alternative B (one alternative).

Construction

Utah Prairie Dog (T). Three acres of Utah prairie dog colony areas would be lost for the long term under Alternative B (7 percent of colony areas in the Project Area), and 14 acres (32 percent of colony areas in the Project Area) would be occupied for the short term. Alternative B would not pass through Johns Valley, but would pass through colonies in Hatch Valley and cross straight through Johnson Bench, thus bisecting an important habitat area for Utah prairie dog where populations are concentrated. Impacts to prairie dogs would include increased raptor predation as described under Alternative A.

- **Indicator (1): Acres of habitat disturbed.** Thirty acres of suitable habitat (grassland, sagebrush, and shrub/scrub) would be lost for the long term (13 percent of suitable habitats in the Project Area), and 96 acres of suitable habitat (42 percent of these habitats in the Project

Area) would be occupied for the short term during construction. Impacts would be as described under Alternative A.

- **Indicator (2): Fragmentation.** Fragmentation impacts would include those described under Alternative A because Utah prairie dog habitat is common along both alignments. Fragmentation impacts would be more adverse under Alternative B because this alternative bisects an area where Utah prairie dogs are concentrated, across Johnson Bench; thus impacts under Alternative B would be minor to moderate, depending on the location and number of prairie dogs present in the affected habitat.
- **Indicator (3): Noise.** Noise impacts would include those described under Alternative A because Utah prairie dog habitat is common along all alignments and prairie dogs may occur in any area within suitable habitat on the Plateau and be disturbed by noise. Regarding the prairie dogs that were found along Alternative B, these individuals may be disturbed during construction because human disturbance and equipment noise would occur in proximity to colonies. However, prairie dogs would not be displaced from the area because such noises would not last for longer than a few days. Impacts would be minor unless mortalities occurred from early hibernation, as described under Alternative A.
- **Indicator (4): Invasive plants in TES habitats.** General impacts to Utah prairie dog habitat from invasive plants would be as described under Alternative A. Under Alternative B, thistle infestations that are concentrated in the Hatch Valley area would be most likely to spread further in these areas if facilitated by construction vehicles and access routes along the centerline. The likelihood of cheatgrass invasions would be similar to Alternative A and the likelihood of salt cedar (*Tamarisk* spp.) and hoary cress infestations may be less severe because these species are concentrated in the GSENM and Cedar Fork Canyon, which Alternative B avoids. Overall impacts with regard to invasive plants in prairie dog habitat under Alternative B would be minor to moderate, depending on the location and severity of existing infestations along the alignment.

Mexican Spotted Owl (T).

- **Indicator (1): Acres of habitat disturbed.** No Critical Habitat would be disturbed under Alternative B, so no adverse impacts from Critical Habitat losses are anticipated. Impacts would be negligible.
- **Indicator (3): Noise – if present.** Noise impacts would be as described under Alternative A because the likelihood of Mexican spotted owls being present is the same for all alternatives.

Pygmy Rabbit (S). As under Alternative A, impacts to pygmy rabbits in some areas may include destruction of shallow burrows that are not detected prior to construction.

- **Indicator (1): Acres of habitat disturbed.** Thirty acres of suitable habitats (sage and other shrub/scrub) would be lost for the long term (13 percent of suitable habitats in the Project Area), and 96 acres of suitable habitat (43 percent of these habitats in the Project Area) would be occupied for the short term during construction. Less than 1 acre of DNF-mapped pygmy rabbit habitat would be disturbed for the long term, and less than 1 acre would be disturbed for the short term. Impacts would be long-term and minor to moderate as described under Alternative A. Habitat specific to pygmy rabbit on BLM land is not mapped; all generally suitable habitats (including those on BLM) are included in the 30 acres of sagebrush/scrub disturbed.
- **Indicator (2): Fragmentation.** The transmission line under Alternative B would fragment pygmy rabbit habitat if it passed through suitable sagebrush, and impacts would be as described under Alternative A. There may be less likelihood of fragmentation under

Alternative B because known occupied habitat would not be crossed. However, a similar amount of suitable habitat would be crossed under all alternatives and this habitat may be occupied. Regardless, suitable habitat may be fragmented by the transmission line and may lessen the suitability of the habitat (i.e., reduce the patch size) and pygmy rabbits may be prevented from colonizing the habitat in the future. Impacts under Alternative B would be long-term and minor to moderate, depending on whether suitable habitat along the line is occupied (to be determined by pre-construction surveys).

- **Indicator (3): Noise.** General impacts to pygmy rabbits from noise would be as described under Alternative A. Because no habitat is known to be occupied along Alternative B, however, short-term impacts would be moderate only if pygmy rabbits or sign is found near the line (to be determined by pre-construction surveys).
- **Indicator (4): Invasive plants in TES habitats.** Impacts with regard to cheatgrass infestations in pygmy rabbit habitats would be as described under Alternative A because cheatgrass was widespread along all alignments and thus the probability of further infestations would be similar across alternatives. Cheatgrass infestations are the most likely to adversely affect pygmy rabbit habitat. No pygmy rabbit habitat occurs in areas where thistle infestations were found along Alternative B (Sevier River area in Hatch Valley).

Sensitive Bats. No known maternity roosts, caves, or other possible reproductive sites would be disturbed by Alternative B. However, sensitive bats are likely to occur in BRCA.

- **Indicator (1): Acres of habitat disturbed.** Within the Project Area, there are no USFS-mapped sensitive bat habitats on the DNF. Cliff/canyon habitats total 22 acres and are located mainly within Bryce Canyon and Red Canyon. No cliff/canyon habitat would be lost for the long term. Less than 1 acre of cliff/canyon habitat would be occupied for the short term during construction (3 percent of cliff/canyon in the Project Area). Impacts from these habitat losses would be minor. Less than one (0.16) acre of grassland (foraging) habitat would be disturbed for the short term under Alternative B. Other habitat impacts would be as described under Alternative A.
- **Indicator (3): Noise.** Noise impacts would be as described under Alternative A because the likelihood of sensitive bats being present is similar for all alternatives. Bats may occur in Bryce Canyon (Alternative B) and also in Cedar Fork Canyon (Alternative A and Alternative C).

Greater Sage-Grouse. Alternative B would pass through the Johnson Bench area and Hatch Valley, both of which contain important areas for greater sage grouse that are used for breeding and brood rearing. Impacts to greater sage grouse would include increased predation by raptors perched on new power poles, although perch deterrents would be installed (where necessary, as determined by the appropriate agency) and are expected to decrease the predation rate. In addition, the proposed route under Alternative B is surrounded by a larger number of natural perches (e.g., trees, cliffs); thus the predation rate increase caused by new power poles would not change the current rate.

- **Indicator (1): Acres of habitat disturbed.** Twenty-nine acres of sagebrush would be lost for the long term (13 percent of sagebrush in the right-of-way), and 94 acres of sagebrush (43 percent of sagebrush in the Project Area) would be occupied for the short term during construction. Twenty-one acres of brood-rearing habitat for greater sage grouse would be disturbed for the long term and 48 would be disturbed during construction. Regarding use areas, 11 acres would be disturbed for the long term and 15 acres would be temporarily disturbed during construction. The Project Area for Alternative B contains 223 acres of brood-rearing habitat and 122 acres of use area. Impacts from habitat losses would be long-term and moderate, as described under Alternative A.

- **Indicator (2): Fragmentation.** Fragmentation impacts would be long-term and major, as described under Alternative A, because greater sage-grouse habitat is common along both Alternative A and Alternative B, and sagebrush could be fragmented in the same manner by the transmission line under both alternatives.
- **Indicator (3): Noise.** Noise impacts would include those described under Alternative A because greater sage-grouse habitat is common in both Alternative A and Alternative B, and sage-grouse individuals present in proximity to disturbances would be disturbed by noise from construction and maintenance activities. Noise impacts would be reduced by restricting activities to outside the breeding and brood-rearing periods.
- **Indicator (4): Invasive plants in TES habitats.** General impacts with regard to invasive plants in greater sage-grouse habitats would be as described under Alternative A. The Alternative B route contains thistle infestations in Hatch Valley that could affect sage-grouse habitats if these weeds were spread further by construction or other vehicles associated with the project. Salt cedar and hoary cress infestations may not impact sage-grouse populations under Alternative B because these infestations are mainly on GSENM and in Cedar Fork Canyon (east portion of Segments A-1 and C-1) and would not be disturbed by Alternative B. Cheatgrass is widespread along the Alternative B route and impacts with regard to this species spreading further in sage-grouse habitat would be as described under Alternative A. Cheatgrass would have the most adverse impact on greater sage-grouse habitat; impacts under Alternative B would be long-term and moderate, as under Alternative A.
- **Indicator (5): Proximity to reproductive sites.** The Alternative B route would pass to within 1 mile of Lek 1 (Transcon 2008b) and to within 0.20 mile of Lek 2 (Transcon 2008b) in the Coyote Hollow area. Proximity to Lek 1 would probably not affect lek attendance if construction took place outside of the breeding period (part of March and April; see **Appendix A**). Proximity to Leks 1 and 2 may increase predation rates by providing additional access for ground predators, as described in Alternative A. Raptor predation would also be expected to increase at these leks even if perch deterrents were installed as the deterrents would not completely eliminate perching and predation. Impacts from the close proximity between activities and Lek 2 would be moderate and long-term, due to increased predation and noise; impacts on Lek 1 would be negligible due to the larger distance between activities and the lek.

All Sensitive Raptors. Impacts with regard to noise, *Indicator (3)*, and proximity to reproductive sites, *Indicator (5)*, would be as described under Alternative A for all raptors with the exception of burrowing owl. For burrowing owl, impacts would be less adverse under Alternative B because a high-density area in Johns Valley would be avoided under this alternative.

Northern Goshawk. No goshawk responses were heard along the Alternative B route during surveys (Transcon 2008c). A known goshawk territory occurs approximately 0.5 mile south (up canyon) of the Alternative B route in Red Canyon. Surveys prior to construction would verify the presence of goshawks or a nest within 0.5 mile at any point along the Alternative B route, and if detected, construction would be modified or discontinued during the nesting period (1 March – 15 August; **Table 1.3-12**) within a 0.5-mile radius of the nest. In general, goshawk habitat along the Alternative B line is considered marginally suitable, relative to habitat along Alternatives A and C.

- **Indicator (1): Acres of habitat disturbed.** Three acres of suitable habitat (mixed conifer and ponderosa pine) would be lost for the long term (5 percent of suitable habitat in the Project Area), and 23 acres of suitable habitat (39 percent of goshawk habitat in the Project Area) would be occupied for the short term during construction. In general, conifer habitat along the Alternative B alignment is less suitable for goshawk than that under Alternative A. For this

reason, impacts would be minor despite the relatively large amount of habitat within the Project Area that would be disturbed.

Burrowing Owl.

- **Indicator (1): Acres of habitat disturbed.** Thirty acres of suitable habitat (grassland, sagebrush, and shrub/scrub) would be lost for the long term (13 percent of suitable habitat in the Project Area), and 96 acres of suitable habitat (42 percent of these habitats in the Project Area) would be occupied for the short term during construction. Impacts from habitat loss would be moderate as described under Alternative A.

Peregrine Falcon.

- **Indicator (1): Acres of habitat disturbed.** Within the Project Area, cliff/canyon habitats are located mainly within Bryce Canyon and Red Canyon. No cliff/canyon habitat would be lost for the long term. Less than 1 acre of cliff/canyon habitat would be occupied for the short term during construction (3 percent of cliff/canyon in the Project Area). Impacts from habitat loss would be negligible as described under Alternative A.

Ferruginous Hawk.

- **Indicator (1): Acres of habitat disturbed.** Thirty-eight acres of suitable habitat (pinyon-juniper, grassland, sagebrush, and other shrub/scrub) would be lost for the long term (12 percent of habitats in the Project Area), and 126 acres of suitable habitat (41 percent of these habitats in the Project area) would be occupied for the short term during construction. Impacts would be moderate as described under Alternative A.

Bald Eagle.

- **Indicator (1): Acres of habitat disturbed.** No open water would be disturbed by Alternative B. Less than 1 acre (0.3) of wetland/riparian habitat would be lost for the long term (11 percent of riparian/wetland in the Project Area), and less than 1 acre (0.8) of wetland/riparian habitat would be occupied for the short term during construction (30 percent of the Project Area). Roost trees near water may be removed; impacts would be minor, but could be major if a communal roost is removed. A communal roost may occur near the area where Alternative B route crosses the Sevier River. Riparian/wetland habitat losses would be negligible.

Flammulated Owl.

- **Indicator (1): Acres of habitat disturbed.** Three acres of suitable habitat (mixed conifer and ponderosa pine) would be lost for the long term (5 percent of suitable habitat in the Project Area), and 25 acres of suitable habitat (39 percent of suitable habitat in the Project Area) would be occupied for the short term during construction. Less than 1 acre of DNF-mapped acres of suitable flammulated owl habitat would be disturbed for the long term and 2 acres would be temporarily disturbed. Impacts would be long-term and minor to moderate as described under Alternative A.

Three-Toed Woodpecker.

- **Indicator (1): Acres of habitat disturbed.** No spruce-fir habitat would be disturbed by Alternative B and habitat losses would be negligible. Twenty-four snags were encountered along the Alternative B route within the Project Area but it is unlikely that many were spruce or fir trees due to the lack of habitat along this route. Impacts from losses of snags as potential habitat would be negligible.
- **Indicator (3): Noise.** General noise impacts to three-toed woodpeckers would be as described under Alternative A. Noise impacts are less likely under Alternative B, however, because there is minimal spruce-fir habitat along the alignment and fewer snags were

encountered along the Project Area. It is unlikely that many snags were spruce-fir trees considering the lack of spruce-fir habitat in the Project Area for Alternative B. Noise impacts to three-toed woodpecker under Alternative B would be negligible.

Lewis's Woodpecker.

- **Indicator (1): Acres of habitat disturbed.** Three acres of ponderosa pine would be lost for the long term (5 percent of ponderosa pine in the Project Area), and 23 acres of suitable habitat (41 percent of ponderosa pine in the Project Area) would be occupied for the short term during construction. Twenty-four snags were encountered along the Alternative B route within the Project Area and it is likely that many were ponderosa pine trees. Impacts from losses of snags and other ponderosa pine habitats would be moderate as described under Alternative A.
- **Indicator (3): Noise.** General noise impacts to Lewis's woodpeckers would be as described under Alternative A. Ponderosa pine habitats are the least abundant along the Alternative B route so the species is least likely to occur here; however, occurrence is possible and pre-construction surveys would determine whether Lewis's woodpecker is present. Impacts would be short-term and minor if the species is present (and not found during surveys) and is affected by construction noise. If the species is detected, a general restriction during the nesting season for migratory birds (May, June, or July) may be imposed and impacts would be negligible during the restricted period.

Sensitive Plants. Sensitive plant individuals could be lost during construction in areas where sensitive plants are present, but populations and the persistence of species would not be adversely affected. Along the Alternative B route, sensitive plants occur in Bryce Canyon and in the Red Canyon area, which also have limited access restrictions (i.e., no access routes).

- **Indicator (1): Acres of habitat disturbed.** One acre of sensitive plant habitat on the DNF would be disturbed for the long term under Alternative B (2 percent of sensitive plant habitat in the Project Area). Three acres of sensitive plant habitat would be occupied for the short term during construction (5 percent of the Project Area). Although habitats in BRCA could also be disturbed under Alternative B and are not reflected in these disturbance calculations, *limited access areas* in BRCA for short-term disturbance would limit the number of sensitive plants that could be lost. Impacts to sensitive plants under Alternative B would be long-term and negligible to minor.
- **Indicator (4): Invasive plants in TES habitats.** General impacts with regard to invasive species invading sensitive plant habitats would be as described under Alternative A. However, fewer weed infestations are present along the Alternative B route in sensitive plant habitat (i.e., Red Canyon area and BRCA), relative to Alternative A; thus adverse impacts from weeds are less likely. Impacts would still be long-term and moderate if they occurred.

All Special Status Species.

- **Indicator (6): Compliance with NPS (2006) and park mitigation.** Alternative B would be compliant with the *NPS Management Guidelines* (2006) in traversing BRCA and would not lead to unacceptable or significant cumulative impacts within BRCA. The approval of a transmission line through BRCA is "discretionary and conditional upon a finding by NPS that the proposed use will not cause unacceptable impacts on park resources, values, or purposes (NPS 2006: 8.6.4.2).

In order to comply with mitigation measures for BRCA, pre-construction surveys for all (sensitive) raptors would occur prior to disturbance and species-specific buffers would be implemented if nests are found. In addition, perch deterrents would be installed on power poles.

National Park Service Statement of Impairment or Unacceptable Impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) a necessity to fulfill specific purposes identified in the park's establishing legislation, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of park resources or values related to Special Status Species. Implementation of this alternative would not result in any unacceptable impacts and is consistent with §1.4.7.1 of *NPS Management Policies* (2006).

Removal of 69 kV Transmission Line

Acreages of impacts associated with removal of the 69 kV transmission line under Alternative B are included with the acreages of construction impacts. Descriptions of impacts would be the same as those provided for Alternative A with additions for disturbances within BRCA and BLM lands east of BRCA.

In addition to the impacts described under Alternative A above, removal of the 69 kV transmission line within BRCA under Alternative B would impact sensitive plants, peregrine falcon, bald eagle, sensitive bats, and goshawk due to the presence of cliff habitat, ponderosa pine woodlands, and Claron Limestone Formation.

East of BRCA removal of the 69 kV transmission line would impact pygmy rabbit, burrowing owl, and Utah prairie dog due to disturbances to suitable sagebrush and desert scrub habitats.

Alternative C: Cedar Fork Southern Route

Construction

Utah Prairie Dog (T). One acre of Utah prairie dog colonies would be lost for the long term under Alternative C (5 percent of colony areas in the Project Area), and 13 acres (60 percent of colony areas in the Project Area) would be temporarily disturbed.

- **Indicator (1): Acres of habitat disturbed.** Thirty-three acres of suitable habitats would be lost for the long term (12 percent of suitable habitats in the Project Area), and 187 acres of suitable habitat (50 percent of these habitats in the Project Area) would be occupied for the short term during construction. Impacts would be moderate as described under Alternative A.
- **Indicator (2): Fragmentation.** Fragmentation impacts would be fewer than as described under Alternatives A and B because Alternative C would pass through several mapped concentrations of Utah prairie dog colonies. Fragmentation impacts minor to moderate, depending on the location and number of prairie dogs present in the affected habitat.
- **Indicator (3): Noise.** Noise impacts would be of the same nature as those described under Alternatives A and B. Impacts from noise under Alternative C would be minor if Utah prairie dogs were present and moderate if mortalities occurred from early hibernation.
- **Indicator (4): Invasive plants in TES wildlife habitats.** General impacts to prairie dog habitat from invasive plants would be as described under Alternative A. Under Alternative C, specific concerns with infestations in Cedar Fork Canyon and GSENM (east end of the alignments) would also be the same as Alternative A. Impacts with regard to invasive plants under Alternative C would be long-term and minor to moderate.

Mexican Spotted Owl (T).

- **Indicator (1): Acres of habitat disturbed.** Eight acres of Critical Habitat would be lost for the long term (10 percent of Critical Habitat in the Project Area), and 15 acres of Critical Habitat would be occupied for the short term during construction (18 percent of Critical

Habitat in the Project Area). Impacts would be minor to moderate as described under Alternative A.

- **Indicator (3): Noise.** Noise impacts would be as described under Alternatives A and B because the likelihood of Mexican spotted owls being present is the same for all alternatives.

Pygmy Rabbit (S). As under Alternatives A and B, impacts to pygmy rabbits in some areas may include destruction of shallow burrows that are not detected prior to construction.

- **Indicator (1): Acres of habitat disturbed.** Thirty-three acres of suitable habitats would be lost for the long term (12 percent of suitable habitats in the Project Area), and 135 acres of suitable habitat (50 percent of suitable habitat in the Project Area) would be occupied for the short term during construction. According to DNF data, 1 acre of suitable pygmy rabbit habitat would be disturbed for the long term and 2 acres would be temporarily disturbed. Impacts would be long-term and minor to moderate as described under Alternative A.
- **Indicator (2): Fragmentation.** Fragmentation impacts to pygmy rabbit would be as described under Alternative A.
- **Indicator (3): Noise.** Noise impacts would be as described under Alternative A.
- **Indicator (4): Invasive plants in TES habitats.** Impacts with regard to cheatgrass infestations in pygmy rabbit habitat would be as described under Alternative A. Cheatgrass infestations would be the most likely to adversely impact pygmy rabbit. No pygmy rabbit habitat occurs in areas where thistle infestations were found along the Alternative C route (Blue Fly Canyon).

Sensitive Bats. No known maternity roosts, caves, or other possible reproductive sites would be disturbed along the Alternative C route.

- **Indicator (1): Acres of habitat disturbed.** No USFS-mapped bat habitat would be disturbed by Alternative C. Less than 1 acre (0.8) of cliff/canyon habitat would be disturbed for the long term (6 percent of cliff/canyon in the Project Area), and 8 acres of cliff/canyon habitat would be occupied for the short term during construction (40 percent of the Project Area). No grassland (foraging) habitat would be temporarily disturbed under Alternative C. Impacts would be moderate as described under Alternative A.
- **Indicator (3): Noise.** Noise impacts would be as described under Alternative A.

Greater Sage-Grouse. Alternative C would not pass through or near the Johns Valley area where there are use areas and brood-rearing habitat for sage grouse, although it would pass through the Hatch Valley use area like Alternatives A and B. Alternative C would have the fewest impacts to use areas for sage grouse out of all the Action Alternatives. Predation impacts would be of the same nature as described under Alternative A but would be less likely to occur under Alternative C and would be less adverse because they would not occur near leks.

- **Indicator (1): Acres of habitat disturbed.** Thirty-one acres of sagebrush habitat would be lost for the long term (12 percent of sagebrush in the Project Area), and 127 acres of suitable habitat (50 percent of sagebrush in the Project Area) would be occupied for the short term during construction. There would be 24 acres of brood-rearing habitat for greater sage grouse disturbed for the long term and 127 acres disturbed temporarily during construction. Regarding use areas, 5 acres would be disturbed for the long term and 24 acres would be temporarily disturbed during construction. The Project Area for Alternative C contains 257 acres of brood-rearing habitat and 67 acres of use area, which is the smallest amount of use area present among all three Action Alternatives. Habitat impacts would be minor under Alternative C due to the reduced amount of lekking habitat disturbed. This is the most

important habitat for sage grouse because it includes known breeding areas, and thus would determine the magnitude of impacts for *Indicator (1)*.

- **Indicator (2): Fragmentation.** Fragmentation impacts would be fewer than under Alternative A because Alternative C would not pass through the same quality of habitat as the other alternatives. Impacts from fragmentation under Alternative C would be moderate.
- **Indicator (3): Noise.** Noise impacts would be fewer than under Alternative A because Alternative C would not pass through the same quality of habitat as the other alternatives and sage grouse are less likely to be present in the vicinity of noise related to the transmission line. Impacts from noise under Alternative C would be negligible.
- **Indicator (4): Invasive plants in TES habitats.** Impacts with regard to noxious weed or invasive plant infestations would be as described under Alternative A.
- **Indicator (5): Proximity to reproductive sites.** Alternative C would pass to within 0.45 mile of Lek 1, a lek which is believed to be a satellite that is not frequently used by greater sage-grouse (Transcon 2008b). The half-mile proximity to Lek 1 would probably not diminish lek attendance because construction would take place outside of the breeding period (part of March and April; see **Appendix A**). Predation may increase on the lek from this distance, despite perch deterrents being installed. Impacts to Lek 1 under Alternative C would be negligible to minor.

Northern Goshawk. Along the Alternative C route, a goshawk response was heard in Cedar Fork Canyon (same response as described under Alternative A) and at the top of Blue Fly Canyon (Transcon 2008c); thus the alignment could pass within 0.5 mile of a goshawk nest in these areas. Construction would be modified or discontinued (see Appendix A to the Special Status Species Specialist Report in the project record) within the nesting period (1 March – 15 August) in this area if goshawks are nesting. Surveys prior to construction would verify the presence of goshawks or a nest within 0.5 mile at any point along the Alternative C route within suitable habitat. The Post-Fledging Area near Wilson’s Peak would not be disturbed by Alternative C.

- **Indicator (1): Acres of habitat disturbed.** Ten acres of suitable habitat for goshawks would be lost for the long term (13 percent of goshawk habitats in the Project Area), and 53 acres of suitable habitat (51 percent of suitable habitat in the Project Area) would be occupied for the short term during construction. Impacts would be moderate as described under Alternative A.

Burrowing Owl.

- **Indicator (1): Acres of habitat disturbed.** Thirty-three acres of suitable habitats would be lost for the long term (12 percent of suitable habitats in the Project Area), and 135 acres of suitable habitat (50 percent of these habitats in the Project Area) would be occupied for the short term during construction. Due to the lower habitat quality for burrowing owl along the Alternative C route relative to the other alternatives, impacts would be minor despite the large amount of short-term disturbance in “suitable” habitat.

Peregrine Falcon.

- **Indicator (1): Acres of habitat disturbed.** Within the Project Area, cliff/canyon habitats are located within Cedar Fork Canyon and Blue Fly Canyon. Less than 1 acre (0.8) of cliff/canyon habitat would be disturbed for the long term (4 percent of cliff/canyon in the Project Area), and 8 acres of cliff/canyon habitat would be occupied for the short term during construction (40 percent of the Project Area). Despite the large amount of short-term habitat disturbance, impacts to peregrine falcon would be negligible as described under Alternative A.

Ferruginous Hawk.

- **Indicator (1): Acres of habitat disturbed.** Thirty-eight acres of suitable habitat would be lost for the long term (12 percent of suitable habitat in the Project Area), and 160 acres of suitable habitat (50 percent of suitable habitat within the Project Area) would be occupied for the short term during construction. Impacts would be moderate as described under Alternative A.

Bald Eagle.

- **Indicator (1): Acres of habitat disturbed.** Less than 1 acre of riparian/wetland would be lost for the long term (18 percent of riparian/wetland in the Project Area), and 2.6 acres of riparian/wetland would be occupied for the short term during construction (38 percent of riparian/wetland in the Project Area). No open water would be disturbed but roost trees near water may be removed if they fall within the Hazard Tree Zone or are within disturbance areas. Impacts to bald eagles from removal of roost trees would be minor or major (if communal roost) as described under Alternative A. Impacts from the loss of riparian/wetland habitat would be negligible to minor.

Flammulated owl.

- **Indicator (1): Acres of habitat disturbed.** Ten acres of suitable habitat would be lost for the long term (10 percent of suitable habitat in the Project Area), and 53 acres of suitable habitat (51 percent of suitable habitat in the Project Area) would be occupied in the short term during construction. According to DNF data, 3 acres of suitable flammulated owl habitat would be disturbed for the long term (10 percent of this habitat within the Project Area), and 11 acres would be temporarily disturbed (35 percent of the Project Area). Impacts to flammulated owl from habitat loss would be long-term and moderate.

Three-Toed Woodpecker.

- **Indicator (1): Acres of habitat disturbed.** The Project Area contains less than 1 acre of spruce-fir habitat. Less than one (0.08) acre would be lost for the long term and less than one (0.03) acre would be occupied for the short term. One hundred and forty-two snags were encountered along the Alternative C route within the Project Area and several may have been spruce or fir trees. Impacts to three-toed woodpecker from a possible loss of snag habitat would be negligible to minor, as described under Alternative A.
- **Indicator (3): Noise.** Construction noise under Alternative C would have impacts to three-toed woodpeckers similar to those described under Alternative A. However, Alternative C does not pass near the large concentration of spruce-fir habitat that Alternative A passes through (Wilson Peak area); thus the presence of three-toed woodpeckers is less likely along this alternative. Impacts to three-toed woodpecker would most likely be negligible under Alternative C, and pre-construction surveys would determine the presence of any woodpeckers in suitable habitat.

Lewis's Woodpecker.

- **Indicator (1): Acres of habitat disturbed.** Ten acres of ponderosa pine habitat would be lost for the long term (10 percent of ponderosa pine in the Project Area), and 53 acres of suitable habitat (51 percent of ponderosa pine in the Project Area) would be occupied for the short term during construction. There were 142 snags encountered along the Alternative C route within the Project Area and it is likely that many were ponderosa pine trees. Impacts from a loss of snags and other ponderosa pine habitat would be moderate as described under Alternative A.

- **Indicator (3): Noise.** Construction noise under Alternative C would have impacts to Lewis’s woodpeckers similar to those described under Alternative A. There is slightly more ponderosa pine habitat along this alignment than under any alternative. Pre-construction surveys would determine the presence of any woodpeckers in suitable habitat. If the species is found a general migratory bird restriction may be imposed (between May and July) and impacts to the species would likely be negligible. If individuals are present but not found during surveys, noise impacts would be short-term and minor.

Sensitive Plants. Sensitive plant individuals would be lost during construction in areas where sensitive plants are present, but populations and the persistence of species would not be adversely affected. Along the Alternative C route, sensitive plants occur in the Ahlstrom Hollow area (Segment C-2, along a tributary to East Fork Sevier River).

- **Indicator (1): Acres of habitat disturbed.** Four acres of suitable habitat would be lost for the long term (10 percent of suitable habitat in the Project Area), and 14 acres of suitable habitat (30 percent of these habitats in the Project Area) would be occupied for the short term during construction. Impacts would be minor as described under Alternative A.
- **Indicator (4): Invasive plants in TES habitats.** General impacts with regard to invasive species invading sensitive plant habitats would be as described under Alternative A. Fewer weed infestations are present along the Alternative C route in sensitive plant habitat, relative to Alternative A; thus adverse impacts from weeds are less likely. However, impacts would still be long-term and moderate if they occurred.

Removal of 69 kV Transmission Line

In general, impacts from removal of the existing 69 kV transmission line would be the same as those described for Alternative A.

Short-term disturbance from removal of the 69kV line under Alternative C would total 28.12 acres, including 18.5 acres of sagebrush, 5 acres of ponderosa pine, and 5 acres of pinyon/juniper woodland (Table 1.3-10). In addition, 14 acres of Utah prairie dog colony areas, 38 acres of greater sage-grouse brooding habitat, 10 acres of greater sage-grouse use area, and 3 acres of sensitive plant habitat would be disturbed for the short term by the 69kV line removal (Table 1.3-14).

Table 1.3-10. Short-Term Disturbances in Special Status Species’ Habitats from Removal of the 69kV Transmission Line

SPECIES	HABITAT	69KV REMOVAL – SHORT-TERM DISTURBANCE ACRES
Common Habitats		
Utah prairie dog,* Burrowing owl, Pygmy rabbit, Greater sage-grouse,* Ferruginous hawk	Sagebrush	18.49
Northern goshawk, Flammulated owl, Lewis’s woodpecker	Ponderosa pine	4.91
Ferruginous hawk	Pinyon/juniper	4.69
Peregrine falcon, Sensitive bats	Cliff/canyon	0.70

SPECIES	HABITAT	69kV REMOVAL – SHORT-TERM DISTURBANCE ACRES
Unique Habitats		
Mexican spotted owl	USFWS Critical Habitat	0.00
Utah prairie dog	Existing colonies	14.30
Greater sage grouse	Brooding habitat	37.80
	use area	9.50
Sensitive plants	Mapped occurrences and suitable habitat (DNF only)	3.20

*Note that a general habitat discussion alone is not representative of overall impacts to Utah prairie dog and greater sage grouse among alternatives. Each of these species has occupied and specifically mapped habitat along the alignments, and disturbance within these specific habitats are more indicative of how each alternative will impact these species.

As under Alternative A, beneficial impacts to TES species after removal of the line would be minor and long-term as habitat is restored and the previously disturbed Project Area becomes less distinguishable from the surrounding vegetation. Utah prairie dog habitat would be suitable within 1-3 years after removal is complete. Sagebrush habitat would be suitable for greater sage-grouse over the long term, although some sagebrush plants may regenerate within a few years (short-term). Raptor predation on Utah prairie dog and greater sage-grouse facilitated by the 69kV line would be eliminated after the line was removed; this would be a long-term and minor beneficial impact to greater sage-grouse and Utah prairie dog as well as other small mammals such as pygmy rabbit. Beneficial impacts to other TES species would be negligible.

Interconnect Options

Construction

Sagebrush habitats would make up the majority of the disturbance along both interconnects. The North-South Interconnect would disturb 1 acre of sagebrush for the long term and 7 acres of sagebrush for the short term. The East-West Interconnect would disturb 3 acres of sagebrush for the long term and 18 acres of sagebrush for the short term. Impacts to TES species that use sagebrush habitats, i.e., greater sage-grouse, burrowing owl, pygmy rabbit, sensitive raptors (foraging), and bats (foraging), would be long-term and minor or moderate, similar to those in Alternative A (**Table 1.3-9**).

Greater sage-grouse brooding habitat and sensitive plant habitat occur within the North-South and East-West interconnects and would be disturbed in similar proportion as the alternative routes; thus impacts to greater sage-grouse brooding and sensitive plants would be similar to those in Alternative A. The North-South and East-West interconnects do not contain Mexican spotted owl Critical Habitat, and are unlikely to contain Utah prairie dog colony areas, or greater sage-grouse use areas (**Table 1.3-7**). There would be no impacts to these habitats from the interconnect routes. There are also no cliff/canyon areas along the interconnect routes and thus direct impacts to peregrine falcon habitat would be negligible. In addition, there would be negligible impacts to bald eagles and three-toed woodpeckers due to a lack of suitable habitat along the interconnect options (**Table 1.3-9**).

Alternative D: No Action

Under the No Action Alternative, the current 69 kV transmission line would continue to operate and the new transmission line would not be constructed. The existing transmission line would be overhauled including the possible replacement of conductor wire and the majority of the poles.

Ground disturbance and resulting impacts to special status species and habitat would be similar to, but somewhat less than, those described above for construction under Alternative B. Future maintenance and line operations would be similar to current levels.

1.3.1.3. Summary

Among the Action Alternatives, impacts would be similar for most species and impact indicators with the exception of Utah prairie dog (Threatened) and greater sage-grouse (Sensitive). For Utah prairie dog and greater sage grouse, impacts under Alternative C would be substantially less adverse than under Alternatives A or B (see **Table 1.3-11**).

Although similar, impacts also differ slightly among alternatives for Mexican spotted owl, pygmy rabbit, burrowing owl, northern goshawk, sensitive bats, three-toed woodpecker, and sensitive plants.

Table 1.3-11. Summary of Special Status Species Impact Determinations

IMPACT INTENSITY DURATION AFFECTED SEGMENT								
RESOURCE	INDICATOR	ALT A	ALT B	ALT C	NORTH-SOUTH INTER-CONNECT	EAST-WEST INTER-CONNECT	69 kV LINE REMOVAL	ALT. D
Utah prairie dog	(1) <i>habitat</i>	Moderate ST-LT A-1, A-3	Moderate ST-LT	Moderate ST-LT C-1, C-3	Minor ST-LT	Minor ST-LT	Minor Beneficial ST	Negligible
	(2) <i>fragment</i>	Minor ST A-1, A-3	Minor ST	Minor ST C-1, C-3	Negligible	Negligible	Minor Beneficial ST	Negligible
	(3) <i>noise</i>	Min-Mod ST A-1, A-3	Min-Mod ST	Minor to Moderate ST C-1, C-3	Negligible	Negligible	Min-Mod ST	Negligible
	(4) <i>invasive</i>	Moderate LT A-1, A-3	Min-Mod LT	Minor-Moderate LT C-1, C-3	Moderate LT	Moderate LT	Min-Mod LT	Negligible
Mexican spotted owl	(1) <i>habitat</i>	Min-Mod LT A-1	Negligible	Min-Mod LT C-1	Negligible	Negligible	Minor Beneficial LT	Negligible
	(3) <i>noise</i>	Minor ST A-1	Minor ST	Minor ST C-1	Negligible	Negligible	Minor ST	Negligible
Pygmy rabbit	(1) <i>habitat</i>	Min-Mod ST-LT A-1, A-3	Min-Mod ST-LT	Min-Mod ST-LT C-1, C-3	Min-Mod ST-LT	Min-Mod ST-LT	Minor Beneficial LT	Negligible

IMPACT INTENSITY DURATION AFFECTED SEGMENT								
RESOURCE	INDICATOR	ALT A	ALT B	ALT C	NORTH-SOUTH INTER-CONNECT	EAST-WEST INTER-CONNECT	69 kV LINE REMOVAL	ALT. D
	(2) <i>fragment</i>	Moderate LT A-1, A-3	Min-Mod LT	Moderate LT C-1, C-3	Moderate LT	Moderate LT	Min-Mod Beneficial LT	Negligible
	(3) <i>noise</i>	Moderate ST A-1, A-3	Min-Mod ST	Moderate ST C-1, C-3	Moderate ST	Moderate ST	Min-Mod ST	Negligible
	(4) <i>invasive</i>	Moderate LT A-1, A-3	Moderate LT	Moderate LT C-1, C-3	Moderate LT	Moderate LT	Moderate LT	Negligible
Sensitive bats	(1) <i>habitat</i>	Moderate ST-LT A-1	Minor ST	Moderate ST-LT C-1	Minor ST	Minor ST	Negligible	Negligible
	(3) <i>noise</i>	Min-Mod ST A-1	Min-Mod ST	Min-Mod ST C-1	Min-Mod ST	Min-Mod ST	Negligible	Negligible
Greater sage-grouse	(1) <i>habitat</i>	Moderate ST-LT A-1, A-3	Moderate ST-LT	Minor ST-LT C-1, C-2, C-3	Minor ST-LT	Minor ST-LT	Minor Beneficial ST-LT	Negligible
	(2) <i>fragment</i>	Min-Maj ST-LT A-1, A-3	Min-Maj ST-LT	Min-Mod ST-LT C-1, C-2, C-3	Min-Mod ST-LT	Min-Mod ST-LT	Min-Maj Beneficial ST-LT	Negligible

IMPACT INTENSITY DURATION AFFECTED SEGMENT								
RESOURCE	INDICATOR	ALT A	ALT B	ALT C	NORTH-SOUTH INTER-CONNECT	EAST-WEST INTER-CONNECT	69 kV LINE REMOVAL	ALT. D
	(3) noise	Minor ST A-1, A-3	Minor ST	Negligible C-1, C-2, C-3	Minor ST	Minor ST	Minor ST	Negligible
	(4) invasive	Moderate LT A-1, A-3	Moderate LT	Moderate LT C-1, C-2, C-3	Moderate LT	Moderate LT	Moderate LT	Negligible
	(5) dist-leks	Major LT (John L. Swale, Lek 2) A-1	Negligible (Lek 1); Major LT (Lek 2)	Negligible (Lek 1) C-1	Negligible	Negligible	Major Beneficial LT	Negligible
Sensitive raptors - all	(3) noise and (5) dist-nests	Neg-Min ST A-1, A-2, A-3	Neg-Min ST	Neg-Min ST C-1, C-2, C-3	Neg-Min ST	Neg-Min ST	Minor Beneficial LT	Negligible
Northern goshawk	(1) habitat	Moderate LT A-1, A-2, A-3	Minor LT	Moderate LT C-1, C-2, C-3	Moderate LT	Moderate LT	Minor Beneficial LT	Negligible
Burrowing owl	(1) habitat	Moderate ST-LT A-1, A-3	Min-Mod ST-LT	Minor ST-LT C-1, C-3	Minor ST-LT	Minor ST-LT	Minor Beneficial ST	Negligible
Peregrine falcon	(1) habitat	Moderate ST	Moderate ST	Moderate ST	Negligible	Negligible	Minor Beneficial	Negligible

IMPACT INTENSITY DURATION AFFECTED SEGMENT								
RESOURCE	INDICATOR	ALT A	ALT B	ALT C	NORTH-SOUTH INTER-CONNECT	EAST-WEST INTER-CONNECT	69 kV LINE REMOVAL	ALT. D
		A-1, A-3		C-1, C-3			LT	
Ferruginous hawk	(1) <i>habitat</i>	Moderate ST-LT A-1, A-2, A-3	Moderate ST-LT	Moderate ST-LT C-1, C-2, C-3	Moderate ST-LT	Moderate ST-LT	Minor Beneficial ST	Negligible
Bald eagle	(1) <i>habitat</i>	Neg-Min LT A-3	Neg- Maj LT	Neg-Min LT C-3	Negligible	Negligible	Minor Beneficial LT	Negligible
Flammulated owl	(1) <i>habitat</i>	Moderate LT A-1, A-2, A-3	Moderate LT	Moderate LT C-1, C-2, C-3	Moderate LT	Moderate LT	Minor Beneficial LT	Negligible
Three-toed woodpecker	(1) <i>habitat</i>	Neg-Min LT A-3	Negligible	Neg-Min LT	Negligible	Negligible	Minor Beneficial LT	Negligible
	(3) <i>noise</i>	Neg-Min ST A-2, A-3	Negligible	Negligible C-3	Negligible	neg-minor ST	Negligible	Negligible
Lewis's woodpecker	(1) <i>habitat</i>	Moderate LT A-1, A-2, A-3	Moderate LT	Moderate LT C-1, C-2, C-3	Moderate LT	Moderate LT	Minor Beneficial LT	Negligible

IMPACT INTENSITY DURATION AFFECTED SEGMENT								
RESOURCE	INDICATOR	ALT A	ALT B	ALT C	NORTH-SOUTH INTER-CONNECT	EAST-WEST INTER-CONNECT	69 kV LINE REMOVAL	ALT. D
	<i>(3) noise</i>	Minor ST A-1, A-2, A-3	Minor ST	Minor ST C-1, C-2, C-3	Minor ST	Minor ST	Minor ST	Negligible
Sensitive Plants	<i>(1) habitat</i>	Minor LT A-1	Neg-Min LT	Minor LT C-2	Minor LT	Minor LT	Minor Beneficial LT	Negligible
	<i>(4) invasive</i>	Moderate LT A-1	Moderate LT	Moderate LT C-2	Moderate LT	Moderate LT	Moderate LT	Negligible
All Species	<i>(6) NPS plan, mitigation</i>	--	in compliance	--	--	--	--	Negligible

Note: Areas where impacts differ among the Action Alternatives are shaded gray.

1.3.2. Cumulative Effects

This section addresses potential cumulative effects that would result from the effects of the Proposed Action or Action Alternatives when combined with the effects of other past, present, and reasonably foreseeable future projects. Cumulative effects are incremental in nature. They can result from individually minor, but collectively significant, actions taken over a period of time.

1.3.2.1. Cumulative Effects Area

The cumulative effects area for the project for threatened, endangered and sensitive species is depicted in **Figure 1.3-1**.

1.3.2.2. Past, Present, and Reasonably Foreseeable Actions

National Forest lands and BLM lands administered by KFO are managed for multiple resource values and uses. In the cumulative effects area, past and present uses include timber and woodland product harvest; livestock grazing; and recreation uses including hunting, fishing, camping, picnicking, hiking, back country driving, and mountain biking. Lands are also available for mining, oil and gas development, and production of mineral materials (building stone and sand and gravel). Roads, transmission lines, pipelines, and communication sites are located on National Forest and other public lands. While these types of uses have resulted in an unknown amount of surface or subsurface disturbance and placement of human-made structures on the landscape, the National Forest and public lands still retain a largely undeveloped appearance. These lands are not characterized by urban or commercial development that is typical of cities and towns.

The GSENM is managed for a variety of resource values and uses, with a mandate from the Presidential Proclamation that established the Monument to protect myriad historic and scientific resources. To meet this objective, BLM manages the Monument to protect its primitive frontier state and safeguard its remote and undeveloped character. Further, BLM manages the Monument to provide opportunities for study of scientific and historic resources. Within this management focus, past and present uses of public lands in the Monument include livestock grazing, recreation, and realty actions. While the Monument is closed to mining and oil and gas development, roads, transmission lines, pipelines, and communication sites are located on these public lands. These uses have resulted in an undetermined amount of surface and subsurface disturbance and placement of human-made structures on the landscape, but public lands in the Monument still retain a largely undeveloped appearance.

BRCA, on the other hand, is managed with an emphasis on protection and enhancement of its unusual scenic beauty and its value for science and education, and for the benefit and enjoyment of the public. Even with this focus on protection and preservation, some past and present development has occurred in the Park for management of visitor use and the protection of Park resources. A paved access road runs the length of the Park, providing access to many sites and facilities, including administrative offices and buildings, Bryce Canyon Lodge, campgrounds, trails, interpretive sites, and others. Other infrastructure, including transmission lines, is also present. Garkane's existing 69 kV transmission line crosses the northern end of the park, as does SR 12. However, even with this development, the vast majority of the Park in the cumulative effects area is undeveloped, and presents a natural landscape.

State lands in the cumulative effects area are managed by SITLA to produce revenue for the State school system. State lands are managed for a variety of uses that produce revenue, and past and present uses include livestock grazing, recreation uses, roads, highways, utility lines, and other commercial uses. Lands are occasionally sold for private development. As with federal lands, these uses result in surface disturbances, but generally, State lands retain an undeveloped appearance. The current amount of surface and subsurface disturbance is unknown.

Figure 1.3-1. Cumulative Effects Area for Special Status Species

Private lands in the cumulative effects area are used and developed for a variety of purposes, including residential, commercial, and industrial development in and adjacent to cities and towns. Many acres of private land are in farmland production, including irrigated pastures, range pastures, and hay, grain, and alfalfa.

Reasonably foreseeable future actions within the cumulative effects area that are currently planned or under review include activities that fall into several broad categories:

- Energy and communications
- Transportation
- Vegetation and fire fuels management
- Habitat improvement
- Land use and management
- Recreation
- Mining
- Miscellaneous

Table 1.3-13 shows activities currently planned, under review, or in permitting in Garfield County that may be pertinent to cumulative effects for one or more resource areas. Projects within Garfield County but outside the cumulative effects area for all resources (except socioeconomics) are labeled “socio only.” The table is organized generally by project type (energy, transportation, forest fuels management, etc.), but many of the entries could easily fit into more than one classification.

Table 1.3-13. Reasonably Foreseeable Future Actions in the Cumulative Effects Areas

PROJECT (LEAD AGENCY)	LOCATION	DESCRIPTION	ESTIMATED DISTURBANCE (IF AVAILABLE)
Energy & Communications			
Designation of Energy Corridors (USFS)	Forest-wide	Would designate energy corridors on the DNF and other federal land in 11 western states. Corridor 116-206 would be west of U.S. 89 in the cumulative effects area.	
Geothermal Leasing Programmatic EIS (USFS)	Forest-wide	USFS and BLM are preparing a joint programmatic EIS to analyze leasing of federal lands with moderate to high potential for geothermal resources in 11 western states	
Oil and Gas Leasing Analysis (USFS)	Forest-wide	EIS to evaluate all BLM and USFS administered lands for oil and gas leasing	
Panguitch Lake Power Line Realignment (DNF)	Cedar City RD (Socio only)	Authorization to PacifiCorp for the relocation of 1.2 miles of 12.5 kV power line. Work would involve construction of a new overhead power line and removal of the old line. Area is approximately 17 miles southwest of Panguitch.	

PROJECT (LEAD AGENCY)	LOCATION	DESCRIPTION	ESTIMATED DISTURBANCE (IF AVAILABLE)
South Central Utah Telephone Association (SCSRA) I-15 to U.S. 89 Fiber Optic Line (BLM)	(Socio only)	Fiber optic line from I-15 in Iron County to U.S. 89 in Garfield County 7.5 miles north of Panguitch requiring BLM right-of-way	
Oil and Gas Lease Sales (BLM)	BLM	Ongoing BLM program to lease lands suitable for oil and gas development, including lands in Garfield County classified as having high potential for oil & gas development	
Transportation			
DNF Motorized Travel Plan (DNF)	Forest-wide	To identify changes to the motorized travel system (roads) to meet administrative, fire, recreational, and resource needs; will generally prohibit cross-country (off-road) motorized travel on the Forest, but would remain open to hiking, horseback riding, cross-country skiing, and snowmobile use.	
Mammoth Highway Easement (DNF)	Cedar City RD (Socio only)	Issuance of a right-of-way easement to Garfield and Kane Counties for Mammoth Highway (Forest Road 068), northeast of Duck Creek Village, between State Highways 14 and 143.	
Tropic Canyon Highway Stabilization Project (BRCA)	BRCA	Repair and stabilize SR 12 and introduce water diversion into Tropic Wash, west of Tropic	210 linear feet of road shoulder; 5 stream barbs in Tropic Wash
SR-12 Environmental Study (UDOT, FHWA, GSENM)	Escalante to Boulder (Socio only)	EA for project to obtain over 14 miles of right-of-way from BLM and generally upgrade SR 12	
SR-12 Scenic Byway Improvements (UDOT, GSENM)	SR 12 throughout Garfield County	Improve overlooks, interpretive sites, and gateway features	
SR-12 Corridor Management Plan Implementation (UDOT, GSENM)	SR 12 throughout Garfield County	Corridor Management Plan Implementation	
US-89 from SR-14 to Hatch (UDOT)	SR-14 to Hatch	Bituminous pavement, reconstruction, widen shoulders	

PROJECT (LEAD AGENCY)	LOCATION	DESCRIPTION	ESTIMATED DISTURBANCE (IF AVAILABLE)
Notom Road (UDOT)	(Socio only)	Engineering and environmental study, preparatory to road improvements	
Vegetation and Fire Fuels Management			
Aerial application of fire retardant (DNF, KFO, GSENM)	Forest-wide	The USFS proposes to continue the aerial application of fire retardant to fight fires on National Forest System lands, including the DNF.	
Right-of-way Lakes Timber Management (DNF)	Freemont River RD (Socio only)	Fuels Management Reduction on approximately 600 acres of forested land to reduce the impacts of insects and disease	600 acres
Stump Springs Fire Treatments (DNF)	Escalante RD (Socio only)	Project uses prescribed fire treatments to disturb vegetation, slowly moving heterogeneous patches towards a fine-grained landscape that is more resistant and resilient to fire and other disturbance.	Approximately 5,400 acres over 9 years
Clayton Salvage (DNF)	Escalante RD (Socio only)	Timber salvage of 248 acres of dead and dying spruce on the Griffin Top Plateau.	248 acres (2008)
Pockets Vegetation Management (DNF)	Escalante RD (Socio only)	The Project is designed to reduce bark beetle risk and improve habitat for northern goshawk. It would include commercial timber harvest, pre-commercial stand treatment, fencing, and travel management. The Project covers an area of 8,564 acres and would include commercial timber harvest on 4,721 acres of conifers and 2,647 acres of aspen, including 82 acres along the Antimony Creek drainage. Smaller areas would receive additional treatments. In addition, 9 miles of new roads would be required, 7.0 miles of unauthorized roads would be designated NFS roads, and 13.4 miles of existing NFS roads would be improved.	8,564 acres 9 miles of new roads 7.0 miles added to system roads
Toad Salvage (DNF)	Escalante RD (Socio only)	Salvage of dead and dying ponderosa pine within the perimeter of a Wildland Fire Use burn area. September 2007, 1400 acres burned.	230 acres
Boulder Town Fire Protection (DNF)	Escalante RD (Socio only)	Boulder was identified as a community at risk and a Community Wildland Fire Protection Plan was developed. 65 acres of prescribed burns and 186 acres of vegetative treatments are planned to provide community protection.	251 acres

PROJECT (LEAD AGENCY)	LOCATION	DESCRIPTION	ESTIMATED DISTURBANCE (IF AVAILABLE)
Bug Lake Salvage Project (DNF)	Escalante RD (Socio only)	Timber Salvage of dead and dying spruce on the Aquarius plateau will use existing Forest roads with approximately 1 mile of road reconstruction.	228 acres (2007)
Dugout/Tarantula Mesa Veg. Project (BLM)	Richfield FO (Socio only)	Utilize mechanical (chainsaw, handsaws, etc.) to cut, lop, and scatter the pinyon and juniper trees that have encroached into the existing chainings that were established in the 1960s	
North Wash Tamarisk Control Project (BLM)	Richfield FO (Socio only)	Removal and chemical control of 20 acres of tamarisk (salt cedar) approximately 30 miles southeast of Hanksville in the Fiddler Butte Wilderness Study Area	
Bear Creek Fire Salvage and Reforestation, DNF, CE	Garfield County (Socio cumulative effects area only)	Salvage fire killed and damaged trees within the 1400-acre Bear Creek burn area	
Corn Creek Salvage and Reforestation, DNF, EA	Garfield County (Socio cumulative effects area only)	Salvage dead and dying timber and reforest areas within burn with inadequate stocking in a 2270-acre burn	
Paunsaugunt Aspen Vegetation Management, DNF, EA	Powell Ranger District	Manage aspen stands to increase aspen regeneration, reduce conifer encroachment, and develop multi-aged aspen stands	
GSENM Plan Amendment & Rangeland Health EIS	GSENM	The GSENM Management Plan Amendment and Rangeland Health EIS describes and analyzes alternatives for management of livestock grazing on public lands administered by the BLM.	2,168,726 acres (GSENM, Glen Canyon NRA, & KFO)
Habitat Improvement			
Cooperative Fisheries Enhancement Projects (DNF)	Powell RD	In cooperation with UDWR, re-establish native trout populations in 2 streams on the DNF (also 8 streams on the Fishlake National Forest)	

PROJECT (LEAD AGENCY)	LOCATION	DESCRIPTION	ESTIMATED DISTURBANCE (IF AVAILABLE)
Marshall Canyon Pinyon-Juniper Removal (DNF)	Powell RD (Socio only)	The Proposed Action is to treat up to 900 acres within an existing chained area to improve wildlife habitat on the western portion of the Sevier Plateau (Mt. Dutton). The Proposed Action consists of the following actions: Remove pinyon pine and juniper mechanically on approximately 900 acres using a skid steer (bobcat) or other tractor type device, or through hand thinning with chainsaws. Broadcast seed into seedbed using forbs and grass mixture. Where needed, native seed will be part of this mixture.	900 acres
Antelope Springs Draw Sagebrush Steppe Habitat Enhancement (DNF)	Escalante RD ¹ (Socio only)	Mow or brushbeat 500 acres of dense even-aged sagebrush and interseed a native grass and forb mixture.	500 acres
Dipping Vat Habitat Improvement Project (DNF)	Escalante RD	Project would include the thinning of pine forests and the mechanical treatment of sagebrush for habitat improvement and fuels reduction in Johns Valley, approximately 7 miles north of Tropic. The Project would affect approximately 1,132 acres.	1,132 acres (2010)
Boulder Creek Wildlife Habitat Improvement (DNF)	Escalante RD (Socio only)	Removing encroaching conifers to restore Aspen Grove wildlife habitat	
Aquatic Monitoring Amendment, DNF	Forest-wide	Proposal to amend the Aquatic Management Indicator Species (MIS) in the DNF LRMP	
East Fork Boulder Creek Fish Passage Improvement DNF, CE	Garfield County (Socio cumulative effects area only)	Replace a culvert that is inhibiting fish passage on Road 166 with a new span designed for high and low flow maintenance of all aquatic species	
Land Use and Management			
Resources Management Plan (BLM)	Richfield Field Office BLM (Socio only)	Comprehensive Resource Management Plan for public lands and resources managed by the BLM Richfield Field Office	
Resources Management Plan (KFO)	KFO	FEIS and Resource Management Plan for public lands and resources managed by the KFO	

PROJECT (LEAD AGENCY)	LOCATION	DESCRIPTION	ESTIMATED DISTURBANCE (IF AVAILABLE)
First Annual Centennial Strategy for Bryce Canyon National Park (BRCA)	BRCA	Reduce private vehicle use by providing public transportation for park visitors; planning addition of a bicycle transportation system in park; restore historic buildings; treat 193 acres of exotic weed infestation; inventory and assess condition of 224 identified archaeological sites	
Panguitch Lake Resort	Panguitch Lake (Socio only)	RV timeshare resort around Panguitch Lake that is under development	
Incorporation of Ruby's Inn	Ruby's Inn	Ruby's Inn was incorporated as Bryce Canyon City. Ruby's Inn has a single land owner. The intention of incorporating is to prepare for subdivision and growth.	
Recreation			
Red Canyon bike trail extension (DNF)	Powell RD	Extend existing bike trail along SR 12 3.1 miles east to the East Fork of the Sevier River Road.	
Canaan Mountain Reroute (DNF)	Escalante RD (Socio only)	The Canaan Mountain Loop Trail approximately 14.5 miles southwest of Escalante would be rerouted to move it off a waterline, reduce its grade, and provide for improved maintenance.	
Mossy Cave Trail Rehabilitation and Resource Protection (BRCA)	BRCA	Large boulders from Water Canyon adjacent to the trail will be moved to stabilize areas where the trail has eroded and footbridge abutments	
Grandview Trail Re-route (DNF)	Powell Ranger District	Construct several sections of non-motorized trail to eliminate dual use by motorized and non-motorized recreationists	
King Creek Campground Non-commercial Thinning DNF, CE	Powell Ranger District	Thin heavily stocked ponderosa pine to improve vigor and forest health in a developed recreation area	
Mining			
Boulder Gravel Pit (DNF)	Escalante RD (Socio only)	A gravel pit will be developed and managed to provide gravel for county and Forest needs.	< 5 acres
Troy M Mine Phase Two (BLM)	Richfield FO, near Ticaboo (Socio only)	Extend existing underground workings; construct mine shaft and waste rock storage area; construct ventilation shafts and expand existing evaporation pond for mine dewatering	

PROJECT (LEAD AGENCY)	LOCATION	DESCRIPTION	ESTIMATED DISTURBANCE (IF AVAILABLE)
Phase II, Abandoned Mine Reclamation, (GSENM)	GSENM	EA to address potential environmental impacts associated with the Phase II Abandoned Mine Reclamation Project, which includes the Henrieville Prospect Site east of Tropic	
Reopening of Ticaboo uranium mill and mine	Ticaboo/Bullfrog (Socio only)	Garkane has been contacted regarding service to the Ticaboo/Bullfrog area for planned re-opening of the uranium mill; the mine has been re-opened and is supplying its own power with diesel generators	
Miscellaneous			
Wild and Scenic River Suitability Study – Utah (USFS)	Pine Valley, Cedar City, and Escalante RDs	A draft EIS has been prepared analyzing the suitability of 86 Utah river segments, including 8 on the DNF in Garfield County, for inclusion in the National Wild and Scenic River System	
West Dixie Water Improvement (DNF)	Powell RD	No Information	3,000 acres (2007) 2,000 acres (2008) 2,000 acres (2009) 2,000 acres (2010)
West Deer Creek Grazing Allotment (DNF)	Escalante RD (Socio only)	Proposal to re-authorize livestock grazing on the West Deer Creek Allotment north of Boulder, Utah east of SR 12	
Ohio University Dinosaur Collection (GSENM)	GSENM	Proposal to excavate and remove remains of a horned dinosaur from GSENM.	
McGath Lake Dam (DNF)	Escalante RD (Socio only)	The McGath Lake Dam is deteriorating and in need of repair. Without action the dam is likely to fail and destroy an important fishery. McGath Lake is located approximately 16 miles north of Escalante.	
Dinosaur Documentary Film (BLM)	GSENM & BLM	Various locations within the GSENM, Wolverine Petrified Forest, The Blues Area, Red Canyon, Cocks Comb Road, etc,	

1.3.2.3. Cumulative Effects

Specific effects of past, present, and anticipated future activities on special status species cannot be anticipated as it is unknown at this time where future activities would occur in relation to sensitive habitat. General impacts to wildlife habitat are described in the Wildlife Specialist Report, and would similarly impact special status species within the cumulative effects area (**Figure 1.3-1**).

Cumulative impacts may occur to greater sage grouse that depend on native sagebrush/grassland habitats for year-round survival. Considering past, present, and foreseeable future impacts from fire, agricultural land conversion, pinyon-juniper encroachment, and activities that would increase cheatgrass infestation, moderate, long-term cumulative impacts could occur to greater sage grouse if cheatgrass infestations spread further into native sagebrush/grassland habitats as a result of any Action Alternative.

Due to the pace of current losses of sagebrush-grassland habitat to cheatgrass after fires, cumulative impacts within sagebrush/grassland habitats would be moderate and long-term if new cheatgrass infestations were introduced or if current infestations were spread further as a result of any Action Alternative. Many sage grouse populations migrate between seasonal habitats (Connelly et al. 2000) and so rely on a large amount of sagebrush habitat throughout the year. A large-scale loss of habitat that would be caused by a fire would force sage grouse to modify a wide range of behaviors because sage grouse generally show a high fidelity to seasonal ranges (Connelly et al. 2000) and would not be able to return to the same area. Because the amount of behavioral flexibility varies between individuals, many sage grouse individuals would not thrive at the same level in a new area and the reproductive rate of sage grouse populations would be diminished.

Overhaul of the existing 69 kV transmission line under the No Action Alternative could contribute to short-term cumulative impacts to special status species through increased activity and noise within the existing right-of-way. Assuming working in proximity to special status species populations during sensitive time periods would be avoided, the contribution to cumulative effects would be negligible. No additional long-term impacts to special status species would be anticipated from overhaul of the transmission line because the infrastructure is already in place.

1.4. PLAN CONSISTENCY

1.4.1. US Forest Service

1.4.1.1. Dixie National Forest LRMP (USFS 1986 as amended)

All alternatives would be consistent with the LRMP as amended.

Mitigation measures for northern goshawk will be disclosed in the Biological Evaluation and will be consistent with the *Conservation Strategy and Assessment* (USFS et al. 1998).

1.4.1.2. Red Canyon Botanical Area Conservation Assessment (USFS 2000a)

All alternatives would be consistent with the Conservation Assessment.

Impacts of access routes to sensitive plants within Red Canyon under the Parallel Existing 69kV Alternative will be disclosed in the Biological Evaluation.

1.4.1.3. Dixie National Forest Travel Management Plan (USFS 2008a)

All alternatives would be consistent with the Travel Management Plan.

1.4.2. Bureau of Land Management

1.4.2.1. Kanab Field Office RMP (BLM 2008)

Alternatives may not comply with the RMP (2008).

Regarding Utah prairie dog, formal consultation with the FWS will determine the necessary protective measures for this species (Threatened). The FWS would consult with the KFO before issuing the Biological Opinion in order to agree on reasonable protective and mitigation measures for this species that may include colony buffer distances that are less than those recommended in the RMP (i.e., 0.5 mile). Any disturbance that has the potential to disturb Utah prairie dog colonies would be addressed in the Biological Assessment and Biological Opinion and would be evaluated by the BLM, USFS, and FWS. Disturbances to this species may be mitigated if they are determined to likely affect the species (May Affect Likely to Adversely Affect determination) and these mitigation measures would be agreed up on by all agencies.

Regarding greater sage grouse, all alternatives would fall within 1 mile of leks, which would violate the RMP (2008). However, perch deterrents would be installed on all power poles so raptor predation rates are not expected to increase.

1.4.2.2. Grand Staircase Escalante National Monument Management Plan (BLM 2000)

All alternatives would be consistent with the GSENM Plan.

1.4.3. National Park Service

1.4.3.1. Bryce Canyon National Park General Management Plan (NPS 1987)

All alternatives would be consistent with the BRCA General Management Plan regarding wildlife and fisheries resources in Bryce Canyon.

1.4.3.2. General Management Plan (NPS 2006)

All alternatives would be consistent with NPS (2006) due to the implementation of Resource Protection Measures, described in **Appendix A**.

1.5. COMPLIANCE WITH OTHER LAWS AND REGULATIONS

1.5.1. Endangered Species Act (1973)

The consultation process with FWS (Biological Assessment and Biological Opinion) would ensure compliance with the Endangered Species Act.

1.5.2. Migratory Bird Treaty Act (1918)

The USFS and BLM would be compliant with the Migratory Bird Treaty Act through compliance with agency-specific documents (USFS 2007 and BLM 2007a) that contain specific direction on protection of migratory bird populations and habitats.

1.5.3. Bald and Golden Eagle Protection Act (1940)

Pre-construction surveys would ensure compliance with the Bald Eagle and Golden Eagle Protection Act because any nesting eagles would be avoided through seasonal restrictions and buffers.

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Appendix A

Resource Protection Measures

Resource Protection Measures

The following resource protection measures are considered part of the Proposed Action and other Action Alternatives and would be carried out in the course of construction, operation, and maintenance activities as specified below.

Soils

- Ingress and egress to pole locations would be on the same path to minimize disturbance to soil and biological soil crusts, especially in sparsely vegetated areas.
- Soil from pole and guy wire hole excavations would be used to refill the hole and any remainder evenly distributed over the disturbance area around the hole. In sensitive visual areas where different soil colors could distract from the view, excess soils would be removed from the site.
- Herbicide use would be applied in accordance with label requirements and comply with the BLM Vegetation Treatments Using Herbicides Final Programmatic EIS (BLM 2007b) and the DNF Environmental Assessment for Noxious Weed Management (USFS 2000b).
- Where temporary minor changes in contours occur during construction along the route, the area would be returned to near pre-construction contours through reshaping, as required by the authorizing agency. On BRCA lands, the soil would be re-contoured using hand tools to minimize erosion.
- If any areas outside the *limited access areas* have slopes greater than 35 percent, tractor/equipment operation would not be permitted. This measure limits surface disturbance and keeps surface runoff water from concentrating. This practice restricts tractor operation to slopes where corrective measures for proper drainage such as water bars are easily installed and effective. Criteria that may be used to determine slope restrictions are soil stability, mass stability, infiltration rate, and soil water holding capacity. These data may be interpreted from soil and land type inventories, geologic maps, and climatic and hydrologic information. Subsequent field verification may be necessary.
- Tractor/equipment operation would be limited during times of high soil moisture levels to minimize soil compaction, puddling, rutting, and gulying with resultant sediment production and loss of soil productivity. This measure minimizes surface disturbance during high soil moisture conditions which would result in compaction, puddling, rutting, and gulying problems. This practice reduces the need to correct these soil and water resource problems later. High soil moisture conditions will be defined and evaluated during construction by USFS Contract Inspectors in concert with representatives from affected cooperating agencies.

Weeds

- A pre-construction weed inventory would be required, and early treatment of weeds would occur prior to construction vehicles entering infested areas.
- To minimize the potential for the spread of noxious weeds, all equipment used during construction would be power washed off-site to remove all soil and plant material prior to entering the Project Area.
- Ongoing monitoring and treatment of noxious and invasive species would be incorporated into the Operation and Maintenance Plan. Garkane would bi-annually (during the growing season) survey and treat, if necessary, the right-of-way for noxious weeds for the first 10 years following end of construction, and submit bi-annual reports to lead and cooperating agencies as requested.
- Control and follow-up treatment of invasive species specific to this project within the right-of-way would be the responsibility of Garkane.

- If chemical weed control is used, only agency-approved chemicals would be used by certified applicators.

Revegetation

- Where re-contouring is not required, vegetation would be left in place wherever possible to avoid excessive root damage and allow for re-sprouting.
- Re-vegetation of the Project Area, where necessary, would be Garkane's responsibility and would be coordinated with the appropriate affected agency's resource division.
- Areas identified by the agency or landowner would be seeded following construction activities using an agency-approved seed mixture and adhering to standards recommended by the specific agency for that portion of the right-of-way. Seed mixes used for rehabilitation purposes would be certified noxious weed free. Revegetation of the Project Area would be subject to agency monitoring and inspection (at agency discretion) to ensure adequate revegetation establishment. Based on these findings, the affected agency may require additional revegetation from Garkane if agency revegetation objectives are not adequately met. Agencies would provide revegetation objectives to Garkane prior to project initiation.
- Reseeded areas within grazing allotments may require additional measures to assure effective revegetation. Reseeded areas around structures and other disturbances within grazing allotments may attract cattle to graze on new growth. Herding, salting, and placement of water sources may be used to attract cattle away from revegetated areas to allow vegetation to mature and become established. Larger reseeded areas (such as lay-down yards or pulling sites) may require temporarily fencing cattle out to allow for effective revegetation.

Fire

- Blasting along with use of mechanical equipment may be limited/restricted during drought conditions if fire restrictions are implemented. A waiver may be granted if Garkane can provide required mitigation measures such as hours of work, available water, and fire lookouts.

Wildlife

- If a federally listed species is located within the Project Area, work would be immediately halted to allow the appropriate federal agency to respond. Consultation with the USFWS would be initiated immediately upon species discovery and additional mitigation measures may be applied where necessary.
- Construction, demolition, and maintenance activities would be subject to species-specific temporal restrictions to address wildlife concerns. These restrictions would be set based on consultation and coordination with the USFWS and Utah Division of Wildlife Resources.
- Pre-construction/demolition raptor/nesting bird surveys may be required if project implementation occurs more than 2 years from the decision in accordance with USFS and other agency guidelines.
- With the exception of emergency repair situations, right-of-way construction, demolition, restoration, maintenance, and termination activities in designated areas would be modified or discontinued during sensitive periods (e.g., nesting and breeding periods) for candidate, proposed, threatened, endangered, or other sensitive animal species. The list of sensitive periods would be approved in advance by the authorized officer of the appropriate land management agency.
- Timing limitations for timber clearing and right-of-way vegetation maintenance would be in agreement with Migratory Bird Treaty Act (MBTA) protocol.

- Construction and demolition activities within active raptor nesting areas would be allowed in compliance with the appropriate temporal and spatial buffers as set forth by the management agency.
- Structures would be designed in accordance with the Avian Protection Plan Guidelines developed by the USFWS' Avian Power Line Interaction Committee (2006) to minimize avian conflicts.
- Raptor perch deterrents/discouragers would be used on poles to minimize perching in areas inhabited by Utah prairie dogs, greater sage grouse, and pygmy rabbits as required by each land management regulating agency.
- Additional wildlife mitigation measures may be required if areas where habitat improvement projects have been conducted would be disturbed.

Cultural Resources

- Should any of the following be discovered during construction, such activities would cease in the immediate area of discovery and the appropriate agency representative would be notified immediately: (1) previously unidentified surface or subsurface cultural resources and/or (2) human remains and/or objects or materials subject to the Native American Graves Repatriation and Protection Act, as amended. An evaluation of the discovery would be made by the lead USFS authorized officer or relevant cooperating agency representative to determine appropriate actions and avoidance measures that would prevent the loss of any significant cultural or scientific values. The authorized officer would make any decisions pertaining to mitigation measures after consulting with appropriate agencies. No operations would resume in the immediate area of the discovery until written authorization to proceed is issued by the USFS or appropriate agency.
- Cultural resources would be protected by limiting access to known archaeological sites, educating employees about the importance of cultural resources, and implementing a strict management policy restricting collection of artifacts.

Paleontology

- Construction- or maintenance-related activities that require significant ground disturbance (greater than 12 inches deep) should be surveyed and monitored when conducted in areas of bedrock outcrop for the following geologic units: Tropic Shale, Dakota Formation; the Tibbet Canyon, Smoky Hollow and John Henry members of the Straight Cliffs Formation; and the Wahweap and Kaiparowits formations.
- Should any paleontological resources be found during construction, work would be halted and the appropriate agency representative would be notified immediately. The authorized officer would make any decisions pertaining to mitigation measures after consulting with appropriate agencies. No operations would resume in the immediate area of the discovery until written authorization to proceed is issued by the USFS or appropriate agency.

Visual

- To the extent possible, placement of access routes and points of ingress and egress would be situated to minimize visual intrusion and to obscure views from local highways and county roads.
- No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity.
- Non-reflective wire would be used within USFS High SIO areas, BLM VRM Class II areas, and in the GSENM as required by the Management Plan.
- When use of wood pole structures is not practicable, and the use of fiberglass or steel structures is approved, dark colored, non-reflective surfaces would be used.

- To the extent practicable, siting of individual structures would take advantage of both topography and vegetation as screening devices to restrict views of structures from visually sensitive areas.
- Where practicable, the siting of structures would avoid ridgelines, summits, or other prominent locations and use topography as a backdrop to avoid skylining.
- The transmission line alignment would cross linear features (e.g., trails, roads, rivers) at right angles whenever possible to minimize viewing area and duration.
- Vegetation openings for facilities, structures, routes, etc., would mimic the size, shape, and characteristics of naturally occurring openings to the extent practicable.
- Vegetation clearing design in highly visible forested areas could include feathering of right-of-way edges, i.e., progressive, selective thinning of trees from the edge of the right-of-way inward, mixing tree heights from the edge of the right-of-way, and creation of an irregular vegetation outline.
- Lighting for facilities would not exceed the minimum required for safety and security while not affecting wildlife behavior, and designs would be selected that minimize upward light scattering (light pollution).
- Visual impact mitigation objectives and activities would be discussed with equipment operators prior to commencement of construction activities.
- Methods for disposal of slash from vegetation removal would be site dependent. Slash may be mulched and spread to cover fresh soil disturbances (preferred), hauled off site for disposal, or buried.
- Restoration activities specified here or in project-related documents would be undertaken by Garkane immediately after disturbances.
- Disturbed areas would be covered with stockpiled topsoil or mulch and revegetated using a mix of native species selected for visual compatibility with existing vegetation.
- Edges of revegetated areas would be feathered (strategically removing vegetation along the margins of the right-of-way at agency direction) to reduce form and line contrast with existing landscape.
- Excess fill material would not be wasted down slope to avoid color contrast with existing vegetation/soils.

Water

- Water needed during construction would be limited to that needed for dust control. The conditions of the Storm Water Pollution Prevention Plan would be imposed on all construction activities to avoid or limit sedimentation to surface waters.
- Equipment operation would be excluded from wetlands, floodplains, stream channels, and wet meadows to limit soil damage, turbidity, and sediment production resulting from compaction, rutting, runoff concentration, and subsequent erosion. This practice is designed to prevent soil puddling, compaction, and displacement, and the concentration of surface water and soil erosion, which may lead to rill or gully erosion and subsequent water quality degradation. This measure is intended to prevent or reduce the need for corrective measures to solve water concentration problems due to equipment use.
- When applying pesticides, an untreated 300-foot buffer strip from each side of surface water, wetlands, or riparian areas will be left to minimize the risk of a pesticide entering surface or subsurface waters or affecting riparian areas, wetlands, and other non-target areas.

Land Use

- Range improvements (e.g., fences, water developments, corrals, cattle guards) would be identified and protected from any damage associated with project activities.
- Proper signage would be posted in affected areas prior to and during construction if temporary road closures or restricted access were anticipated.
- In the event of property damage caused by construction and operations activities, Garkane and/or the agency would quickly investigate and reasonably attempt to settle with the party who incurred property damages.

Additional Construction and Operations Standards (as required by BRCA)

The following construction and operations standards would be in addition to those listed above and would be implemented during construction, operation, and maintenance activities in BRCA for Alternative B.

General

- If a reclamation bond is posted, holes within BRCA would be dug primarily by a mini-excavator that would be flown to within 50 feet of the hole location. Hand tools (e.g., hand auger, shovels, picks) may also be used. As noted below, all equipment would be transported in by helicopter or foot. Use of generators and gasoline-powered hand augers would be allowed. Precautions to prevent gasoline spills, such as a tray to hold equipment, must be implemented.
- In BRCA, wheelbarrow use is only allowed at pole locations to transport soil within a 100-foot radius. Any visible tracks must be raked out.
- The Park Superintendent must approve the use of explosives to excavate holes within BRCA. The Superintendent must be notified at least three days before explosives use is planned.
- Collection of plants, rocks, fossils, wildlife, artifacts, or any items or materials from BRCA is prohibited.
- If the 69 kV transmission line is de-energized and removed from BRCA, the guy wires would be removed, the poles would be “flush cut” at or slightly below ground level, the portion of the pole remaining in the ground would be covered with soil, and the area where the pole was removed would be re-vegetated. Poles would be removed by helicopter.
- Garkane would provide BRCA with informational material (project overview and activities) for distribution to the public during periods of project construction.

Access

- *Limited access areas* would also include all of BRCA.
- No road building would occur within BRCA.
- Construction access would be allowed for the rim pole on the west boundary of BRCA.

Helicopter Use

- All equipment used in BRCA would be transported by helicopter or foot.
- Helicopter use within BRCA must follow the terms and conditions stipulated in the existing Right-of-Way Permit (RW 1330-05-001) for the approved transmission lines.
- When work is conducted within BRCA, Garkane would notify the Chief Ranger at the beginning of each week regarding the work plan for the week and approximate number of overflights expected.

- Helicopter flights over trails and heavily used areas within BRCA would be limited to the right-of-way. Flights over the Mossy Cave Trail would be limited to the extent practicable. Garkane would provide public notice of proposed times and places in local newspapers or other media outlets.
- A “Letter of Authorization to Use Bryce Canyon Radio Frequencies” would be required prior to helicopter use in BRCA.

Additional Resource Protection Measures

The following resource protection measures would be in addition to those listed above and would be implemented during construction, operation, and maintenance activities for Alternative B as specified below.

Soils/Vegetation

- All trees cut within BRCA would be left on the ground. Stumps would be “flush cut” as close to ground as possible.
- Herbicide would not be used within BRCA.

Wildlife

- A pre-construction raptor/nesting bird survey would be required within BRCA.

BEST MANAGEMENT PRACTICES AND MITIGATION, THREATENED, ENDANGERED, OR CANDIDATE SPECIES

KANAB FIELD OFFICE APPROVED RESOURCE MANAGEMENT PLAN (BLM 2008)

Areas subject to surface disturbance would be evaluated for the presence of threatened, endangered, or candidate animal or plant species. This is usually accomplished through the completion of a biological clearance. An on-the-ground inspection by a qualified biologist is required. In cases where threatened, endangered, or candidate species are affected, the preferred response would be to modify the proposed action to avoid the species or its habitat (avoidance). If avoidance of a threatened, endangered, or candidate species or its habitat is not possible, a Section 7 consultation with USFWS would be required and a biological assessment would be prepared to recommend actions to protect the species or its habitat.

Mexican Spotted Owl (*Strix occidentalis lucida*)

Implement conservation measures (numbers 1-10, below) on actions affecting MSOs or their habitat. Restrictions (from the Utah Field Office Guidelines for Raptor Protection From Human and Land Use Disturbances, Appendix 2) include:

- Permit no surface disturbing activities from March 1 to August 31 in PACs, breeding habitats, or designated critical habitat to avoid disturbance to breeding MSOs.
- If a disruptive or surface disturbing action occurs entirely outside of the MSO breeding season (March 1 to August 31) and leaves no permanent structure or permanent habitat disturbance, the action may proceed without an occupancy survey. Land disposal actions would require breeding season surveys (see Lands and Realty management actions).
- If disruptive actions would occur during the season restriction (March 1 to August 31), surveys according to USFWS protocol for MSOs would be required prior to commencement of activities. If MSOs are detected, activities should be delayed until after the seasonal restriction.
- Retain, where appropriate, large down logs, large trees (generally greater than 24 inches in diameter at breast height [DBH]), and snags as prey habitats in occupied and suitable MSO habitat.
- Allow fuels treatments and prescribed fire on a case-by-case basis to reduce fire hazard and improve habitat condition for MSO prey.
- Meet or make significant progress toward meeting BLM Utah's *Standards for Rangeland Health* in protected and restricted (as defined in recovery plan) MSO habitats.
- Prohibit new recreation facilities or trails within PACs. Continue maintenance restrictions and seasonal closure (March 1 to August 31) of existing facilities. Comply with conservation measures in Appendix 9.
- Limit special recreation permit (SRP) group size to 12 or fewer according to the recovery plan in protected and restricted (as defined in the recovery plan) MSO habitat.

The following list of measures provides species-specific guidance intended to avoid, minimize, or reduce potential adverse impacts from implementation of BLM actions under the authority of current Utah BLM LUPs on the Mexican spotted owl (MSO). This list is not comprehensive. Additional conservation measures or other modified versions of these measures may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS:

1. The BLM will place restrictions on all authorized (permitted) activities that may adversely affect the MSO in identified protected activity centers (PAC), breeding habitat, or designated critical habitat in order to reduce the potential for adverse impacts to the species:

- Restrictions and procedures have been adapted from guidance published in the *Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances* (Romin & Muck 2002), as well as coordination between the BLM and USFWS. Measures include:
 - Surveys, according to USFWS protocol, will be required prior to any disturbance-related activities that have been identified to have the potential to impact MSO, unless current species occupancy and distribution information is complete and available. All surveys must be conducted by USFWS-certified individuals and approved by the BLM authorized officer:
 - Assess habitat suitability for nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the appropriate conservation measures below if project activities occur within ½ mile of suitable owl habitat, dependent in part on whether the action is temporary (i.e., those completed prior to the start of the following raptor breeding season, leaving no permanent structures and resulting in no permanent habitat loss) or permanent (i.e., continuing for more than one breeding season and/or causing the loss of owl habitat or displacement of owls through disturbances such as creation of a permanent structure such as a power line).
- For all temporary actions that may impact owls or suitable habitat:
 - If action occurs entirely outside of the owl breeding season and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey.
 - If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity should be delayed until outside of the breeding season.
 - Eliminate access routes created by a project through such means as raking out scars, revegetation, and gating access points.
- For all permanent actions that may impact owls or suitable habitat:
 - Survey two consecutive years for owls according to established protocol prior to commencing activity.
 - a. If owls are found, no actions will occur within ½ mile of identified nest site. If nest site is unknown, no activity will occur within the designated PACs.
 - b. Avoid placing permanent structures within ½ mile of suitable habitat unless surveyed and not occupied.
 - c. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at ½ mile from suitable habitat, including canyon rims (Delaney et al. 1997). Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a ½-mile buffer for suitable habitat, including canyon rims.
 - d. Limit disturbances to and within suitable owl habitat by staying on designated routes.
 - e. Limit new access routes created by the project.
- 2. The BLM will, as a condition of approval (COA) on any project proposed within identified PACs and designated critical habitat or within spatial buffers for MSO nests (½ mile), ensure that project proponents are notified as to their responsibilities for rehabilitation of temporary access routes and other temporary surface disturbances created by their project according to individual BLM field office standards and procedures or those determined in the project-specific Section 7 consultation.

3. The BLM will require monitoring of activities in designated critical habitat, identified PACs, or breeding habitats wherein it has been determined that there is a potential for take. If any adverse impacts are observed to occur in a manner or to an extent that was not considered in the project specific Section 7 consultation, then consultation must be reinitiated. Monitoring results should document what, if any, impacts on individuals or habitat occur during project construction/implementation. In addition, monitoring should document successes or failures of any impact minimization or mitigation measures. Monitoring results would be considered an opportunity for adaptive management, and as such would be carried forward in the design and implementation of future projects.
4. For all survey and monitoring actions:
 - Provide reports to the affected field offices within 15 days of completion of survey or monitoring efforts.
 - Report any detection of MSO during survey or monitoring activities to the authorized officer within 48 hours.
5. The BLM will, in areas of designated critical habitat, ensure that any physical or biological factors (i.e., the primary constituent elements), as identified in determining and designating such habitat, remain intact during implementation of any BLM-authorized activity.
6. For all BLM actions that “may adversely affect” the primary constituent elements in any suitable MSO habitat, the BLM will implement measures as appropriate to minimize habitat loss or fragmentation, including rehabilitation of access routes created by the project through such means as raking out scars, revegetation, and gating access points.
7. Where technically and economically feasible, use directional drilling from single drilling pads to reduce surface disturbance, and minimize or eliminate need to drill in canyon habitats suitable for MSO nesting.
8. Prior to surface disturbing activities in MSO PACs, breeding habitats, or designated critical habitat, specific principles should be considered to control erosion. These principles include:
 - Conduct long-range transportation planning for large areas to ensure that roads will serve future needs. This will result in less total surface disturbance.
 - Avoid surface disturbance in areas with high erosion hazards to the extent possible. Avoid mid-slope locations, headwalls at the source of tributary drainages, inner valley gorges, and excessively wet slopes such as those near springs. In addition, areas where large cuts and fills would be required should be avoided.
 - Locate roads to minimize roadway drainage areas and to avoid modifying the natural drainage areas of small streams.
9. Project developments should be designed and located to avoid direct or indirect loss or modification of MSO nesting and/or identified roosting habitats.
10. Water production associated with BLM-authorized actions should be managed to ensure maintenance or enhancement of riparian habitats.

Utah Prairie Dog (*Cynomys parvidens*)

- Implement conservation measures (#1-13, BELOW) on actions affecting Utah prairie dogs or their habitat.
- Permit no surface disturbing activities or surface occupancy within ½ mile of active, suitable (currently inactive), or potential reintroduction (BLM 2002b) Utah prairie dog habitats/sites.

Seismic activities would avoid these areas, particularly during the active season (April 1 to September 30).

- Allow introduction, augmentation, restocking, translocations, transplantation, and/or reestablishments of special status species in cooperation and collaboration with USFWS, UDWR, and other agencies as necessary, subject to guidance provided by BLM's 6840 policy and by existing or future memoranda of understanding (MOU).
- Require deterrent devices designed to prevent raptors from perching on powerline structures on all new construction (including upgrades and reconstruction) to discourage predation on Utah prairie dogs.
- Reroute renewed or amended ROWs on public land that have the potential to disturb active and inactive Utah prairie dog colonies.
- Preclude cross-country OHV use in occupied or inactive Utah prairie dog colonies.
- Allow for the treatment of plague and other diseases that may impact Utah prairie dogs.

The following list of measures provides species-specific guidance intended to avoid, minimize, or reduce potential adverse impacts from implementation of BLM actions under the authority of current Utah BLM LUPs on the Utah prairie dog. This list is not comprehensive. Additional conservation measures or other modified versions of these measures may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of Section 7 consultation with the USFWS:

1. Surveys according to approved protocols and procedures will be required prior to surface disturbance unless species occupancy and distribution information is complete, current, and available. Surveys would be conducted by BLM-approved biologists. In the event species occurrence is verified, the project proponent may be required to modify operational plans, at the discretion of the authorized officer, to include additional, appropriate protection measures or practices for the minimization of impacts on the Utah prairie dog and its habitat.
2. The BLM will restrict surface disturbing activities within ½ mile of active Utah prairie dog colonies when and where necessary, upon the recommendation of BLM Field Office (FO) staff biologists to BLM management and as necessary in coordination or consultation with USFWS.
3. No permanent surface disturbance or facility will be allowed within ½ mile of potentially suitable Utah prairie dog habitat, as identified and mapped by the BLM or UDWR since 1976.
4. Unavoidable surface disturbing activities in Utah prairie dog habitat should be conducted between April 1 and September 30 (the period when prairie dogs are most likely to be found above ground). BLM projects will be designed to avoid direct disturbance to Utah prairie dog populations and habitat wherever possible. Designs should consider flow of water, slope, buffers, possible fencing, and pre-activity flagging of critical areas for avoidance.
5. Reclamation and restoration efforts in Utah prairie dog habitat will be conducted using native seed unless otherwise specified in coordination with USFWS.
6. As funding allows, the BLM should complete a comprehensive assessment locating and mapping off-highway vehicle (OHV) use areas that interface with Utah prairie dog populations. Comparison of geographic information system (GIS) layers for Utah prairie dog populations and OHV use should give BLM personnel another tool to manage and/or minimize impacts from OHV use near known Utah prairie dog populations and habitat. Based on the information that is developed via GIS applications, appropriate actions should be taken to prevent OHV use in occupied territories.
7. The BLM will consider emergency OHV closure or additional restrictions to protect, conserve, and recover the species.

8. Where technically and economically feasible, the use of directional drilling or drilling of multiple wells from a single pad will be required to reduce surface disturbance in Utah prairie dog habitat.
9. For existing facilities, BLM and facility operators will consider if fencing infrastructure on well pads (e.g., drill pads, tank batteries, and compressors) would be needed to protect equipment from burrowing activities. In addition, BLM and project proponents should consider if future surface disturbing activities would be required at the site.
10. The BLM will provide educational information for project proponents and the general public pertaining to appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife, and to improve general ecological awareness of habitat disturbance.
11. Project-related vehicle maintenance activities will be conducted in maintenance facilities. Should it become necessary to perform vehicle or equipment maintenance on site, these activities will not be conducted on identified Utah prairie dog colonies or within a 350-foot distance from colonies. Precautions shall be taken to ensure that contamination of maintenance sites by fuels, motor oils, grease, etc. does not occur and such materials are contained and properly disposed of offsite. Inadvertent spills of petroleum-based or other toxic materials shall be cleaned up and removed immediately.
12. The BLM will coordinate with interested private and governmental agencies and landowners to identify voluntary opportunities to modify current land stewardship practices that may have detrimental impacts on the Utah prairie dog and its habitat.
13. BLM-authorized equipment and vehicles planned for use within Utah prairie dog habitat will be cleaned to minimize the spread of noxious weeds or other undesirable vegetation types.

National Park Service Management Policies (NPS 2006)

Management of Threatened or Endangered Plants and Animals

The Service will survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act. The Service will fully meet its obligations under the NPS Organic Act and the Endangered Species Act to both proactively conserve listed species and prevent detrimental effects on these species. To meet these obligations, the Service will:

- Cooperate with both the U.S. Fish and Wildlife Service and the NOAA Fisheries to ensure that NPS actions comply with both the written requirements and the spirit of the Endangered Species Act. This cooperation should include the full range of activities associated with the Endangered Species Act, including consultation, conferencing, informal discussions, and securing all necessary scientific and/or recovery permits;
- Undertake active management programs to inventory, monitor, restore, and maintain listed species' habitats; control detrimental nonnative species; manage detrimental visitor access; and reestablish extirpated populations as necessary to maintain the species and the habitats upon which they depend;
- Manage designated critical habitat, essential habitat, and recovery areas to maintain and enhance their value for the recovery of threatened and endangered species;
- Cooperate with other agencies to ensure that the delineation of critical habitat, essential habitat, and/or recovery areas on park-managed lands provides needed conservation benefits to the total recovery efforts being conducted by all the participating agencies;
- Participate in the recovery planning process, including the provision of members on recovery teams and recovery implementation teams where appropriate;

- Cooperate with other agencies, states, and private entities to promote candidate conservation agreements aimed at precluding the need to list species; and
- Conduct actions and allocate funding to address endangered, threatened, proposed, and candidate species.

The National Park Service will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible. In addition, the Service will inventory other native species that are of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance.

The Service will determine all management actions for the protection and perpetuation of federally, state, or locally listed species through the park management planning process, and will include consultation with lead federal and state agencies as appropriate.

Utah Prairie Dog Interim Conservation Strategy (NPS et al. 1997)

No project-specific measures.

Utah Prairie Dog Recovery Plan (USFWS 1991)

No project-specific measures.

BEST MANAGEMENT PRACTICES AND MITIGATION FOR SENSITIVE SPECIES

GREATER SAGE-GROUSE (*CENTROCERCUS UROPHASIANUS*)

Kanab Field Office Approved Resource Management Plan (BLM 2008)

- Implement the UDWR Sage-Grouse Strategic Management Plan, BLM National Sage-Grouse Habitat Conservation Strategy, and recommendations from local sage-grouse working groups to protect, maintain, or enhance current Greater sage-grouse populations and habitat.
- Preclude cross-country OHV use in Greater sage-grouse nesting and brood-rearing habitats.
- Avoid new ROWs with high-profile structures (e.g., buildings, storage tanks, overhead powerlines, wind turbines, towers, and windmills) within 1 mile of an active Greater sage-grouse lek or in nesting and brood-rearing habitat.
- Manage oil and gas leasing as open subject to major constraints (NSO) within ½ mile of a Greater sage-grouse lek site.
- Allow no surface disturbing or otherwise disruptive activities (e.g., construction and maintenance) within 2 miles of a Greater sage-grouse lek in nesting and brood-rearing habitat from March 15 to July 15 and in winter habitat from December 1 to March 14.
- Avoid insecticide use in Greater sage-grouse nesting and early brood-rearing habitats during the early developmental stage (March 15 to July 15) of Greater sage-grouse chicks.
- Prioritize habitat vegetation treatments to maintain and/or improve habitat function in Sage-grouse nesting and brood-rearing habitat, and Sage-grouse winter range areas (Map 5).

A Blueprint for Sage-grouse Conservation and Recovery (Braun 2006)

Management of Habitat Fragmentation

Management of sagebrush steppe should focus on maintaining large (>1 cadastral section [2.59 km² or 1 mi²]) blocks of sagebrush steppe and preferably in excess of 20 cadastral sections [51.8 km² or 20 mi²] in size. These blocks should conserve habitat at the landscape scale with at least 1 large block per Township (36 cadastral sections [93.2 km² or 36 mi²]) throughout the sagebrush steppe.

Management of Structures

Utility companies should be required to fit all potential perch sites (poles, towers) for golden eagles with devices to deter perching (including power poles associated with oil and gas development). All unused power poles (and towers) should be removed and consideration should be given to elimination (and removal) of unnecessary power lines that traverse sage-grouse habitats. Existing power lines should be placed in corridors that follow road systems, especially those that are paved, to minimize impacts on the landscape. First priority for fitting power poles with raptor guards and or for removal of power lines should be given to areas within 5.5 km (3.3 miles) of active leks (at least line of sight). Second priority should be given to known sage-grouse winter-use areas, especially along windswept ridges and near large expanses of sagebrush that are not typically covered by snow in winter. Raptor predation during summer and early fall is usually a local problem and more a product of habitat quality (i.e., sage-grouse are limited to few areas of suitable habitat) than at other times of the year. Metal fence posts are preferable to wooden posts for fencing as the former better discourage raptors from using them as perches. Fencing within 2 km of active leks should be discouraged as sage-grouse are more likely to collide with them as they fly to and from leks, frequently at low levels and in low light. Fences designed to prevent domestic sheep from escaping pastures should be eliminated as walking sage-grouse frequently will follow and not readily fly over them. Fences in sage-grouse areas should be of no more than 3-strands of wire with both the top and bottom wires being barbless. All unnecessary fences should be removed (wire and posts). If fences known

to result in sage-grouse mortality cannot be removed, the top wire should be marked with permanent visual flagging.

Recommendations:

- No roads should be constructed within 5.5 km of active sage-grouse leks.
- Existing roads within 5.5 km of active sage-grouse leks should have seasonal closures (1 March-20 June).-Power lines should be placed only into existing road/utility corridors.
- Power poles and other existing human structures should either be removed, if not used, or fitted with raptor-deterrence devices.
- Fences in sage-grouse use areas should be no more than 3 strands with the top and bottom wires being barbless. Unused fences should be removed.

Guidelines to Manage Sage-grouse Populations and their Habitats (Connelly et al. 2000)

General Habitat Management 4)

Avoid building powerlines and other tall structures that provide perch sites for raptors within 3 km of seasonal habitats. If these structures must be built, or presently exist, the lines should be buried or poles modified to prevent their use as raptor perch sites.

Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats (Connelly et al. 2004)

No project-specific measures.

PYGMY RABBIT (*BRACHYLAGUS IDAHOENSIS*)

Kanab Field Office Approved Resource Management Plan (BLM 2008)

Apply restrictions (e.g., avoidance or mitigation) to surface disturbing and disruptive activities on a case by- case basis in occupied and potential pygmy rabbit habitat for the protection of this species and its associated habitat. Site-specific NEPA documentation would address restrictions around pygmy rabbit habitat.

SENSITIVE RAPTORS

Kanab Field Office Approved Resource Management Plan (BLM 2008: Appendix B)

To adequately manage raptors and their habitats, and to reduce the likelihood of a raptor species being listed under the ESA, BLM-authorized or BLM-proposed management activities and/or land disturbing actions would be subject to the criteria and processes specified within these BMPs. The implementation of raptor spatial and seasonal buffers under the BMPs would be consistent with Table 2 of the Guidelines, included here as Attachment 2. As specified in the Guidelines, modifications of spatial and seasonal buffers for BLM-authorized actions would be permitted as long as protection of nesting raptors is ensured. State and/or federally listed, proposed, and candidate raptor species, as well as BLM state sensitive raptor species, should be afforded the highest level of protection through this BMP process; however, all raptor species would continue to receive protection under the MBTA. Modification of the buffers for threatened or endangered species would be considered pending results of Section 7 consultations with USFWS.

As stated in the Guidelines, spatial and seasonal buffers should be considered as the best available recommendations for protecting nesting raptors under a wide range of activities statewide. However, they

are not necessarily site-specific to proposed projects. Land managers should evaluate the type and duration of the proposed activity, the position of topographic and vegetative features, the sensitivity of the affected species, the habituation of breeding pairs to existing activities in the proposed project area, and the local raptor nesting density when determining site-specific buffers. BLM would be encouraged to informally coordinate with UDWR and USFWS any time a site-specific analysis shows that an action may have an adverse impact on nesting raptors. The coordination would determine if the impact could be avoided or must be mitigated and, if so, determine appropriate and effective mitigation strategies. Potential modifications of the spatial and seasonal buffers identified in the Guidelines may provide a viable management option. Modifications would ensure that nest protection would occur, while allowing various management options that may deviate from the suggested buffers within the Guidelines, which if adequately monitored could provide valuable information for incorporation into future management actions.

Seasonal raptor buffers from Attachment 2 should be reviewed by local raptor nesting authorities who are knowledgeable of raptor nesting chronologies within their local areas. For those nesting raptors for which local nesting chronologies remain uncertain, the seasonal buffers provided in Attachment 2 should serve as the default. However, for those raptor species whose known nesting chronologies differ from the seasonal buffers provided in Attachment 2, the local seasonal buffers may be used as a modification of the Guidelines.

Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the Guidelines, include the following:

1. Completion of a site-specific analysis by a wildlife biologist or other qualified individual.
2. Written documentation by the BLM Field Office wildlife biologist, identifying the proposed modification and affirming that implementation of the proposed modification would not affect nest success or the suitability of the site for future nesting. Modification of the Guidelines would not be recommended if it is determined that adverse impacts on nesting raptors would occur or that the suitability of the site for future nesting would be compromised.
3. Development of a monitoring and mitigation strategy by a BLM biologist or other raptor biologist. Impacts of authorized activities would be documented to determine if the modifications were implemented as described in the environmental documentation or COA and were adequate to protect the nest site. Should adverse impacts be identified during monitoring of an activity BLM would follow an appropriate course of action, which may include cessation or modification of activities that would avoid, minimize, or mitigate the impact, or, with the approval of UDWR and USFWS, BLM could allow the activity to continue while requiring monitoring to determine the full impact of the activity on the affected raptor nest. A monitoring report would be completed and forwarded to UDWR for incorporation into the Natural Heritage Program raptor database.

In a further effort to provide additional support and expertise to local BLM field biologists, a network of biologists from various agencies with specific expertise in raptor management has been identified and included as Attachment 3. The personnel identified have extensive backgrounds in raptor management issues and are available, upon request, to assist BLM field biologists on a case-by-case basis. Field biologists are encouraged to use this network, via informal conferences, with one or more of the individuals identified. This coordination should be clearly distinguished from the consultation process required under ESA Section 7. Individuals on the expert panel should not be expected to provide formal advice, but should serve as a sounding board for discussing potential affects of a proposal as well as potential mitigation measures on specific projects that may be useful to BLM biologists.

Habitat Enhancements

As recommended in the Guidelines, raptor habitat management and enhancement, both within and outside of buffers, would be an integral part of these BMPs, with the understanding that in order for raptors to

maintain high densities and maximum diversity, it is necessary that the habitat upon which they and their prey species depend be managed to promote healthy and productive ecosystems. Habitat loss or fragmentation would be minimized and/or mitigated to the extent practical and may include such measures as drilling multiple wellheads per pad, limiting access roads and avoiding loop roads to well pads, effectively rehabilitating or restoring plugged and abandoned well locations and access roads that are no longer required, rehabilitating or restoring areas affected by wildland fires to prevent domination by non-native invasive annual species, or implementing vegetation treatments and riparian restoration projects to achieve *Standards for Rangeland Health*.

In some cases, artificial nesting structures located in areas where preferred nesting substrates are limited, but where prey base populations are adequate and human disturbances are limited, may enhance some raptor populations or may serve as mitigation for impacts occurring in other areas.

Protection of Nest Sites and Buffer Zones

As stated in the Guidelines, protection of occupied and unoccupied nests is important because not all raptor pairs breed every year, nor do they always use the same nest within a nesting territory. Individual raptor nests left unused for a number of years are frequently reoccupied if all the nesting attributes that originally attracted a nesting pair to a location are still present. Nest sites are selected by breeding pairs for the preferred habitat attributes provided by that location.

Raptor nest buffer zones are established for planning purposes because the nest serves as the focal point for a nesting pair of raptors. The buffer should serve as a threshold for potential adverse impacts on nest initiation and productivity. Actions proposed within these buffer zones are considered potentially impacting, and therefore trigger the need for consideration of site-specific recommendations. Seasonal (temporal) buffer zones are conservation measures intended to schedule potentially impacting activities to periods outside of the nesting season for a particular raptor species. These seasonal limitations are particularly applicable to actions proposed within the spatial buffer zone of a nest for short duration activities, such as pipeline or powerline construction, seismic exploration activity, vegetative treatments, fence or reservoir construction, or permitted recreational events, where subsequent human activity would not be expected to occur.

Spatial buffer zones are those physical areas around raptor nest sites where seasonal conservation measures or surface occupancy restrictions may be applied, depending on the type and duration of activity, distance and visibility of the activity from the nest site, adaptability of the raptor species to disturbance, etc. Surface occupancy restrictions should be used for actions that would involve human activities within the buffer zone for a long duration (more than one nesting season) and that would cause an occupied nest site to become unsuitable for nesting in subsequent years.

Unoccupied Nests

All Activities, Including All Mineral Leases: Surface disturbing activities occurring outside of the breeding season (seasonal buffer), but within the spatial buffer, would be allowed during a minimum 3-year nest monitoring period, as long as the activity would not cause the nest site to become unsuitable for future nesting, as determined by a wildlife biologist. Facilities and other permanent structures would be allowed if they meet the above criteria.

Examples of typical surface disturbing actions occurring outside of the seasonal buffer that may not be expected to affect nest production or future nesting suitability include pipelines, powerlines, seismographic exploration, communication sites, an oil or gas well with offsite facilities that does not require routine maintenance, recreation events, fence or reservoir construction, vegetative treatments, and other actions with discrete starting and ending times and for which subsequent human activity or heavy equipment operation within the spatial buffer would not be expected to occur or could be scheduled outside of the seasonal buffer in subsequent years.

Surface disturbing activities that would be expected to potentially affect nest production or nest site suitability include oil and gas facilities requiring regular maintenance, sand and gravel operations, road systems, wind energy projects, mining operations, and other actions requiring continual, random human activity or heavy equipment operation during subsequent nesting seasons.

A nest site that does not exhibit evidence of use, such as greenery in the nest, fresh whitewash, obvious nest maintenance, and the observed presence of adults or young at the nest, for a period of 3 consecutive years (verified through monitoring) would be deemed abandoned and all seasonal and spatial restrictions would cease to apply to that nest. All subsequent authorizations for permanent activities within the spatial buffer of the nest could be permitted. If the nest becomes reoccupied after authorized activities are completed, conservation measures would be considered to reduce potential adverse affects and to comply with the MBTA and the Eagle Protection Act.

The 3-year non-use standard varies from the Guidelines' suggested 7-year non-use standard before declaring nest abandonment. This variation is based upon a similar standard that has been applied for more than 20 years in two administrative areas within Utah. Empirical evidence would suggest that the 3-year non-use standard has been effective in conserving raptor species. The 3-year standard has been applied without legal challenge or violation of "Take" under the MBTA or the Eagle Protection Act.

Because prey base populations are known to be cyclic, and because raptor nest initiation or nesting success can be affected by drought and other random natural events, care should be taken when applying the 3-year non-activity standard. The 3-year nest occupancy monitoring requirement should be viewed as a minimum time period during those years of optimal raptor nesting conditions. During suboptimal raptor nesting years, when nesting habitat may be affected by drought, low prey base populations, fire, or other events, the monitoring standard should be increased to allow raptors the opportunity to reoccupy nesting sites when nesting conditions become more favorable.

Occupied Nests

All Activities: Land use activities that would have an adverse impact on an occupied raptor nest would not be allowed within the spatial or seasonal buffer.

Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (Romin and Muck 2002)

Guidelines for Mitigating Unavoidable Impacts

Mitigation Techniques

Examples of techniques to mitigate unavoidable impacts to raptors and their habitats follow. These recommendations are not all-inclusive of available strategies, but provide a framework for land use planners to follow. Project proponents should select management recommendations and/or develop other techniques based on the raptor species, the project and its potential impacts. Success of these techniques is generally varied and somewhat dependent on the species, individual raptors, individual breeding pairs, and type of disturbance:

1. *Relocation of young and nests*

Extensive coordination with Service, UDWR, and/or resource management wildlife biologists is highly encouraged when attempting relocation of young and nests of raptors. Techniques involving relocation of raptor young and nests have been successfully accomplished for some species and are intended to maintain a breeding pair's use of their home range despite disturbance or loss of the traditional nest site (Postovit et al. 1982). Non-migratory species such as golden eagles, which maintain an average of four to six nests per nesting territory in Utah, may be more accepting of this strategy than migratory raptors which may shift territories in response to prey availability (Postovit and Postovit 1987). Case studies in Wyoming (Postovit et al. 1982, Parrish et al. 1994) showed high success rates for relocation of golden

eagle and ferruginous hawk nests and nestlings. Relocations of great horned owls, short-eared owls, prairie falcons, and red-tailed hawks also have met with success. The following recommendations from Postovit and Postovit 1987 have been provided to foster successful relocation efforts:

- a. Determine a raptor pair's home range and movement patterns.
- b. Select a relocation site as far from disturbance as possible, but within the home range and near preferred use areas such as roosts, perches, and foraging sites.

Line of sight visibility to original nest sight should be considered. If distant or not visible from original nest, the relocation may be made in stages with a mobile platform. Moves greater than 1/4 mile distant from the original nest are not recommended. Selection of previously used nest locations or natural substrates for relocation is preferred.

- c. Establish new nest sites at least two years prior to planned relocation to allow acclimation by the adult birds.
- d. Schedule nest relocations to occur outside the raptor's breeding season.
- e. Nestlings should only be moved when they are one-half way through the nestling period since they no longer require continuous brooding by the adults.

2. *Deterring use of an existing nest*

Extensive coordination with Service, UDWR, and/or resource management wildlife biologists is highly encouraged when attempting to discourage use of an existing nest by raptors. Deterrence measures are restricted to non-lethal methods intended to prevent nesting in areas under active development and at nests where destruction or high levels of disturbance are likely to occur.

Nesting raptors would be afforded complete protection until fledging of young is completed. Deterrence is not always successful; consideration should be given to whether other potential nests or nests sites are available within the area. Postovit and Postovit (1987) recommended the following deterrence methods:

- a. Blocking access to nests with welded wire to prevent egg laying.

Blocking access to nests has resulted in breeding pairs building new nest sites and accepting existing alternate nests (Parrish et al. 1994). At a coal mine in southeastern Utah, a golden eagle pair succeeded at removing the nesting material from beneath the wire cage, to rebuild the nest at a nearby location (B. Bates, UDWR, 1998, pers. comm.).

- b. Removing nest starts or rendering a nesting substrate unusable.
- c. Repeated disturbance using loud noises.

Some wildlife may become habituated over time to loud noises or scare tactics, so this may provide only short-lived deterrence.

3. *Habituating raptors to increased disturbance or noise levels*

Beginning land use, human activities, or construction prior to the breeding season will allow a pair of raptors to "choose" whether the nest site is still acceptable considering the disturbance.

Warning sirens at regular intervals have also been used to alert raptor pairs to potentially startling noises such as blasting. This technique has generally been used where there is no acceptable alternative to the proposed action. While loss of the nest site may occur, the goal of this technique is to avoid the loss of eggs or young and allow the adults an opportunity to select an alternate nesting site.

Monitoring and documentation of results is recommended following any of the aforementioned techniques to maximize success of efforts. Publishing data and results should also be considered to widely circulate information regarding success of raptor mitigation techniques.

NORTHERN GOSHAWK (*ACCIPITER GENTILIS*)

Conservation Strategy and Agreement for the Management of Northern goshawk Habitat in Utah (USFS et al. 1997)

No project-specific measures.

BURROWING OWL (*ATHENE CUNICULARIA*)

Status Assessment and Conservation Plan for the Western Burrowing owl in the United States (USFWS 2003)

Habitat Protection

Habitat protection and management, and protection and management of burrowing mammals was suggested in several states. Recommendations included the following: introduce fire in shrub-steppe to increase grassland near cropland, reduce the conversion of grasslands and pasture to cultivation, and maintain pesticide- and herbicide-free zones of 600-m radius around burrows (Idaho); leave drain ditches unburned and ditch banks and turnrows undisturbed (Nevada); protect burrow sites (Colorado, Idaho, and Nevada); establish conservation easements with private landowners to secure good owl habitats (Nevada); maintain open ground cover >40%, and native grass cover <40% and <40 cm tall on average, and maintain a 200-m buffer around nest burrows where human activities are prohibited (Oregon and Washington); maintain 100-300 m buffers around nest burrows (Colorado); preserve shortgrass habitat and manage for ground squirrels and badgers (Minnesota); preserve salt desert scrub habitat and its burrowing mammal community (Nevada); manage plague in prairie dog towns and change regulations regarding shooting of prairie dogs and ground squirrels (Montana); survey prairie dog colonies for burrowing owls and reevaluate hunting of prairie dogs (Nebraska and South Dakota); manage habitats for prairie dogs (North Dakota) and restore former prairie dog colonies on National Grasslands (Wyoming); preserve habitat for burrow providers (Oregon and Washington); and work with developers in urban and suburban areas to preserve open space within developments for Burrowing Owls (Nevada).

SENSITIVE PLANTS

Red Canyon Botanical Area Conservation Plan (USFS 2000)

General Actions: Follow established land management policies that enable adequate protection of rare plants (seven) listed in the Conservation Plan, and their associated habitats within the Red Canyon area. Any proposed action within suitable habitat will be evaluated through the Biological Evaluation (BE) process to determine compatibility with the objectives maintained within the Strategy and existing Forest Service policies.

Botanical field reconnaissance will be conducted using standardized botanical survey techniques and performed by trained personnel for each proposed action area where the habitat is deemed suitable for any of the seven rare plant species. Mitigation measures, in addition to Standards and Guidelines prescribed by the Forest Plan will be implemented to provide for persistence of occurring populations.

Grand Staircase Escalante National Monument Management Plan (BLM 2000)

Special Status Animal and Plant Species

In cases where special status species may be affected by a project, the project will be relocated or modified to avoid species or their habitat in consultation with the United States Fish and Wildlife Service (USFWS). Specific restrictions include:

- Surface disturbing projects or activities (such as designated fuelwood cutting areas) will not be allowed in identified special status plant populations.
- Surface disturbing research will generally not be allowed in special status species habitat, except where deemed appropriate in consultation with the USFWS.
- Surface disturbing projects or activities will not be allowed within 1/2 mile of Mexican spotted owl nests or within 1 mile of peregrine falcon nests unless USFWS consultation shows no impacts will occur.
- Surface disturbing projects or activities will not be allowed in areas of known bald eagle roost sites unless consultation with the USFWS shows no impacts will occur.
- No designated climbing areas will be allowed within known sensitive species nesting areas.
- Use of chemical substances that may affect the Colorado pikeminnow or the razorback sucker downstream may not be used.

Kanab Field Office Approved Resource Management Plan (BLM 2008)

Surveys would be required prior to surface disturbance unless species presence and distribution information is complete and available. Surveys would be conducted by a BLM-approved botanist. In the event species presence is verified, the project proponent may be required to modify operational plans, at the discretion of the authorized officer, to include appropriate protection and/or avoidance measures or practices for the minimization of impacts on listed and candidate plants and their habitats. Initiate Section 7 consultation with USFWS for any planned or authorized activity that is determined to have the potential to result in an impact on listed and candidate plants and their habitats.

BEST MANAGEMENT PRACTICES AND MITIGATION - OTHER MIGRATORY BIRDS (ALL)

USFWS and USFS Migratory Bird Strategy (USFS 2007)

Strategy for Implementing MBTA and E.O. 13186 on National Forest Administered Lands in Utah

1. Identify management actions that will assist in the successful implementation of projects that occur within landscapes occupied by migratory birds while minimizing direct take of individual migratory birds when feasible.
2. Timing considerations. The goal in setting seasonal restrictions for management actions is to avoid unintentional take (primarily nesting birds) and to minimize potential effects on migratory birds; however, the use of blanket timing restrictions (e.g., April 15 to July 15) may not be sufficient to cover all species (e.g., some raptors) and at the same time may be too restrictive for certain projects. In evaluating projects, timing restrictions would depend on the species involved and the timing needs for project implementation.
3. Consider short-term vs. long-term benefits relative to types of projects and the effects of projects on migratory birds. There is a need to recognize the potential that projects may have short-term effects on individual birds, local populations, and/or their habitat that are necessary to meet long-term conservation goals
4. The effects of management actions/activities on migratory birds vary considerably depending on the type, scale and vegetation community of the project. Projects such as vegetation manipulation, oil and gas development, road construction or maintenance, recreation developments, etc. have different implications for migratory birds that need to be evaluated. Similarly, benefits and consequences vary among species; for example, changes in the landscape will increase habitat for some species and decrease habitat for others.
5. The scale and context of a project need to be evaluated relative to managing for and conserving habitats and populations of migratory birds, not just individuals (except in the case of threatened, endangered, and certain rare and sensitive species). Issues of scale relate to the size of the project, treatment type, potential for fragmentation of habitats, and the relationship of treated to untreated habitat (e.g., amount and juxtaposition). The amount and quality of suitable habitat that surrounds the proposed project area is an important consideration in assessing the effects of a project on migratory birds. Guidelines for addressing vegetation structure, composition, processes, function and pattern will be related to and addressed in context of the Historic Range of Variability or Properly Functioning Condition for baseline and comparative purposes.
6. Evaluate management practices (other than blanket timing constraints) that will meet the MBTA and successfully mitigate or minimize the effects of unintentional take. Examples of these considerations would be the amount of remaining habitat that is not affected, and managing specific habitat preferences for affected species. Timing limitations are only one method for minimizing unintentional take. However, there is a need to focus on conservation efforts that will sustain key habitats for species over time. This will involve managing habitat for short and long-term need.
7. Project analyses will include a discussion of activities that Forests perform in support of habitat improvement that may cause unintentional take. Some management actions may put individual birds at risk for unintentional take, while the overall population of the species is managed to persist through time. The goal of conserving migratory birds is to minimize

- unintentional take while conserving habitats and populations. These populations will cycle through time as all populations do as a result of climatic factors and other influences such as wildland fire, wind events and succession.
8. The Forest Service will work cooperatively with the Utah Division of Wildlife Resources and the FWS when necessary to identify, conserve, and manage important bird habitats, or sites that occur on National Forest administered lands in Utah. When appropriate, the FS incorporates conservation measures addressed in the State Bird Conservation Plan, Partners in Flight Avian Conservation Strategy, and the Birds of Conservation Concern.
 9. The definitions of unintentional and intentional take are defined as follows:
 - a. Intentional take constitutes the deliberate and intentional taking of migratory birds.
 - b. Unintentional take is the accidental taking of a migratory bird as a result of implementing other management actions.
 10. Most Forests in Utah have developed protocols for addressing migratory birds in NEPA documents that include the aforementioned concepts.

Process for Addressing Migratory Birds in NEPA Documents

Prior to initiating any activity that may affect populations of migratory birds, the Forest Service will:

1. Review the general area of the proposed action and identify migratory birds that may be present, including those found in the Utah Partners in Flight Avian Conservation Strategy, Birds of Conservation Concern, and the Comprehensive Wildlife Conservation Strategy. Identify species including listed, rare and sensitive and determine those that may be affected by the proposed activity.
2. In NEPA documents, the FS will assess and document the potential effects of alternatives on migratory birds. Available demographic, population, and habitat data will be used in the assessment of effects on migratory birds
3. Engage the FWS in early project planning and scoping relative to potential impacts of a proposed action on migratory birds; proactively address migratory bird conservation and initiate appropriate actions to avoid or minimize the unintentional take of migratory birds.
4. Evaluate the potential short-term, long-term and cumulative effects of projects on migratory bird habitats
5. Identify conservation and mitigation measures in the project aimed at conserving migratory bird habitats and populations

The Forest Service recognizes that migratory birds are an important component of the biological diversity of the landscapes in Utah, and looks forward to managing these habitats. In closing, we appreciate your support in the development of this state-wide strategy, and look forward to continuing our relationship in managing for migratory birds on the National Forests in Utah.

Utah Partners in Flight Draft Avian Conservation Strategy (Parrish et al. 2002)

No project-specific measures.

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Appendix B

General Project Acreage Tables

Project Area Calculations (Acres)

Alt Segment	Acres						
	Private	State	BLM	GSENM	USFS	NPS	TOTAL
A-1	21.19	41.48		50.58	153.14		266.39
A-2					26.65		26.65
A-3	13.93	14.4	51.45		61		140.78
A TOTAL	35.12	55.88	51.45	50.58	240.79	0	433.82
B Removal	27.44	3.94	8.37		9.89		49.64
A TOTAL + B Removal	62.56	59.82	59.82	50.58	250.68	0	483.46
B	146.04	45.84	115.61	0	76.33	34.44	418.26
C-1	118.44	14.63		50.58	92.86		276.51
C-2					38.71		38.71
C-3	4.97	14.4	53.71		78.5		151.58
C TOTAL	123.41	29.03	53.71	50.58	210.07	0	466.80
B Removal	6.35	3.94	8.37		9.89		28.55
C TOTAL + B Removal	129.76	32.97	62.08	50.58	219.96	0	495.35
E-W					48.65		48.65
N-S					27.24		27.24

Total Long-Term Disturbance* Area (Acres)

Alternative	Long-Term Disturbance (Acres)						
	Private	State	BLM	GSENM	USFS	NPS	Total
A-1	5.31	5.01	0.00	6.74	17.72	0.00	34.78
A-2	0.00	0.00	0.00	0.00	2.87	0.00	2.87
A-3	2.67	1.68	5.23	0.00	5.88	0.00	15.47
A Total	7.97	6.70	5.23	6.74	26.47	0.00	53.12
B (Bryce 1 Substation on USFS land)	19.36	5.74	13.12	0.00	6.59	1.04	45.85
B (Bryce 2 Substation on Private land)	21.30	(same)	(same)	(same)	4.52	(same)	45.62
C-1	13.97	1.58	0.00	6.74	9.12	0.00	31.41
C-2	0.00	0.00	0.00	0.00	3.92	0.00	3.92
C-3	2.22	1.68	5.42	0.00	7.00	0.00	16.33
C Total	16.19	3.26	5.42	6.74	20.04	0.00	51.66
North-South Interconnect	0.00	0.00	0.00	0.00	2.91	0.00	2.91
East-West Interconnect	0.00	0.00	0.00	0.00	5.85	0.00	5.85

Alternative	Long-Term Disturbance (Acres)						
	Private	State	BLM	GSENM	USFS	NPS	Total
Interconnect Total	0.00	0.00	0.00	0.00	8.76	0.00	8.76

*Includes permanent disturbance associated with power poles (estimated), substations, substation access roads, existing access road upgrades, and 10-foot wide centerline access roads.

Total Short-Term Disturbance Area by Alternative Segments and Land Ownership*

Alternative	Short-Term Disturbance (Acres)						
	Private	State	BLM	GSENM	USFS	NPS	Total
A-1	8.76	18.14	0.00	23.27	70.55	0.00	120.72
A-2	0.00	0.00	0.00	0.00	14.21	0.00	14.21
A-3	9.19	6.96	28.14	0.00	23.08	0.00	67.37
A Total	17.94	25.10	28.14	23.27	107.84	0.00	202.29
B	75.38	20.19	54.08	0.00	18.48	0.78	168.91
C-1	68.72	7.23	0.00	23.27	48.30	0.00	147.52
C-2	0.00	0.00	0.00	0.00	21.69	0.00	21.69
C-3	1.74	6.95	29.34	0.00	36.19	0.00	74.22
C Total	70.47	14.18	29.34	23.27	106.18	0.00	243.44
North-South Interconnect	0.00	0.00	0.00	0.00	13.78	0.00	13.78
East-West Interconnect	0.00	0.00	0.00	0.00	24.97	0.00	24.97
Interconnect Total	0.00	0.00	0.00	0.00	38.75	0.00	38.75

*Includes temporary disturbance associated with pulling sites, laydown areas, and power pole (H-structure) installation. Some overlap between disturbance areas exists because a single area could be used for multiple alternatives. "Limited Access" areas not analyzed for temporary disturbance associated with pole installation.

**Addendum to
Threatened, Endangered and Special Status Species
Specialist Report**

dated December 2009

Prepared For:

US Forest Service – Dixie National Forest
National Park Service – Bryce Canyon National Park
Bureau of Land Management – Kanab Field Office
Bureau of Land Management – Grand Staircase-Escalante National Monument

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This addendum updates the Threatened, Endangered and Special Status Species Specialist Report dated December 2009 by expanding the report to include the Agency Preferred Alternative and providing errata to expand on or correct data previously presented.

Agency Preferred Alternative

The Agency Preferred Alternative was developed through a joint effort of all agencies (USFS, BLM, and NPS) taking into consideration the impacts of all of the resources along the Action Alternatives. Alternative E is the Agency Preferred Alternative because it attains the project's purpose and need while still being sensitive to other resource concerns within the Project Area, and the missions and management objectives of the various land management agencies responsible for the public lands that would be crossed by the Agency Preferred Alternative.

The 100-foot-wide right-of-way for Alternative E, the Agency Preferred Alternative route (**Figure 1**) would begin with Segment C1 (17.36 miles), the East-West Interconnect option (3.70 miles), and a combination of portions of Segments A-3 and C-3 (referred to as E-3). Alternative E contains the segment combining portions of Alternatives A and C called E-3. Segment E-3 begins where the East-West Interconnect joins the Alternative A route and terminates at the Hatch Substation. Segment E-3 would follow Segment A-3 for 1.6 miles to the point where it intersects Segment C-3 and would follow the remainder of Segment C-3, terminating at the Hatch Substation for 6.76 miles. The total length of the preferred route would be 29.41 miles.

Approximately 16.23 miles of the existing 69 kV transmission line infrastructure from the Bryce Canyon Substation to the Hatch Mountain Substation would be removed.

Alternative E, the Agency Preferred Alternative, would also require the amendment of the GSENM MP (BLM 2000) by changing the designation of a 300-foot-wide 3.68-mile stretch (133.74 acres) of the Primitive Zone to Passage Zone, and within this area, changing the existing VRM Management Class designation from Class II to Class III.

Figure 1. Alternative E, Agency Preferred Alternative Route

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Resource Impacts

Alternative E, the Agency Preferred Alternative route, is comprised of segments or portions of segments analyzed under Alternatives A and C, which are fully analyzed in the original Specialist Report dated December 2009. Resource specific disturbance acreages and other data specific to Alternative E, the Agency Preferred Alternative, are provided in the table below.

THREATENED, ENDANGERED AND SPECIAL STATUS SPECIES		ALTERNATIVE E: PREFERRED ALTERNATIVE		69 kV LINE REMOVAL, ALTERNATIVE E
INDICATOR		SHORT-TERM	LONG-TERM	SHORT-TERM
Acres habitat disturbance	Mexican spotted owl Critical Hab	14.7	7.80	0.00
	Utah prairie dog colonies	13.41	0.74	14.30
	Greater sage-grouse Brooding	80.37	21.32	37.8
	Greater Sage-grouse Use Area	14.47	4.80	9.50
	Burrowing owl ¹	137.05	32.35	26.30

¹ Sagebrush habitat common to Utah prairie dog, burrowing owl, pygmy rabbit, Greater sage grouse, and Ferruginous hawk

THREATENED, ENDANGERED AND SPECIAL STATUS SPECIES		ALTERNATIVE E: PREFERRED ALTERNATIVE		69 kV LINE REMOVAL, ALTERNATIVE E
INDICATOR		SHORT-TERM	LONG-TERM	SHORT-TERM
	Northern goshawk ²	50.94	8.66	13.57
	Ferruginous hawk – Pinyon/juniper	29.40	5.75	4.69
	Peregrine falcon ³	2.26	0.35	0.70
	Sensitive plants ⁴	12.28	3.64	3.20
Fragmentation	Utah prairie dog	Transmission line may reduce the size of potential territories.		N/A
		Short-term, minor		
	Pygmy rabbit	Impacts likely long-term, moderate		N/A

² Ponderosa pine habitat common to Northern goshawk, flammulated owl, and Lewis's woodpecker

³ Cliff/canyon habitat common to Peregrine falcon and sensitive bats

⁴ Mapped occurrences and suitable habitat (DNF only)

THREATENED, ENDANGERED AND SPECIAL STATUS SPECIES		ALTERNATIVE E: PREFERRED ALTERNATIVE		69 kV LINE REMOVAL, ALTERNATIVE E
INDICATOR		SHORT-TERM	LONG-TERM	SHORT-TERM
	Greater sage-grouse	The transmission line would isolate portions of use areas and could disrupt seasonal movements or prevent sage-grouse from using all parts of their habitat if transmission lines were avoided.		N/A
		Less Likely. A SMALLER amount of use area could be fragmented, due to lower habitat quality and less habitat.		
Noise	Mexican spotted owl	Disturbance possible. Temporary disturbance to individuals roosting within 0.5 mile of activities, during construction or emergency maintenance. Pre-construction surveys in suitable habitats would document the presence of nesting spotted owls in the area.		Short-term disturbance during removal. Long-term beneficial impacts due to reduced human presence and associated noise from maintenance of the line.
	Utah prairie dog	Individuals may be temporarily displaced. Some individuals may enter hibernation early (not expected).		
		Less likely due to fewer colony areas.		
	Greater sage-grouse	Temporary displacement during construction or emergency maintenance. Adverse reproductive impacts if activities occurred May 1 – July 15.		
		Less likely. Displacement from leks or breeding habitat less likely due to lower habitat quality and less habitat.		
	Burrowing owl	Disturbance possible. Temporary disturbance to individuals roosting within 0.25 mile of activities, during construction or emergency maintenance.		
Northern goshawk	Disturbance possible. Temporary disturbance to individuals roosting within 0.5 mile of activities, during construction or emergency maintenance.			

THREATENED, ENDANGERED AND SPECIAL STATUS SPECIES		ALTERNATIVE E: PREFERRED ALTERNATIVE		69 kV LINE REMOVAL, ALTERNATIVE E
INDICATOR		SHORT-TERM	LONG-TERM	SHORT-TERM
	Bald eagle	Disturbance possible. Temporary disturbance to individuals roosting in the vicinity of activities. Communal roosts occur along the Sevier River.		
Increase in invasive plants	Utah prairie dog	Possible. Further infestations of thistle, hoary cress, and cheatgrass would degrade habitat by replacing native grasses and forbs with plants that do not provide required nutrients and habitat structure, i.e., young shoots and leaves/flowers of forb species. Resource Protection Measures, if completely effective, would eliminate the risk of invasive plant increases.		Same as Alternative E
	Greater sage-grouse	Possible. Further infestations of thistle and cheatgrass would degrade sage-grouse habitat because invasive species do not provide the same level of nutritious forage as sagebrush plants. Cheatgrass could replace sagebrush over time through fire, which would rapidly reduce the amount of suitable habitat. Resource Protection Measures, if completely effective, would eliminate the risk of invasive plant increases.		
	Sensitive plants (DNF Only)	Possible. Further infestations of thistle and cheatgrass would diminish the likelihood that sensitive plants will establish in the area, and that established populations of sensitive plants will expand. Invasive species take up space, water, and nutrients from sensitive plants species and generally out-compete them. Resource Protection Measures, if completely effective, would eliminate the risk of invasive plant increases.		
Distance to sage-grouse leks within 1 mile of centerline	John L. Swale Lek		N/A	N/A
	Lek 1		0.45 mile	1 mile
	Lek 2		N/A	0.20 mile
Compliance with NPS guidelines and mitigation			N/A	In compliance

Errata

Some changes, clarification and updates to resource-specific data and analysis were made as a result of the comments received on the Draft Environmental Impact Statement. The errata below update the original Specialist Report dated December 2009.

Page 3

The second paragraph under the heading **1.1.2.2 Alternative B: Parallel Existing 69 kV Route** should read:

The Alternative B Route would generally parallel the existing 69 kV line right-of-way, but must be separated from the existing 69 kV line right-of-way for constructability and safety reason, in order to safely build and energize the line prior to removal of the existing line. Alternative B would extend 29.11 miles. This alternative route would begin at the proposed East Valley Substation located east of Tropic and extend west through the Tropic Substation (the Tropic Substation would be decommissioned) and then cross SR 12 and continue across BRCA (deviating slightly from the existing right-of-way for approximately 1.5 miles) to a point near the current Bryce Canyon Substation near Bryce Canyon City. For this Alternative, the Bryce Canyon Substation would be decommissioned and a new replacement substation would be built at a new location approximately 1 mile to the west to allow for needed expansion. The route would extend approximately 0.5 mile to the north around Bryce Canyon City, west across SR 63 and then parallel Garkane's existing 69 kV line right-of-way predominately across private and SITLA lands. The alternative route would parallel the existing right-of-way just to the south across the plateau in a northwest direction to Red Canyon, where it would generally follow the existing right-of-way through Red Canyon into Long Valley where it would cross U.S. 89 and continue to the Hatch Mountain Substation. From there the route would follow the existing line south to the Hatch Substation. This route would cross 5.58 miles of DNF, 8.29 miles of KFO, 2.81 miles of BRCA, 3.63 miles of SITLA, and 8.80 miles of private lands.

Page 13:

Table 1.2-3, ninth line, Ute ladies' tresses.

Entry should read:

NO—No occurrences known. This species inhabits intermontane valleys and is found on silty loam alluvial soils associated with wetlands or floodplains of perennial streams. In 2008, Transcon Environmental performed detailed pedestrian surveys along the alternative routes of the project and no Ute ladies' tresses were reported. Based on conversation with federal botanists, this plant is not known to occur within the project area. Closest occurrence is along Henrieville Creek, about 5 miles northeast of Henrieville and about 7 miles east of the Project Area.

Subsequent to publication of the DEIS, the DNF completed an Environmental Assessment for an Aquatic Monitoring Amendment to the LRMP (USFS 2010). The amendment identifies additional native fish species that have special conservation needs. This amendment results in the following addition to the Specialist Report.

Table 1.2-3, after the sixth line; add a line and the following species information for the Virgin spinedace.

Virgin Spinedace <i>Lepidomeda mollispinis mollispinis</i>	Fish DNF-S BLM-S	NO—No suitable habitat. This species is found only in tributaries of the Virgin River.
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Page 14:

Table 1.2-3, add southern leatherside chub information after the ninth line, roundtail chub.

SPECIES	TYPE & STATUS ¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE E – AGENCY PREFERRED ALTERNATIVE
Southern leatherside chub <i>Lepidomeda aleciae</i>	Fish DNF-S	YES – Present in Sevier River north of Hatch (A-3) and East Fork Sevier River in John's Valley (A-1).	YES – Present in Sevier River north of Hatch and East Fork Sevier River in John's Valley.	YES – Present in Sevier River north of Hatch (C-3) and East Fork Sevier River in John's Valley (C-1).	YES – Present in Sevier River north of Hatch and East Fork Sevier River in John's Valley.

Page 14

Bighorn Sheep were added to the USFS Region IV Sensitive species list on July 29, 2009. Information on bighorn sheet was inadvertently omitted from the Specialist Report. Table 1.2-3, add bighorn sheep information after the 12th line, before pygmy rabbit.

Bighorn sheep <i>Ovis canadensis</i> <i>spp.</i>	Mammal DNF-S	NO— lack of habitat for this species in the project area, and lack of connectivity of habitat to known populations (see Appendix D).
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Page 17

Table 1.2-3, revise the fourth line, western toad, to boreal toad; and information about possible occurrences and suitable habitat within the alternative routes as indicated below.

SPECIES	TYPE & STATUS ¹	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE E – AGENCY PREFERRED ALTERNATIVE
Boreal toad <i>Bufo boreas</i>	Amphibi an DNF-S BLM-S	POSSIBLE – Toads may occur within East Fork Sevier River (A- 1)	POSSIBLE – Toads may occur within East Fork Sevier River	POSSIBLE – Toads may occur within East Fork Sevier River (C-1)	POSSIBLE – Toads may occur within East Fork Sevier River

Page 21:

The paragraph under heading **1.2.5.2 Mexican Spotted Owl** should read:

The Mexican spotted owl is a large owl that typically roosts and nests in shady, mature forests but in southern Utah prefers the cracks of deep slot canyons (USFWS 1995). In Utah, breeding spotted owls typically utilize deep, steep-walled canyons that contain mature coniferous or deciduous trees within the canyon bottom.

Add before **1.2.5.3 Pygmy Rabbit**:

1.2.5.2 Southern Leatherside Chub

The southern leatherside chub is a small desert fish endemic to streams in the southern and eastern Bonneville Basin. Southern leatherside chub was formerly known as leatherside chub, which was split into two unique species, the northern and southern leatherside chub (the following is taken from UDWR 2010). Southern leatherside chub require flowing water and do not persist in lakes or reservoirs. Occupied streams have a high variability of stream flow, annual precipitation, gradient, elevation, conductivity, and pH. Adult and juveniles utilize the main channel of streams more often than off-channel habitats, although the presence of brown trout may shift habitat use. Southern leatherside chub occur in streams with a broad range of temperatures and have habitat requirements of healthy riparian vegetation and intact streambanks. Southern leatherside chub have been documented in six 4th-level HUCs in the Sevier River drainage within the following streams since 1994: Threemile Creek, Bear Creek, Panguitch Creek, Butler Creek, Mammoth Creek, and Asay Creek, the mainstem of the upper Sevier River, the East Fork Sevier River, Clay Creek, and Otter Creek (UDWR 2010). Southern leatherside chub were not documented during surveys in 2004 at the East Fork Sevier River and tributaries, including Kanab Creek near Tropic Reservoir (UDWR 2004). Southern leatherside chub were documented on the East Fork Sevier River at three stations in John's Valley in 2007 (UDWR 2007) and at four stations in Kingston Canyon (north of the Project Area) in 2009 (UDWR 2009a). In the Sevier River mainstem north of Hatch (Hatch Restoration Area), southern leatherside chub have been documented in 2006, 2007, and 2008 (UDWR 2008a).

Page 24-25:

Starting with the next to last sentence of the paragraph under heading **1.2.5.9. Greater Sage-grouse**) the text should read:

The availability of forb-rich habitats in close proximity to protective cover appears to be an important consideration for early brood-rearing. Late brood-rearing habitats are those used by sage-grouse starting later in the summer, following desiccation of herbaceous vegetation in sagebrush uplands. Sage-grouse usually select late-summer habitats based on the availability of forbs; these areas are often wet meadows or irrigated pastures adjacent to sagebrush. Winter habitats of sage-grouse are dominated by sagebrush that can provide shelter and food. Habitat selection during winter is influenced by snow depth and hardness, topography, and vegetation height and cover. Sagebrush plants must be exposed above the snow to provide forage. Sage-grouse may roost in snow burrows during this period to conserve energy. Sage-grouse habitat quality and quantity has declined throughout Utah and coincides with declines in sage-grouse numbers (UDWR 2009b).

Page 27:

Insert after **1.2.5.16. Ferruginous Hawk:**

Boreal Toad

The boreal toad (subspecies of the western toad) within Utah and in the Project Area is not part of the Southern Rocky Mountain DPS (Distinct Population Segment) that was Candidate for Listing until 2005. Western toads are found in a variety of habitats such as desert springs and streams, meadows and woodlands, and in and around ponds, lakes, reservoirs, and slow-moving rivers and streams. Breeding areas are typically shallow water areas at the edges of ponds, or lakes, stream or river edges with slow-moving water, or other flooded or ponded areas (Keinath and McGee 2005). After breeding, western toads move to more terrestrial habitats and eventually to hibernacula that may be a substantial distance from the breeding site (up to 2.5 km, but usually much less; Keinath and McGee 2005). Occupied wetlands in Utah are surrounded by a variety of upland vegetation communities, including sagebrush and grassland, pinyon-juniper, mountain shrubs, and coniferous forest. Extensive observations of upland and winter habitat use in Utah have not been completed. However, toads have been observed using small mammal burrows in drier upland areas. Breeding habitats in Utah include low velocity, low gradient streams, off channel marshes, beaver ponds, small lakes, reservoirs, stock ponds, wet meadows, seeps, and associated woodlands. Hibernacula in Utah have not been described. As of 2005, only one hibernaculum was discovered in the Paunsaugunt Plateau. UDWR Inventories of boreal toads in southern Utah from 1994 to 1998 reported toads within the Dixie National Forest from seven beaver dam complexes within the East Fork Sevier River, Left Fork Kanab Creek, and Tropic Reservoir (UDWR 2000). In recent years, however, breeding activity in this area appears to be limited to only a few beaver ponds upstream from the Mill Creek confluence and along the Left Fork of Upper Kanab Creek (M. Golden, Dixie National Forest fish biologist, pers comm. 22 March 2010). No boreal toads were found during surveys of the Project Area (Transcon 2008c).

Page 32:

The first paragraph after heading **Indicator (1): Acres of Habitat Disturbed** should read:

Acres of direct disturbance of habitat were compared to available habitat. Habitat disturbances were analyzed in the context of the Project Area. The acreage of habitat disturbance was divided by the total acreage of that habitat in the Project Area. Impacts were determined directly from calculated percentages.

Page 33:

Add after Indicator 5, and renumber Compliance with National Park Service Management Policies as Indicator 7.

Indicator (6): Aquatic Habitat

Table 1.3-7 in the Wildlife Specialist Report discusses impact criteria related to the number and type of stream, riparian area, and wetland crossings. Impacts to aquatic species were evaluated by identifying areas of proposed stream or wetland crossings and by using current information about the status and persistence of aquatic species populations in the area to assess relative vulnerability to decline or fragmentation from a road crossing. Aquatic species that are sensitive to sedimentation impacts or that migrate between habitats were assumed to be most likely to be affected by road crossings.

Page 35:

Add after Table 1.3-7:

Aquatic Species. Impacts to special status aquatic species (southern leatherside chub and boreal toad) are discussed here because they would not differ among the alternatives. General impacts to aquatic habitat can be found in **Section 4.7**.

Indicator (6): Crossings in aquatic habitat. The Sevier River would not be crossed under any alternative. In intermittent drainages where aquatic species may be downstream (i.e., East Fork Sevier River), aquatic species may be affected by sediment downstream from a crossing, after the crossing has been installed and removed. These impacts would be short-term and minor.

Boreal toad (S). Boreal toads may occur in the East Fork Sevier River, either within or downstream of the Project Area, therefore reproductive (aquatic) habitat for this species may be affected as described for southern leatherside chub. These impacts would be short-term and minor.

Southern leatherside chub (S). Southern leatherside chub in the Sevier River would not be affected by the Action Alternatives. Southern leatherside chub in the East Fork Sevier River (downstream of the Project Area) may be affected by sediment introduced from low-water crossings in upstream reaches. These impacts, if they occurred, would be short-term and minor.

Page 52:

The acreage of habitat disturbed for Greater sage-grouse described under Alternative C in the Specialist Report text was reported incorrectly. Text under the heading **Indicator (1): Acres of habitat disturbed** should read:

There would be 22 acres of brood-rearing habitat for greater sage-grouse disturbed for the long term and 84 acres disturbed temporarily during construction. Regarding use areas, 5 acres would be disturbed for the long term and 15 acres would be temporarily disturbed during construction. The Project Area for Alternative C contains 257 acres of brood-rearing habitat and 67 acres of use area, which is the smallest amount of use habitat present among all three Action Alternatives. Habitat impacts would be minor under Alternative C due to the reduced amount of use area disturbed. This is the most important habitat for sage-grouse because it includes known breeding areas, and thus would determine the magnitude of impacts for *Indicator (1)*.

Appendix A:

The first bullet after the heading **Water** should read:

Water needed during construction would be limited to that needed for dust control (See Appendix C, Dust Management Plan).

Appendix B:

The tables below detail the land management, and long- and short-term disturbance associated with Alternative E, the Agency Preferred Alternative, and should be added to the tables presented in Appendix B of the Specialist Report of December 2009.

Agency Preferred Alternative Project Area

ALTERNATIVE E SEGMENTS	PROJECT AREA* (ACRES)						
	PRIVATE	SITLA	KFO	GSENM	DNF	BRCA	TOTAL
Segment C-1	118.44	14.63	0.00	50.58	92.86	0.00	276.51
East-West Interconnect	0.00	0.00	0.00	0.00	48.65	0.00	48.65
Segment E-3	6.30	14.85	54.24	0.00	52.40	0.00	127.79
69 kV Line Removal – Alternative E	6.35	3.94	8.37	0.00	9.89	0.00	28.55
Alternative E Total	131.09	33.42	62.61	50.58	203.80	0.00	481.50

*The Project Area contains the 100-foot right-of-way, substation sites and their associated access roads; all temporary work spaces outside the right-of-way; and the disturbance area associated with the existing 69 kV transmission line removal.

Agency Preferred Alternative 100-foot Right-of-Way Encumbrances*

ALTERNATIVE E SEGMENTS	RIGHT-OF-WAY (ACRES)						
	PRIVATE	SITLA	KFO	GSENM	DNF	BRCA	TOTAL
Segment C-1	83.11	12.59	0.00	44.58	70.42	0.00	210.70
East-West Interconnect	0.00	0.00	0.00	0.00	44.99	0.00	44.99
Segment E-3	2.56	12.86	40.71	0.00	44.87	0.00	101.00
Alternative E Total	85.67	25.45	40.71	44.58	160.28	0.00	356.69

*Buffer of 50 feet on each side of transmission line. Not all acres would be disturbed within the right-of-way, but the right-of-way is considered to be long-term encumbrance for the duration of the permit.

Agency Preferred Alternative Total Long-Term Surface Disturbance and Land Ownership/Management

ALTERNATIVE E SEGMENTS	LONG-TERM DISTURBANCE* (ACRES)						
	PRIVATE	SITLA	KFO	GSENM	DNF	BRCA	TOTAL
Segment C-1	13.97	1.58	0.00	6.74	9.12	0.00	31.41
East-West Interconnect	0.00	0.00	0.00	0.00	5.85	0.00	5.85
Segment E-3	2.24	1.68	5.42	0.00	4.19	0.00	13.54
Alternative E Total	16.21	3.26	5.42	6.74	19.16	0.00	50.80

*Includes long-term disturbance associated with power poles, substations, substation access roads, existing access road upgrades, and a 10-foot-wide centerline access route.

Agency Preferred Alternative Total Short-Term Surface Disturbance and Land Ownership/Management

ALTERNATIVE E SEGMENTS	SHORT-TERM DISTURBANCE* (ACRES)						
	PRIVATE	SITLA	KFO	GSENM	DNF	BRCA	TOTAL
Segment C-1	68.72	7.23	0.00	23.27	48.30	0.00	147.52
East-West Interconnect	0.00	0.00	0.00	0.00	24.97	0.00	24.97
Segment E-3	1.74	6.95	30.32	0.00	22.54	0.00	61.55
Alternative E Total	70.46	14.18	30.32	23.27	95.81	0.00	234.04

*Includes short-term disturbance associated with pulling and splicing sites, lay-down areas, and power pole (H-structure) installation. Some overlap between disturbance areas exists because a single area could be used for multiple alternatives. *Limited access areas* were not analyzed for short-term disturbance associated with pole installation. Alternative B also includes short-term disturbance associated with removal of the existing 69 kV transmission line.

Short-Term Disturbance Associated with Removal of Existing 69 kV Line (Parallel to Alternative B)

SHORT-TERM DISTURBANCE* (ACRES)						
PRIVATE	SITLA	KFO	GSENM	DNF	BRCA	TOTAL
27.44	3.94	8.36	0.00	9.89	0.00	49.63

*This short-term disturbance area includes lay-down yards and pulling and splicing sites needed for the existing 69 kV line removal. For analysis, short-term surface disturbance for line removal is assumed to include all of the short-term disturbance areas (i.e., lay-down areas, pulling/splicing sites) that are included under Alternative B. This effectively reduces the amount of disturbance shown for Alternative B as these areas are the same as those counted for the installation of the 138 kV line. In reality these areas needed for removal would be very similar to, but slightly offset from, the installation sites.

Appendix C:

Appendix C, Dust Management Plan should be inserted after Appendix B, General Project Acreage Tables.

Appendix C

Dust Management Plan

A control strategy or strategies for fugitive dust are listed for each activity proposed under the Action Alternatives described in the Environmental Impact Statement. The strategies are listed in a staged approach, meaning that if the first approach of control, Stage 1, is not satisfactory, then the next approach of control, Stage 2 will be attempted.

ACTIVITY	ACTIVITY DETAILS	CONTROL STRATEGIES	
Material Storage	Storage of materials required for road widening.	Stage 1:	Inherent moisture with water sprays only on an as-needed basis.
		Stage 2:	Increase use of water sprays until fugitive dust is controlled.
Material Handling, Transfer, Hauling, Loading or Dumping	Placing fill material along roadside for widening.	Stage 1:	Inherent moisture with water sprays only on an as-needed basis.
		Stage 2:	Increase use of water sprays until fugitive dust is controlled.
Haul Roads, Roadways, or Yard Areas	Existing FS roads, centerline access; pulling, splicing and laydown yards	Stage 1:	Water sprays only on as-needed basis.
		Stage 2:	Increase use of water sprays until fugitive dust is controlled.
Clearing, Leveling	Pulling, splicing, laydown yards; area at pole locations	Stage 1:	Inherent moisture with water sprays only on an as-needed basis.
		Stage 2:	Increase use of water sprays until fugitive dust is controlled.
Earth Moving, Excavation	Foundation construction in certain locations	Stage 1:	Inherent moisture with water sprays only on an as-needed basis.
		Stage 2:	Increase use of water sprays until fugitive dust is controlled.
Construction, Demolition	Constructing and erecting new pole structures; removal of existing pole structures	Stage 1:	Water sprays only on an as-needed basis.
		Stage 2:	Increase use of water sprays until fugitive dust is controlled.

Appendix D:

Appendix D, Bighorn Sheep, should be inserted after Appendix C, Dust Management.

Appendix D

Bighorn Sheep

21 January 2011

Effects Analysis for Bighorn sheep

Bighorn Sheep were added to the Region IV Sensitive species list on July 29, 2009. http://www.fs.fed.us/r4/resources/tes/r4_tes_lst_0408.pdf

Survey work for the proposed project began in 2008 and was completed summer 2009.

Effects Analysis/Habitat Requirements:

Bighorn sheep are associated with rugged terrain, typically characterized by canyons, gulches, talus cliffs, steep slopes, mountain tops, and river benches. Open habitats with adjacent steep rocky areas are preferred, as these areas provide escape cover from most predators.

An important aspect of habitat suitability is high visibility for predator detection. Mountain lions are the primary predator of bighorn sheep in Utah. Mortality from disease and parasites is also of major concern in the state; exposure to domestic sheep increases the probability of bighorn die-offs from pneumonia. Disease may be exacerbated by stress from human disturbance, overcrowding, poor nutrition, and competition with domestic and feral animals. Habitat is lost or degraded through many causes, including mineral development, competitive grazing, fire suppression, and pinyon-juniper encroachment (Summarized in Rodriguez, 2008).

Existing Condition:

Desert bighorns were first relocated to Zion National Park in 1973. Between 1979 and 1999, over 500 desert bighorns were trapped and released into areas of historic habitat including the Kaiparowits Plateau, Escalante Canyon, Dolores Triangle, Dirty Devil, Little Rockies, Paria River, Beaver Dam Mountains, and Arches and Capitol Reef National Parks. There have been four unconfirmed sightings of desert bighorn sheep on the Cedar City Ranger District in the past two years. No confirmed sightings on the Powell Ranger District. Two sightings in the Yankee Meadow area in second left hand and upper bowery creek, one sighting near Brian Head peak and one near Midway Valley on Highway 14. According to the UDWR, bighorn sheep located on the Forest are a concern to them due to proximity to domestic sheep and humans. Presumably these sheep came from the Zion National Park population and had to travel many miles through domestic sheep country to get to the Forest. As a result, when returning to Zion these wild sheep could introduce diseases to the Zion population possibly resulting in local extinction.

There have been no sightings of bighorn sheep in the project area but it is likely that desert bighorn sheep are found adjacent to the project area within the CEA. The proposed Garkane 138 KV power line crosses many habitat types where very limited connectivity to desert bighorn sheep habitat can be found. There were no sightings of bighorn sheep during formal surveys for this project and there have been no sightings in the vicinity of the proposed project. Desert bighorns sheep are likely found in many of the canyons to the South of the proposed project however habitat connectivity to these populations is disconnected. Due to the lack of habitat for this species in the project area, and the lack of connectivity of habitat to known populations, this species will not be carried forward for further analysis.

There will be no direct effects to this species as it is not found within the proposed project corridor.

Additional References:

Utah Division of Wildlife Resources (UDWR). 2000. Bighorn Sheep, Wildlife Notebook Series No. 16. May 2000.

Jake Schoppe

Wildlife Biologist Powell Ranger District

Consideration of Best Available Science

The techniques and methodologies used in this analysis consider the best available science. The analysis includes a summary of the credible scientific evidence that is relevant to evaluating reasonably foreseeable impacts. In addition, the analysis also identifies the methods used and references the scientific sources relied on. When appropriate, the conclusions are based on a scientific analysis that shows a thorough review of relevant scientific information, a consideration of responsible opposing views, and the acknowledgment of incomplete or unavailable information, scientific uncertainty, and risk.

JAKE SCHOPPE

Name (Printed)



Signature

28 JAN 2011

Date