3.8 Special Status Wildlife Species

3.8.1 Regulatory Background

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the ESA and species designated as sensitive by the BLM and USFS. In addition, there are state-protected and sensitive wildlife lists for Colorado, Utah, and Nevada (Colorado Revised Statutes 33-2-105, Utah Rules R657-3, R657-19, R657-48, and NAC 503.0001-503.104) that include many of the BLM and USFS sensitive species as well as ESA-listed species.

In accordance with the ESA, the lead agencies (BLM and Western), USFS, and NPS, in coordination with the USFWS, must ensure that any action that they authorize, fund, or carry out is not likely to jeopardize a federally listed species or result in the destruction or adverse modification of critical habitat. In addition, as stated in the BLM's Special Status Species Management Policy 6840 (6840 Policy) (Rel. 6-125), it is BLM policy "to conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA provisions are no longer needed for these species, and to initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood of and need for listing of these species under the ESA." The FSM 2670 states "Sensitive species of native plant and animal species must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that would result in the need for Federal listing." The NPS is responsible for management of wildlife species on NPS-managed lands (NPS 2006).

Regulations that directly influence special status wildlife species management decisions within the special status species wildlife analysis area are primarily implemented by the BLM, USFS, NPS, and state wildlife agencies, which consist of the WGFD, CPW (formerly CDOW), UDWR, and NDOW. Specific special status species statutes, regulations, and policies relevant to the proposed Project are presented in **Table 3.8-1**.

Table 3.8-1 Relevant Statutes, Regulations, and Policies for Special Status Wildlife Species

Topic	Statutes, Regulations, and Policies
Wildlife (mammals, birds, reptiles, terrestrial invertebrates)	• Endangered Species Act (ESA) of 1973; • Migratory Bird Treaty Act (16 USC 703 et seq.); • EO 13186 (66 FR 3853); • BLM Special Status Species Management Policy 6840 (6840 Policy) (Rel. 6-125); • FSM 2670; • Colorado Revised Statutes 33-2-105; • Utah Rules R657-3, R657-19, and R657-48; • Nevada Administrative Code 503.0001-503.104; • Nevada Revised Statute (NRS) 503.597; • Nevada Administrative Code 503.093; • Bald and Golden Eagle Protection Act (16 USC, § 668 et seq.); • BLM Instruction Memorandums (IM) 2010-012, 2010-156, 2012-043, and 2012-044; UT 2006-096 • State of Wyoming EO 2011-5; and • National Park Service Law, Policy, and Other Guidance (2006).

Bald and Golden Eagle Protection Act

In addition to the MBTA, bald and golden eagles are protected under the BGEPA (16 USC 668 et seq.). This statute prohibits anyone without a permit from committing "take" of bald and golden eagles,

including their parts, nests, and eggs. “Take” is defined as the actions to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest and disturb. In 2009, the USFWS implemented two rules authorizing new permits under BGEPA.

- 50 CFR 22.26 would authorize limited “take” of bald and golden eagles where the “take” is associated with, but is not the purpose of an activity and cannot practicably be avoided.
- 50 CFR 22.27 would authorize the intentional take of eagle nests where necessary to alleviate safety hazards to people or eagles; to ensure public health and safety; where a nest prevents the use of a human-engineered structure; and when an activity, or mitigation for the activity, will provide a net benefit to eagles. Only inactive nests are allowed to be taken, except in the case of safety emergencies.

BGEPA provides the Secretary of Interior with the authority to issue eagle-take permits only if he/she is able to determine that the take is compatible with the preservation of the eagle. This take must be “…consistent with the goal of increasing or stablizing breeding populations.” For golden eagles, current data indicate a negative population trend in the lower latitudes, such as the southwestern U.S., while data indicate a positive population trend in the northern BCRs. These trends may simply indicate movement patterns; however, evidence may demonstrate a lack of resiliency in golden eagle populations.

3.8.2 Data Sources

Information regarding special status wildlife species and their habitats within the special status wildlife analysis area was obtained from a review of existing published sources, BLM resource management plans, USFS LRMPs (forest management plans), BLM, USFS, WGFD, CPW, UDWR, NDOW, and USFWS file information, as well as WYNDD, CNHP, UNHP, and NNHP database information. State wildlife action plans include:

- Wyoming Game and Fish Department State Wildlife Action Plan (WGFD 2010);
- Colorado’s Comprehensive Wildlife Conservation Strategy and Wildlife Action Plans (Colorado Partners in Flight 2006);
- Utah Comprehensive Wildlife Conservation Strategy (Sutter et al. 2005); and
- Nevada Wildlife Action Plan (Wildlife Action Plan Team 2012).

Partners in Flight (PIF) and the GBBO also have developed the following state bird conservation plans:

- Wyoming Partners in Flight Wyoming Bird Conservation Plan (Nicholoff et al. 2003);
- Colorado Partners in Flight Land Bird Conservation Plan (Colorado Partners in Flight 2006);
- Utah Partners in Flight Avian Conservation Strategy (Parrish et al. 2002); and
- Nevada Comprehensive Bird Conservation Plan (GBBO 2010).

GIS shapefiles of raptor nest locations were obtained from AECOM (2012); Ashley National Forest (2010); BLM Cedar City FO (2010); BLM Little Snake FO (2011); BLM Price FO (2008); BLM Ely FO (2007a); BLM Rawlins FO (2009), 2010; BLM Rock Springs FO (2009); BLM Vernal FO (2011, 2009); CDOW, BLM, USFS cooperative dataset (2009); EPG (2012); Manti-La Sal National Forest (2012); NDOW (2012); and Uinta National Forest Planning Area (2011). In addition, information received through correspondence with agency wildlife biologists has been incorporated, as appropriate.

3.8.3 Analysis Areas

Special status wildlife analysis areas were chosen because they represent the combination of geographic areas containing habitats that would be impacted by the proposed Project, as well as management considerations to which these habitats are subject. Accordingly, these analysis areas provide a clear disclosure of the context of Project impacts in light of the management considerations for these areas. The special status wildlife analysis area is defined as suitable habitat within the HUC10 watershed areas crossed by the Project. The HUC10 watershed refers to the 10-digit hydrologic unit codes specifying the 5th-level watershed boundaries that were originally delineated by the USGS and subsequently refined by the NRCS. These watershed areas average from approximately 40,000 to 250,000 acres in size and provide a clear bio-geographical delineation of vegetation communities and wildlife habitats. The HUC10 watershed areas provide a clear delineation of vegetation communities supporting wildlife habitat that are separated by distinct geographical features, such as elevation and topography. Special status species with more limited ranges and/or specifically defined habitat preferences are accorded more detailed analysis areas (**Table 3.8-2**). Section 3.4, Water Resources, presents tables and figures of HUC10 watersheds in the special status wildlife analysis area.

The MIS Analysis Area for USFS MIS includes suitable habitat within the entire national forest(s) for which they are identified. This MIS Analysis Area was chosen because it allows disclosure of the context of impacts within the unique requirements of the USFS for monitoring and managing MIS species within the jurisdiction of NFS lands. The exceptions are mule deer and Rocky Mountain elk which are MIS but are analyzed within the big game analysis areas described in Section 3.7, Wildlife.

The special status wildlife analysis areas are presented in **Table 3.8-2**.

Table 3.8-2 Analysis Areas for Special Status Wildlife Species

Species	Region	Analysis Area
Federally listed and Candidate Species		
Desert tortoise	III and IV	USGS model rankings 0.5 - 1.0.
California condor	III	Cliff and canyon, conifer forest, and pinyon-juniper woodland habitat in the HUC10 watersheds traversed by the route alternatives in Region III.
Greater sage-grouse[1]	I, II, III	• Core Areas in Wyoming as designated under Wyoming Governors EO 2011-5. • Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) in Colorado as classified by CPW. • Occupied, brood-rearing, and wintering habitat in Utah as classified by UDWR (March 2012).
• Whooping crane • Piping plover • Interior least tern	I	Potentially suitable wetlands and waterbodies within the Platte River watershed.
Yuma clapper rail	III, IV	Herbaceous wetland areas in the HUC10 watersheds traversed by the route alternatives in Regions III and IV.
Western yellow-billed cuckoo	I, II, III, IV	Herbaceous wetland and woody riparian and wetlands vegetation habitat in the HUC10 watersheds traversed by the route alternatives in Regions I, II, III, and IV.
Mexican spotted owl	II, III	Modeled habitat in the Vernal FO.
Southwestern willow flycatcher	III, IV	Woody riparian and wetlands habitat in the HUC10 watersheds traversed by the route alternatives in Regions III and IV.
Black-footed ferret	I, II	Non-essential Experimental Population Areas in Utah and Colorado.
Canada lynx	II	Aspen forest and woodland, conifer forest, tundra, and woody riparian and wetlands habitats in the HUC10 watersheds traversed by the route alternatives in Region II.
Utah prairie dog	II, III	West Desert Recovery Unit, Paunsaugunt Recovery Unit, Awapa Plateau Recovery Unit.

Table 3.8-2 Analysis Areas for Special Status Wildlife Species

Species	Region	Analysis Area
Gray wolf	I, II	Aspen forest and woodland, conifer forest, deciduous forest, grassland, montane grassland, montane shrubland, pinyon-juniper woodland, sagebrush shrubland, tundra, and woody riparian and wetlands habitat in the HUC10 watersheds traversed by the route alternatives in Regions I and II.
North American wolverine	I, II	Tundra, conifer forest, and aspen forest and woodland habitat within the HUC10 watersheds traversed by the route alternatives in Regions I and II.
BLM Sensitive, USFS Sensitive, and State Sensitive Species		
Mammals		
Bats	All	HUC10 watersheds traversed by the route alternatives.
• Desert Valley kangaroo mouse • Dark kangaroo mouse • Idaho pocket gopher • White-tailed prairie dog	III II, III II I, II	HUC10 watersheds traversed by the route alternatives.
Pygmy rabbit	I, II, III	Sagebrush within HUC10 watersheds traversed by the route alternatives in Regions I, II, and III.
Fisher	II	Uinta-Wasatch-Cache National Forest, conifer forest habitat within HUC10 watersheds traversed by the route alternatives.
• Kit fox • Swift fox	All	Suitable habitat within species' respective ranges in HUC10 watersheds traversed by the route alternatives in Region II.
River otter	I, II	Open water and woody riparian and wetlands vegetation communities in HUC10 watersheds traversed by the route alternatives in Regions I and II.
Desert bighorn sheep	II, III, IV	• Big Game Management Units in Colorado, Utah, and Nevada. • Dixie, Fishlake and Manti-La Sal National Forests.
Rocky Mountain bighorn sheep	I, II, III	• Big Game Management Units in Wyoming, Colorado, and Utah. • Ashley and Uinta-Wasatch-Cache National Forests.
Raptors and Other Migratory Birds		
Birds except federally listed, candidate, proposed species, and MIS[2]	All	HUC10 watersheds traversed by the route alternatives.
Reptiles		
Reptiles	All	HUC10 watersheds traversed by the route alternatives.
Terrestrial Invertebrates		
Terrestrial invertebrates	All	HUC10 watersheds traversed by the route alternatives.
USFS MIS Species (those not addressed in Section 3.7)		
Northern goshawk	II and III	Suitable habitat within the Ashley, Dixie, Fishlake, Manti-La Sal, and Uinta-Wasatch-Cache National Forests.
Golden eagle	II and III	• HUC10 watersheds traversed by the route alternatives in Regions II and III. • Suitable habitat within the Ashley and Manti-La Sal National Forests.
Sage thrasher	II	Suitable habitat within the Fishlake National Forest.
American three-toed woodpecker	II	Suitable habitat within the Uinta-Wasatch-Cache National Forest.

[1] Greater sage-grouse habitats are characterized using the habitat classifications provided by each individual state wildlife agency.

[2] The sage-grouse also is classified as a MIS for the Ashley National Forest, but is addressed under federally listed and candidate species.

Table 3.8-3 presents the acreages of the major vegetation communities present within the special status wildlife analysis area.

Table 3.8-3 Vegetation Communities Within the Special Status Wildlife Analysis Area

Vegetation Community	Acres Within the Special Status Wildlife Analysis Area[1]	Percent of the Special Status Wildlife Analysis Area
1. Agricultural Land	788,417	3.2
2. Aspen Forest and Woodland	682,304	2.8
3. Barren/Sparsely Vegetated	316,712	1.3
4. Cliff and Canyon	816,613	3.3
5. Conifer Forest	546,369	2.2
6. Deciduous Forest	14,082	0.1
7. Desert Shrubland	3,073,997	12.4
8. Developed/Disturbed Land[2]	990,655	4.0
9. Dunes	117,775	0.5
10. Grassland	1,533,945	6.2
11. Greasewood Flat	876,836	3.5
12. Herbaceous Wetland	194,940	0.8
13. Montane Grassland	72,084	0.3
14. Montane Shrubland	893,369	3.6
15. Open Water	155,477	0.6
16. Pinyon-juniper woodland	4,123,148	16.7
17. Ephemeral Wash	68,472	0.3
18. Sagebrush Shrubland	6,326,232	25.6
19. Saltbush Shrubland	2,893,155	11.7
20. Tundra	13,956	0.1
21. Woody Riparian and Wetlands	209,643	0.8
Total	24,708,181	100.0

[1] The special status wildlife analysis area includes suitable habitat within the HUC10 watersheds crossed by the Project.

[2] Although the developed/disturbed land cover type is not considered to be suitable wildlife habitat and is not included in analyses and reported disturbance acreages, some wildlife species may utilize these areas.

Sources: USGS 2010, 2005, 2004 (SWReGAP and NWReGAP).

Table 3.8-4 presents the acreages of the major vegetation communities present within each national forest crossed by the Project.

3.8.4 Baseline Description

As discussed in Section 3.5, Vegetation, 20 vegetation communities and developed/disturbed land are located within the special status wildlife analysis area. Although the developed/disturbed land cover type is not considered to be suitable wildlife habitat and is not included in analyses and reported disturbance acreages, some wildlife species may utilize these areas. Vegetation community/habitat types are presented in **Table 3.8-3**. Sagebrush shrubland, saltbush shrubland, desert shrub, and pinyon-juniper woodland are the most common vegetation communities and account for 66 percent of the special status wildlife analysis area. A variety of special status wildlife species are associated with habitats found within the special status wildlife analysis area with greater species diversity occurring in areas exhibiting greater vegetation structure, soil moisture, and open water, such as wetlands and riparian areas. Species that inhabit wetland and riparian habitats are limited to the perennial and intermittent drainages, reservoirs, lakes, ponds, and marshes that occur within the special status wildlife analysis area or in the immediate vicinity of these areas.

Table 3.8-4 Vegetation Communities Within National Forests Crossed by the Project

Vegetation Community	Ashley National Forest Region II		Dixie National Forest Region III		Fishlake National Forest Region II		Manti-La Sal National Forest Region II		Uinta-Wasatch-Cache National Forest Region II	
	Acres	Percent of Forest	Acres	Percent of Forest	Acres	Percent of Forest	Acres	Percent of Forest	Acres	Percent of Forest
Agriculture	2,691	0.2	629	<0.1	623	<0.1	1,466	0.1	290	<0.1
Aspen Forest and Woodland	102,261	7.7	196,825	10.5	196,958	13.5	234,483	17.5	231,663	25.9
Barren/Sparsely Vegetated	136,429	10.2	26,266	1.4	11,977	0.8	16,519	1.2	11,182	1.2
Cliff and Canyon	39,266	2.9	93,023	4.9	38,891	2.7	43,352	3.2	25,335	2.8
Conifer Forest	543,194	40.7	537,641	28.5	224,021	15.4	289,618	21.7	114,549	12.8
Deciduous Forest	1,125	0.1	–	–	1	<0.1	–	–	28,171	3.1
Desert Shrubland	–	–	5,265	0.3	121	<0.1	1	<0.1	–	–
Developed/Disturbed[1]	42,056	3.1	26,479	1.4	28,664	2.0	4,505	0.3	497	0.1
Dunes	23	<0.1	2	<0.1	–	–	–	–	–	–
Grassland	1,591	0.1	2,010	0.1	7,453	0.5	104	<0.1	3,211	0.4
Greasewood Flat	1,891	0.1	19	<0.1	306	<0.1	80	<0.1	–	–
Herbaceous Wetland	28,424	2.1	4,438	0.2	4,530	0.3	2,789	0.2	15,225	1.7
Montane Grassland	25,557	1.9	12,854	0.7	9,129	0.6	26,225	2.0	26,455	3.0
Montane Shrubland	36,831	2.8	106,207	5.6	211,109	14.5	230,868	17.3	168,362	18.8
Open Water	21,383	1.6	2,445	0.1	4,334	0.3	2,282	0.2	16,673	1.9
Pinyon-juniper woodland	104,031	7.8	521,470	27.7	426,154	29.3	265,022	19.8	50,613	5.7
Ephemeral Wash	119	<0.1	–	–	–	–	–	–	–	–
Sagebrush Shrubland	200,159	15.0	315,223	16.7	270,972	18.6	192,203	14.4	187,523	20.9
Saltbush Shrubland	15,422	1.2	497	<0.1	2,738	0.2	2,814	0.2	71	<0.1
Tundra	17,639	1.3	16,504	0.9	7,664	0.5	18,793	1.4	57	<0.1
Woody Riparian and Wetlands	15,120	1.1	15,660	0.8	8,234	0.6	6,028	0.5	15,377	1.7
Totals	**1,335,210**	**100**	**1,883,453**	**100**	**1,453,879**	**100**	**1,337,152**	**100**	**895,255**	**100**

[1] Although the developed/disturbed land cover type is not considered to be suitable wildlife habitat and is not included in analyses and reported disturbance acreages, some wildlife species may utilize these areas.

The following sections (i.e., federally listed, candidate, and proposed species, BLM sensitive, USFS sensitive, USFS MIS, and state sensitive wildlife species) include baseline descriptions of both resident and migratory special status wildlife species that have either been documented within the special status wildlife analysis area or that may occur within the special status wildlife analysis area based on habitat associations. Detailed species descriptions are presented below. Amphibians and fish are addressed in Sections 3.9, Aquatic Biological Resources, and 3.10, Special Status Aquatic Species.

A total of 112 special status wildlife species were identified as potentially occurring within the special status wildlife analysis area and are listed in **Table 3.8-5**. These species, their associated habitats, and their potential for occurrence in the special status wildlife analysis area are summarized in **Appendix G**, **Table G-2**. Occurrence potential within the special status wildlife analysis area was evaluated for each species based on its habitat requirements and known geographic distribution. Based on these parameters, 14 species have been eliminated from detailed analysis, as discussed in **Appendix G**, **Table G-2**. The basis for elimination is that the special status wildlife analysis area does not include the geographic range of the species. In addition, the whooping crane, interior least tern, and piping plover do not occur in the special status wildlife analysis area, but are included in the analysis because of the water depletion evaluation requirement in the Platte River Basin. Special status wildlife species carried forward in this EIS analysis include 31 mammals, 40 birds, 20 reptiles, and 7 terrestrial invertebrates, for a total of 98 species (**Table 3.8-5**).

Table 3.8-5 Species Potentially Occurring in the Special Status Wildlife Analysis Area

Common Name	Scientific Name	Status[1]
Mammals		
Allen's big-eared bat	*Idionycteris phyllotis*	BLM - UT, NV; NV-SCP; UT-SGCN - Tier II
Big free-tailed bat	*Nyctinomops macrotis*	BLM - CO, UT, NV; UT-SGCN - Tier II
Brazilian free-tailed bat	*Tadarida braziliensis*	BLM - NV; NV-SCP
California leaf-nosed bat	*Macrotus californicus*	NV-SCP
California myotis	*Myotis californicus*	BLM - NV
Cave myotis	*Myotis velifer*	BLM - NV
Fringed myotis	*Myotis thysanodes*	BLM - WY, CO, UT, NV; UT-SGCN-Tier II; NV-SCP
Greater western mastiff bat	*Eumops perotis*	BLM - NV; NV-SCP
Long-eared myotis	*Myotis evotis*	BLM - WY, NV
Pallid bat	*Antrozous pallidus*	BLM - NV; NV-SCP
Spotted bat	*Euderma maculatum*	BLM - WY, CO, UT, NV; USFS; UT-SS - Tier II; NV-T
Townsend's (Western) big-eared bat	*Corynorhinus townsendii*	BLM - WY, CO, UT, NV; USFS; UT-SS - Tier II; NV-S
Western red bat	*Lasiurus blossevillii*	BLM - UT, NV; UT-SGCN - Tier II; NV-SCP
Yuma myotis	*Myotis yumanensis*	BLM - CO, NV
Black-footed ferret	*Mustela nigripes*	EXP/NE-UT, CO; BLM - UT; UT-SGCN-Tier I; CO-E
Canada lynx	*Lynx canadensis*	FT; BLM - UT; UT-SGCN - Tier I; CO-E
Fisher	*Martes pennanti*	USFS
Gray wolf	*Canis lupus*	FE in CO and portions of UT; BLM - UT; UT-SGCN - Tier I
Kit fox	*Vulpes macrotis*	BLM - UT; UT-SGCN - Tier II; CO-E
River otter	*Lontra canadensis*	BLM - NV; CO-T
Swift fox	*Vulpes velox*	BLM - CO, WY
North American wolverine	*Gulo gulo*	USFS; CO-E
Desert bighorn sheep	*Ovis canadensis nelsoni*	BLM - NV; USFS
Rocky Mountain bighorn sheep	*Ovis canadensis*	USFS

Table 3.8-5 Species Potentially Occurring in the Special Status Wildlife Analysis Area

Common Name	Scientific Name	Status[1]
Dark kangaroo mouse	*Microdipodops megacephalus*	BLM - UT; UT-SGCN - Tier II
Desert Valley kangaroo mouse	*Microdipodops megacephalus albiventer*	BLM - NV; NV-SCP
Idaho pocket gopher	*Thomomys idahoensis*	BLM - WY
Utah prairie dog	*Cynomys parvidens*	FT; BLM - UT; UT-SGCN - Tier I
White-tailed prairie dog	*Cynomys leucurus*	BLM - WY, UT, CO; UT-SGCN - Tier II
Wyoming pocket gopher	*Thomomys clusius*	BLM - WY
Pygmy rabbit	*Brachylagus idahoensis*	BLM - WY, UT, NV; USFS; UT-SGCN - Tier II
Birds[3]		
American white pelican	*Pelecanus erythrorhynchos*	BLM - CO, UT; UT-SGCN - Tier I; MBTA
White-faced ibis	*Plegadis chihi*	BLM - WY, CO; MBTA
California condor	*Gymnogyps californianus*	FE; EXP/NE-UT; UT-SGCN - Tier I; MBTA; PIF
Trumpeter swan	*Cygnus buccinator*	BLM - WY; MBTA
Barrow's goldeneye	*Bucephala islandica*	BLM - CO; MBTA
Bald eagle	*Haliaeetus leucocephalus*	BLM - WY, UT; USFS; CO-ST; NV-E; UT-SGCN - Tier I; MBTA; BCC; PIF
Northern goshawk	*Accipiter gentilis*	BLM - WY, CO, UT, NV; USFS; MIS; NV-SCP; UT-SGCN - Tier I; MBTA
Swainson's hawk	*Buteo swainsoni*	BLM - NV; MBTA; BCC
Ferruginous hawk	*Buteo regalis*	BLM - WY, CO, UT, NV; UT-SGCN - Tier II; MBTA; BCC
Golden eagle	*Aquila chrysaetos*	BLM - NV; MIS; MBTA; BCC
Peregrine falcon	*Falco peregrinus*	BLM - WY, NV, CO; USFS; NV-E; MBTA; BCC; PIF
Greater sage-grouse	*Centrocercus urophasianus*	FC; BLM - WY, CO, UT, NV; USFS; MIS; UT-SGCN - Tier II; BCC; PIF
Columbian sharp-tailed grouse	*Tympanuchus phasianellus columbianus*	BLM - WY, CO, NV; UT-SGCN - Tier II; PIF
Yuma clapper rail	*Rallus longirostris yumanensis*	FE; NV-E; MBTA
Whooping crane[2]	*Grus americana*	FE; CO-SE; UT-SGCN - Tier I; MBTA
Western snowy plover	*Charadrius alexandrinus nivosus*	BLM - CO; MBTA; BCC
Piping plover[2]	*Charadrius melodus*	FT; CO-ST; MBTA
Mountain plover	*Chardrius montanus*	BLM - WY, CO, UT; UT-SGCN-Tier III; WY SGCN Tier I; MBTA; BCC
Long-billed curlew	*Numenius americanus*	BLM - WY, CO, UT, NV; UT-SGCN - Tier II; MBTA; BCC
Interior least tern[2]	*Sternula antillarum*	FE; CO-SE; MBTA
Black tern	*Chlidonias niger*	BLM - CO, NV; MBTA
Western yellow-billed cuckoo	*Coccyzus americanus*	FT; BLM - WY, CO, UT; USFS; NV-SCP; UT-SGCN - Tier I; MBTA; BCC
Flammulated owl	*Psiloscops flammeoulus*	BLM - NV; USFS; MBTA; BCC; PIF
Burrowing owl	*Athene cunicularia*	BLM - WY, CO, UT, NV; CO-T; UT-SGCN - Tier II; MBTA; BCC
Mexican spotted owl	*Strix occidentalis lucida*	FT; BLM - UT; CO-ST; UT-SGCN; MBTA; PIF
Great gray owl	*Strix nebulosa*	USFS
Short-eared owl	*Asio flammeus*	BLM - UT, NV; UT-SGCN - Tier II; MBTA; PIF
Boreal owl	*Aegolius funereus*	USFS; MBTA
Black swift	*Cypseloides niger*	BLM - UT; UT-SGCN - Tier II; MBTA

Table 3.8-5 Species Potentially Occurring in the Special Status Wildlife Analysis Area

Common Name	Scientific Name	Status[1]
Lewis's woodpecker	*Melanerpes lewis*	BLM - UT, NV; UT-SGCN - Tier II; MBTA; BCC; PIF
American three-toed woodpecker	*Picoides dorsalis*	BLM - UT; USFS; MIS; UT-SGCN - Tier II; MBTA
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE; BLM - UT; UT-SGCN - Tier I; CO-E; NV-E; MBTA
Loggerhead shrike	*Lanius ludovicianus*	BLM - WY, NV; NV-SCP; MBTA; BCC
Sage thrasher	*Oreoscoptes montanus*	BLM - WY, NV-SCP; MIS; MBTA; BCC
Bendire's thrasher	*Toxostoma dendirei*	BLM-NV; NV-SCP; UT-Tier III; MBTA
Le Conte's thrasher	*Toxostoma lecontei*	BLM - NV; MBTA; BCC; PIF
Brewer's sparrow	*Spizella breweri*	BLM - WY, CO; MIS; NV-SCP; MBTA; BCC; PIF
Sage sparrow[4]	*Amphispiza belii*	BLM - WY; MBTA
Grasshopper sparrow	*Ammodramus savannarum*	BLM - UT; UT-SGCN - Tier II; MBTA; BCC; PIF
Bobolink	*Dolichonyx oryzivorus*	BLM - UT, NV; UT-SGCN - Tier II; MBTA
Reptiles		
Banded Gila monster	*Heloderma suspectum cinctum*	NV-SCP
Chuckwalla	*Sauromalus obesus*	BLM - UT, NV; UT-SGCN - Tier II
Corn snake	*Elaphe guttata*	BLM - UT; UT-SGCN - Tier II
Desert glossy snake	*Arizona elegans eburnata*	BLM - NV
Desert iguana	*Dipsosaurus dorsalis*	BLM - UT; UT-SGCN - Tier II
Desert night lizard	*Xantusia vigilis*	BLM - UT; UT-SGCN - Tier II
Desert tortoise	*Gopherus agassizii*	FT; BLM - UT; UT-SGCN - Tier I; NV-T
Long-nosed leopard lizard	*Gambelia wislizenii*	BLM - CO
Midget faded rattlesnake	*Crotalus viridis concolor*	BLM - CO
Sidewinder	*Crotalus cerastes*	BLM - UT; UT-SGCN - Tier II
Mojave desert sidewinder	*Crotalus cerastes cerastes*	BLM-NV
Mojave shovel-nosed snake	*Chionactis occipitalis occipitallis*	BLM - NV
Mojave rattlesnake	*Crotalus scutulatus*	BLM - UT; UT-SGCN - Tier II
Nevada shovel-nosed snake	*Chionactis occipitalis talpina*	BLM-NV
Smooth greensnake	*Opheodrys vernalis*	BLM - UT; UT-SGCN - Tier II
Speckled rattlesnake	*Crotalus mitchellii*	BLM - UT; UT-SGCN - Tier II
Utah milk snake	*Lampropeltis triangulum taylori*	BLM - CO
Western banded gecko	*Coleonyx variegates*	BLM - UT; UT-SGCN - Tier II
Western threadsnake (blindsnake)	*Leptotyphlops humilis*	BLM - UT; UT-SGCN - Tier II
Zebra-tailed lizard	*Callisaurus draconoides*	BLM - UT; UT-SGCN - Tier II
Terrestrial Invertebrates		
Eureka mountainsnail	*Oreohelix eurekensis*	BLM - UT; UT-SGCN
Great Basin silverspot (Nokomis fritillary) butterfly	*Speyeria nokomis nokomis*	BLM - CO
MacNeill sooty wing skipper (MacNeill saltbush sootywing) butterfly	*Hesperopsis gracielae*	BLM - NV; NV-S2
Mojave gypsum bee	*Andrena balsamorhizae*	BLM - NV; NV-S2
Mojave poppy bee	*Perdita meconis*	BLM - NV; NV-S2
Mono Basin Skipper (Railroad Valley skipper) butterfly	*Hesperia uncas giulianii*	BLM - NV

Table 3.8-5 Species Potentially Occurring in the Special Status Wildlife Analysis Area

Common Name	Scientific Name	Status[1]
Northern Mojave blue (Mojave blue) butterfly	*Euphilotes mojave virginensis*	BLM - NV; NV-S1

[1] Status: FE = Federally Endangered; FT = Federally Threatened; FC = Federal Candidate; FP = Federal Proposed for listing; EXP/NE = Experimental Non-essential population; BLM = BLM Sensitive (by state: WY, CO, UT, NV); USFS = USFS Sensitive; MIS = USFS MIS; CO-E = Colorado State Endangered; CO-T = Colorado State Threatened; NV-E = Nevada State Endangered; NV-T = Nevada State Threatened; NV-SCP = Nevada Species of Conservation Priority; NV-S1, S2 - UT-SGCN = Utah Species of Greatest Conservation Need (Tier I and Tier II species are defined in Utah's Comprehensive Wildlife Strategy); BCC = Birds of Conservation Concern, PIF = Partners in Flight Species of Continental Importance for the U.S. and Canada.

[2] Species is included because of the water depletion evaluation requirement in the Platte River Basin.

[3] Bird species in **Table 3.8-5** (with the exception of grouse species) are federally protected under the MBTA and de facto also protected by the states. Migratory bird species that are not listed as ESA, BLM sensitive, USFS sensitive, or state sensitive are still federally protected under the MBTA and are addressed in Section 3.7.

[4] The sage sparrow species (*Amphispiza belli*) has recently been split into sagebrush sparrow (*Artemisiospiza nevadensis*) and Bell's sparrow (*Artemisiospiza belli*). The sagebrush sparrow is the species that could occur in the special status wildlife analysis area in all four regions.

3.8.4.1 Federally Listed, Candidate, and Proposed Wildlife Species

A total of 14 federally listed, candidate, or proposed wildlife species (1 reptile, 9 birds, and 4 mammals) occurs within the special status wildlife analysis area. A summary of the listing status, habitat, and general distribution for each federally listed, candidate, and proposed wildlife species is provided below. Information regarding population trends of individual federally listed species can be found in their respective USFWS Recovery Plans.

Desert Tortoise (Threatened)

The Mojave population of desert tortoise was designated as threatened in 1989 (54 FR 32326). On October 13, 1989, the USFWS published a proposed rule to list the Mojave population as threatened, but because the emergency rule expired on April 2, 1990, it was necessary to publish the final rule on the same day, in order to prevent a lapse in protection for the tortoise (55 FR 12178). In 1993, a Draft Recovery Plan was issued. Critical habitat was designated in 1994, encompassing 6.4 million acres within six management units across California, Nevada, Utah, and Arizona (59 FR 5820). In 2011, the USFWS issued a Final Revised Recovery Plan which reduced the number of recovery units to five, and changed some boundaries of the 1994 recovery units (USFWS 2011a).

The desert tortoise inhabits the Mojave and Sonoran deserts of the U.S. and Mexico. Tortoises of the Mojave population are found primarily in desert shrubland. Suitable habitat for the desert tortoise in the Mojave Desert has been characterized as creosote bush scrub below 5,500 feet amsl, annual precipitation ranges from 2 to 8 inches, the diversity of perennial plants is relatively high, and production of ephemerals is high. In the Mojave Desert, tortoises occur most commonly on gently sloping terrain with sandy-gravel soils and where there is sparse cover of low-growing shrubs which allows establishment of herbaceous plants. Soils must be friable enough for digging of burrows but firm enough so that burrows do not collapse (USFWS 2011a).

Adequate burrowing substrate and plants that can provide thermal cover are crucial habitat components for the desert tortoise. In the Mojave region, desert tortoises will construct their own burrows to avoid extreme hot or cold temperatures. Mojave desert tortoises often excavate burrows under vegetation, extending up to 33 feet. In addition to burrows, desert tortoises also construct shallow depressions (pallets) under low shrubs to serve as temporary resting sites.

Current threats to the species include predation by common ravens and other terrestrial predators, collecting by humans, construction activities, OHV recreation, disease, drought, energy and mineral development, wildlfire, garbage and litter, handling, invasive plants, landfills, livestock grazing, military

operations, utility corridors, vandalism, and wild horses and burros (Boarman 2002). Current understanding of the impact of each specific threat upon desert tortoise populations and recovery remain unclear, therefore it is important to consider the combined and synergistic effects of all threats when determining impacts on desert tosrtoise (USFWS 2014).

The USGS has developed a habitat model that ranks desert tortoise potential habitat on a scale from 0 to 1, with 1 being greatest. The desert tortoise analysis area includes areas of USFWS critical habitat, high quality potential habitat, and areas that the USGS habitat model values 0.5 to 1.0. The entire desert tortoise analysis area is located within the northeastern Mojave Desert Recovery Unit (USFWS 2008a). Critical habitat units within this recovery unit and within the desert tortoise analysis area are: 1) Gold Butte-Pakoon Unit, Clark County, Nevada; 2) Beaver Dam Slope Unit, Lincoln, County, Nevada; 3) Beaver Dam Slope Unit, Washington County, Utah; and 4) Mormon Mesa Unit, Clark and Lincoln counties, Nevada (59 FR 5820).

California Condor (Endangered; EXP/NE)

The California condor was designated as endangered on March 11, 1967 (FR 32: 4001). Despite protection, populations continued to decline, and by 1982, only 22 wild condors remained (Arizona Game and Fish Department [AGFD] 2008; Peregrine Fund 2008). A decision was made to rely on captive breeding programs for recovery of the species, and the last wild condor was brought into captivity in 1987. In 1992, releases to the wild began in central and southern California, followed by releases in the Vermilion Cliffs area of Arizona in 1996 and in Baja California in 2002.

A special provision of the ESA, the 10(j) rule, allows for the designation of non-essential populations (NEPs) of listed species (AGFD 2008), and re-introduction efforts for the condor were developed under this rule. This listing covers only those populations within the U.S. and excludes the NEPs in specific portions of Arizona, Nevada, and Utah (61 FR 54043-54060). Current re-introduced condor populations are considered 10(j) populations, except where they occur within National Parks where, as noted below, they receive protection under the ESA endangered status.

In Utah, the condor population is considered an NEP south of I-70 and east of I-15, except within National Parks. Any condors occurring outside of the experimental population area, including those on NPS-administered lands, are protected under the ESA. In March 2009, a 5-Year Review of the status of the California condor was initiated. Critical habitat is not present within the California condor analysis area. The current recovery plan for the species was issued in April 1996 (Third Revision).

California condors occupy remote rugged areas at low to moderate elevation that support large mammals, which they consume as carrion. These birds require cliff sites or caves for nesting and cliffs, tall conifers, or snags for roosting (Snyder and Rea 1998). Because they are such large birds, they typically select roosting sites near cliffs where updrafts provide adequate lift for them to take flight (AGFD 2008, 2004; American Ornithologists' Union 2004; Snyder and Rea 1998; USFWS 1996). The California condor analysis area includes cliff and canyon, conifer forest, and pinyon-juniper woodland habitat types within the special status wildlife analysis area in Region III.

As of March 2011, there were 97 wild condors in California, 74 in Arizona, and 20 in Baja California, for a total of 191 wild condors (AGFD 2008). The current range of the condor population in Arizona is centered on the Colorado River Basin in northern Arizona and southern Utah. This population occurs outside the California condor analysis area; however, condors regularly forage, roost, and may nest in southern Utah. Condors commonly occur in Utah between April and November, but peak numbers usually occur from June through August. Condors can travel up to 200 miles in a day (UDWR 2011); therefore, they could occur within the California condor analysis area of Utah and Nevada (Sutter et al. 2005).

Greater Sage-grouse (Candidate)

Sagebrush steppe habitats across the western U.S. have been substantially altered, fragmented, and lost due to the introduction of invasive plant species, changes in fire regimes, and direct removal resulting from changes in land use (Knick et al. 2003; Knick and Connelly 2011). On February 26, 2008, the USFWS initiated a status review to determine whether the sage-grouse warranted protection under the ESA (73 FR 10218). On March 5, 2010, the USFWS determined that the sage-grouse warranted protection under the ESA; however, listing was precluded by the need to take action on other species facing more immediate and severe extinction threats. The USFWS concluded that the sage-grouse would be added to the candidate species list. Therefore, sage-grouse in Wyoming, Colorado, and Utah continue to be managed by the WGFD, CPW, and UDWR, respectively. Each of these three states categorizes sage-grouse habitat in a unique manner, as discussed below. Sage-grouse populations in Nevada are managed by NDOW and do not occur in areas potentially impacted by the Project. Currently, federally listed candidate species receive no statutory protection under ESA. Conservation efforts for this species in Wyoming, Colorado, and Utah are currently coordinated by the WGFD, CPW, and UDWR in cooperation with the USFWS, BLM, USFS, and sage-grouse working groups in an attempt to increase population levels and avoid federal listing under the ESA.

In an effort to prevent federal listing of the sage-grouse, Wyoming, Utah, Colorado, and Nevada have developed BLM Greater Sage-grouse Management Plans and individual State Conservation Plans that outline goals and objectives for managing the species (Colorado Greater Sage-grouse Steering Committee [CGSSC] 2008; South Central Sage-grouse Working Group 2007; State of Nevada 2012; UDWR 2009). In addition, the BLM and the State of Wyoming have issued several regulations regarding management of the sage-grouse in Wyoming. BLM IM 2010-012, 2012-043, 2012-044, 2012-019, and State of Wyoming EO 2011-5 include specific protection measures guiding development in sage-grouse habitat, particularly in core population areas. The WGFD has developed a map of sage-grouse core population areas in Wyoming. Sage-grouse core population areas include areas with the highest densities of breeding sage-grouse in the state, as well as areas important for connectivity between populations. The core population areas include roughly 25 percent of the state but contain 83.1 percent of the sage-grouse population in Wyoming.

BLM IM 2012-043 and BLM IM 2012-019 provide direction to field managers to ensure that interim conservation procedures are implemented when FOs authorize or carry out activities on public land while the BLM reviews how to best incorporate long-term conservation measures for sage-grouse into applicable Land Use Plans (LUPs). These interim conservation measures are consistent with the BLM's National Strategy for protecting and managing sage-grouse and incorporate the following principles:

1. Protection of un-fragmented habitats;
2. Minimization of habitat loss and fragmentation; and
3. Management of habitats to maintain, enhance, or restore conditions that meet sage-grouse life history needs.

BLM IM 2012-043 identifies policies and procedures that are to be applied to on-going and proposed BLM activities within areas identified as PPH and PGH. PPH consists of areas that have been identified as having the highest conservation value for maintaining sustainable sage-grouse populations. These areas include breeding, nesting, brood-rearing, and wintering habitats. PGH is identified as all other areas occupied either seasonally or year-round by sage-grouse. Among the conservation policies and procedures presented in BLM IM 2012-043, those that apply to the Project direct the BLM to:

1. Provide documentation of reasoning for ROW determinations and to require the ROW holder to implement measures to minimize impacts to sage-grouse habitat;
2. In cooperation with respective state wildlife agencies, consider the opportunities for both on-site and off-site mitigation measures to avoid or minimize habitat and population level impacts; and

3. In cooperation with respective state wildlife agencies, determine that the proposed ROW would cumulatively maintain or enhance sage-grouse habitat.

Please note that the habitat classification terminology PPH and PGH may change based on the pending decisions for the on-going sage-grouse management planning efforts.

BLM IM 2012-044 provides the BLM direction to incorporate conservation measures identified in the 2011 report on national sage-grouse conservation measures published by the Sage-grouse National Technical Team (NTT 2011). NTT conservation measures relating to ROWs include:

1. Designating priority sage-grouse habitat areas as exclusion areas for new ROW permits;
2. Evaluating the feasibility of removing, burying, or modifying existing power lines within priority sage-grouse habitat; and
3. Designating sage-grouse general habitat areas as avoidance areas for new ROW permits.

USFWS Conservation Objectives

In an effort to inform the pending decision to list the greater sage-grouse under the ESA, the USFWS Conservation Objectives Team (COT) initiated a collaborative process to develop general range-wide conservation objectives for the species. General conservation objectives identified in the 2013 Final COT Report (USFWS 2013a) include:

1. Stop population declines and habitat loss;
2. Implement targeted habitat management and restoration;
3. Develop and implement state and federal greater sage-grouse conservation and associated incentive-based conservation actions and regulatory mechanisms;
4. Develop and implement proactive, voluntary conservation actions;
5. Develop and implement monitoring plans to track the success of state and federal conservation strategies and voluntary conservation actions; and
6. Prioritize, fund, and implement research to address existing uncertainties.

Priority Areas for Conservation

The 2013 COT Final Report designates Priority Areas for Conservation (PACs) as key habitats identified by state sage-grouse conservation plans or through other sage-grouse conservation efforts. In Wyoming, Core Population Areas designated under Wyoming Governors EO 2011-5 have been adopted as PACs by the COT (**Figure 3.8-1**). In Colorado, areas designated as PPH under BLM IM 2012-043 have been adopted as PACs by the COT (**Figure 3.8-1**). PACs in Utah are generally consistent with areas designated as important nesting and brood rearing habitat by the UDWR with some exceptions (**Figure 3.8-3** and **Figure 3.8-5**).

The maintenance of the integrity of PACs and the conservation of sagebrush steppe, native perennial grass, and forb vegetation communities within PACs is considered to be the foundation of the COT conservation objectives (USFWS 2013a). Other specific conservation objectives relative to PACs identified by the COT include:

1. Retaining greater sage-grouse habitats within PACs;
2. Implementing appropriate restoration efforts of areas of PACs lost to catastrophic events;
3. Restore and rehabilitate degraded greater sage-grouse habitats within PACs;

4. Identify areas and habitats outside of PACs which may be necessary to maintain the viability of PACs;
5. Re-evaluate the status of PACs and adjacent greater sage-grouse habitat at least once every 5 years;
6. Actively pursue opportunities to increase occupancy and connectivity between PACs; and
7. Maintain or improve existing habitat conditions in areas adjacent to burned habitat.

Conservation objectives relative to energy development and transmission infrastructure identified by the COT are based upon avoiding new developments within PACs and areas of habitat that provide connectivity between PACs. Specific options to achieve this objective include:

1. Avoid construction of infrastructure in greater sage-grouse habitat, both within and outside of PACs;
2. Power transmission corridors which cannot avoid PACs should be buried (if technically feasible) and disturbed habitat should be restored.
    a. If avoidance is not possible, consolidate new structures with existing features and/or preclude development of new structures within locally important greater sage-grouse habitats;
        i. Consolidation with existing features should not result in a cumulative corridor width of greater than 200 m.
        ii. Habitat function lost from placement of infrastructure should be replaced;
3. Infrastructure corridors should be designed and maintained to preclude introduction of invasive plant species;
4. Restrictions limiting the use of road should be enforced;
5. Remove transmission lines that are duplicative or not functional;
6. Transmission line towers should be constructed to severely reduce or eliminate nesting and perching by avian predators, most notably ravens, thereby reducing anthropogenic subsidies to those species; and
7. Mitigate impacts to habitat from development of anthropogenic featureson-designated roads within sagebrush habitat.

Lekking/Breeding/Nesting Habitat

The center of breeding activity for the sage-grouse is referred to as a strutting ground or lek. Leks are characterized as flat, sparsely vegetated areas within large tracts of sagebrush (Connelly et al. 2004). Males begin to appear on leks in March, with peak attendance of Utah leks occurring in late March and peak attendance in Colorado and Wyoming leks occurring in April (CGSSC 2008; UDWR 2009; WGFD 2003). Nesting generally commences 1 to 2 weeks after mating and may continue as late as early June (UDWR 2009). Sage-grouse nesting habitat typically is centered around active leks and consists of medium to tall sagebrush with a perennial grass understory (Connelly et al. 2000). Research suggests that approximately 80 percent of sage-grouse nests are located within 4 miles of the lek where breeding occurs (CGSSC 2008; Holloran and Anderson 2005; Moynahan 2004). Studies have shown that taller sagebrush with larger canopies and more residual understory cover usually leads to higher nesting success for this species (Connelly et al. 2004, 2000).

Brood-rearing Habitat

During late spring and summer, hens and broods typically are found in more lush habitats consisting of a high diversity of grasses and forbs that attract insects. These habitats include wet meadows, riparian

areas, and irrigated farmland within or near sagebrush. Hens with broods utilize these habitats until forbs desiccate and insect abundance decreases. Unsuccessful hens and cocks also will utilize these same habitats; however, due to their nutritional flexibility, they are able to occupy a wider variety of habitats during the spring and summer months (Connelly et al. 2004). In many sage-grouse populations, limited availability of high quality brood-rearing habitat often negatively impacts recruitment. Factors affecting the availability of brood-rearing habitat include drought, non-native grass and weed invasions, overgrazing associated with historic improper range management strategies, (Klebenow 1985, 1982; Oakleaf 1971) and sagebrush removal.

Wintering Habitat

Depending on the severity of the winter, sage-grouse move to south- and west-facing slopes that maintain exposed sagebrush. Studies have shown that south-facing slopes with sagebrush at least 10 to 12 inches above the snow level are required for both food and cover. Windswept ridges, draws, and swales also may be used, especially if these areas are in close proximity to exposed sagebrush (Connelly et al. 2004). In years with severe winter conditions (i.e., deep snow), sage-grouse often gather in large flocks in areas with the highest quality winter habitat. It is suggested that high quality winter habitat is limited in portions of the sage-grouse's range (Connelly et al. 2000). Wintering habitat for sage-grouse has been defined for populations in Colorado and Utah and is currently being defined for populations in Wyoming (WGFD 2012).

Overall Species Range

In Wyoming, the sage-grouse occurs throughout the state in appropriate habitat (Cerovski et al. 2004). Colorado is on the southeastern edge of the known distribution for this species. Within the sage-grouse analysis area in Colorado, the species is likely to be found in Moffat and Rio Blanco counties (CGSSC 2008). Southwestern and central Wyoming and northwestern Colorado are considered a stronghold for sage-grouse with some of the highest estimated densities of males anywhere in the remaining range of the species (Connely et al. 2004). Wisdom et al. (2011) identified this high-density sagebrush area as one of the highest priorities for conservation consideration as it comprises one of two remaining areas of contiguous range essential for the long-term persistence of the species. Scattered populations of sage-grouse occur throughout Utah, excluding the Colorado Plateau region in the southeastern portion of the state. The largest populations within the Utah portion of the Project sage-grouse analysis area are in Uintah County but smaller populations occur throughout central and southern portions of the state (UDWR 2009). The species also occurs outside of the sage-grouse analysis area in central Nevada, southern Idaho, southeastern Oregon, central Washington, eastern Montana, western North Dakota, western South Dakota, and northeastern California. The sage-grouse analysis area includes core areas within HUC10 watersheds crossed by the Project in Wyoming, PPH and PGH within HUC10 watersheds crossed by the Project in Colorado, and occupied (includes brood-rearing and wintering) habitat in Utah. In Nevada, Alternative III-C crosses the southern boundary of the Lincoln Sage Grouse Population Management Unit but does not cross any occupied sage-grouse habitat.

Wyoming Habitat and Populations

Greater sage-grouse populations and habitats potentially impacted by Project alternatives in Wyoming are located entirely within the South Central Wyoming Conservation Area (SCCA) as designated by the local greater sage-grouse local working group (South Central Sage-grouse Working Group 2007). The majority of greater sage-grouse within the SCCA are primarily found within the sagebrush grassland habitats, with some birds occupying areas of mountain mixed shrub and salt desert shrub habitats. Lek survey data from 1986 to 2004 indicate that the SCCA population remained steady until 2004. In 2005 and 2006 lek survey data indicated that local populations were increasing to the highest level observed since 1986 (South Central Sage-grouse Working Group 2007). This population is considered stable to increasing and important threats include energy and infrastructure development, grazing, and recreational activities (USFWS 2013a). Project alternatives would cross the Greater South Pass Core Population Area within the designated existing transmission infrastructure corridor that exists parallel to I-80. The Greater South Pass Core Population Area also is designated by the USFWS as part of the

Wyoming Basin PAC (USFWS 2013a). The Wyoming Basin PAC is considered by the USFWS to be at low risk due to its large population size, the availability of large areas of contiguous habitats, and regulatory measures ensuring habitat protection.

Colorado Habitat and Populations

Greater sage-grouse habitat in Colorado consists of a relatively small appendage to the southern edge of the overall species' range in the intermountain west. In Colorado, greater sage-grouse historically occurred in at least 13 counties (Braun 1995). Currently, greater sage-grouse are found in nine Colorado counties and six populations of greater sage-grouse are currently recognized including; Northwest Colorado, North Park, Middle Park, Parachute-Piceance-Roan, Eagle-South Routt, and Meeker/White River. Of these populations, only the Northwest Colorado population would be impacted by the proposed Project alternatives.

The Northwest Colorado population is represents Colorado's largest greater sage-grouse population and is considered to have a low risk of extirpation due to existing areas of connectivity habitat that link to the Wyoming Basin PAC (USFWS 2013a). Lek count data indicates that the long-term population trend is stable despite substantial fluctuations over time. Current threats to the Northwest Colorado population include: conversion of habitat to agriculture, wildland fire, noxious weed invasion, energy and mining infrastructure development, grazing, and recreational activities (USFWS 2013a). The BLM/USFS identify 21 separate Management Zones (MZs) within the Colorado (BLM 2013? NWCO EIS); of these, proposed Project alternatives would cross occupied greater sage-grouse habitat within the following MZs; 3, 4, 5, 6, 8, 9, and 10.

Utah Habitats and Populations

Sage-Grouse are thought to have been historically distributed in all 29 Utah counties, based on sagebrush distribution, but are now found in 26 counties (UDWR 2009). They are estimated to occupy only 41 percent of their historic habitats in Utah and are half as abundant as they were prior to 1850 (Beck and Mitchell 1997). Currently, the largest populations of greater sage-grouse in Utah are found in western Box Elder County, in Uintah County on Blue and Diamond mountains, in Rich County, and in central Utah on Parker Mountain, which contains portions of Sevier, Piute, Wayne, and Garfield counties (**Figure 3.8-3**). Smaller populations are found scattered in the central and southern parts of the state (**Figure 3.8-5**). Populations in the early 1970s were approximately twice the size of current populations. Populations reached a low in the mid-1990s and have since increased, but not to previous levels. UDWR, other agencies, and university researchers have identified 11,864 square miles of current greater sage-grouse habitat in Utah, 11,594 square miles of which is considered brood-rearing habitat and 7,323 square miles of which is crucial winter habitat (UDWR 2009). Presently, the Rich, Strawberry, Emery, and Sheeprocks population area trends are considered to be increasing. The Panguitch, Bald Hills, and Hamlin Valley population area trends are considered to be stable to increasing. The Uintah, Parker, Box Elder, and Carbon population area trends are considered to be stable. Current proposed Project alternatives in Utah would cross occupied greater sage-grouse habitat for the following populations: Deadman's Bench, Halfway Hollow, South Slope Uinta, Strawberry/Fruitland, Sheeprocks, and Bald Hills.

Deadman's Bench

The Deadman's Bench population area has 2 leks that have had less than 10 birds since 1989. While the last 10 years of lek counts estimate a population ranging between 0 and 28 birds (0 to 7 males), the low number of birds suggest this population is connected to other populations because such a low population cannot persist for over 20 years at this level. This area occurs in eastern Utah in Uintah County, south of the Blue Mountain area and is part of Western Association of Fish and Wildlife Agencies (WAFWA) MZ II (Wyoming Basin) (Stiver et al. 2006). This area has a history of anthropogenic disturbances, including oil development and associated infrastructure. While Wyoming big sagebrush is present, the degraded understory does not provide good nesting and brood-rearing habitat but does provide adequate winter habitat. It is difficult to evaluate a population trend for this local population since

it extends into Colorado and the lek counts fluctuate to a degree that suggest bird movements extend outside the area. Deadman's Bench is a dry, low-elevation area with even-aged Wyoming big sagebrush and low understory vegetation cover but diverse forbs. Nonnative weeds are common; in particular, cheatgrass is abundant and is a management concern. The COT Report does not include this area in its assessment.

Halfway Hollow

The Halfway Hollow area supports a small-to-medium-sized greater sage-grouse population in a moderately sized and impacted landscape. The population has been directly and indirectly impacted by various anthropogenic disturbances but is somewhat contiguous with other medium to large populations in the region. This population is relatively more resilient to threats due to its proximity and potential connectivity with the adjacent populations. The COT Report (USFWS 2013a) considers these populations "low risk." Based on the last 10 years of lek counts (2003 to 2012), the Halfway Hollow population is estimated to range between 120 and 332 birds (30 to 83 males counted on 10 leks). This population occurs west of Vernal in northeastern Utah and is part of the WAFWA MZ II (Wyoming Basin) (Stiver et al. 2006). The population area is characterized by relatively contiguous habitat in the northern portion, with on-going energy and human-related fragmentation in the southern portion. While anthropogenic habitat disturbances in this area have increased at a relatively slow rate, future interest in the area is growing. The western half of the area is dominated with and fragmented by agricultural fields and rural human developments. Primarily in the southern half of the area are roads, power lines, oil development (290 wells), and proposed oil sands development. The area is characterized by Wyoming sagebrush in the low elevations and mountain sagebrush in the upper elevations. Pinyon-juniper woodland encroachment is particularly problematic in the mid-section of the area. The area has contiguous habitat that ranges in condition from degraded understory vegetation with some cheatgrass at lower elevations, increasing understory diversity at mid-elevations, and intact, diverse understory vegetation at the upper elevations.

South Slope Uinta

The South Slope Uinta population is a small-to-medium-sized greater sage-grouse population in a moderately sized area with anthropogenic and natural fragmentation. The population is not well understood, but it appears that the lower two-thirds of the population area has been directly and indirectly impacted by various natural and anthropogenic disturbances and birds are congregating on less-disturbed, high-elevation tribal lands. This population is not included in the COT Report (USFWS 2013a). Based on 6 years of lek counts (2003 to 2012), the South Slope Uinta population is estimated to range between 56 and 340 birds (14 to 85 males counted on 13 leks). This population area occurs in the northeastern portion of Utah in Duchesne County and is part of the Northeast Interior Utah population of WAFWA MZ III (Stiver et al. 2006). This southern half of the population area (primary private lands) is fragmented and degraded habitat from anthropogenic activities (Ellis 1985). The majority of the birds are found in the northern half of the area, on upper elevation tribal lands where little is known about the habitat use but oil development and pinyon-juniper woodland encroachment are present.

Strawberry/Fruitland

Based on the last 10 years of lek counts (2003 to 2012), the Strawberry Population Area is estimated to range between 135 and 630 birds (34 to 158 males counted on 6 leks). This population area occurs in central Utah in Wasatch and Duchesne counties, and is in the WAFWA Southern Great Basin MZ III (Stiver et al. 2006). The population area encompasses 180,000 acres in Strawberry Valley down to the Fruitland area and ranges in elevation between 6,500 and 10,000 feet. The population area has a history of human-related impacts decreasing the habitat quantity and quality and altering the native wildlife populations. In 1970, when regular lek counts began, the population was estimated to be 600 birds, and by 1999 the estimates were 150 to 200 birds. From 1939 to 1999, the population is estimated to have decreased 95 percent (Bunnell 2000). The decline has been primarily attributed to reservoir expansion, cultivation, sagebrush removal, road and cabin construction, human-associated facilities, and resulting high native and non-native predation.

Sheeprocks

From lek counts conducted the last 10 years (2003 to 2012) on both North (7 leks) and South Sheeprocks (3 leks; also known as the Tintic area) greater sage-grouse populations, the estimated population ranges between 200 and 760 birds (50 to 190 males). This population area is on the eastern edge of Tooele and Juab counties and falls within WAFWA MZ III (Stiver et al. 2006). The Sheeprocks (North and South) population area (835,000 acres) is a relatively isolated population and may encompass two lek complexes that have distinct home ranges (Robinson 2007). This population's primary threats are cheatgrass invasion and associated fire intervals that threaten wintering habitat, pinyon-juniper woodland encroachment, localized recreational impacts, predation, and localized wild horse impacts. The Sheeprocks Population Area is a small, isolated area with natural as well as anthropogenic fragmentation. Upper elevation habitats are small but currently intact and lower-elevation wintering habitats are small and degraded areas that are susceptible to fire. The primary threats to this population are fire in wintering habitat, corvid predation, pinyon-juniper woodland encroachment, and localized recreational impacts. The COT Report (USFWS 2013a) considers the northern portion of this population "at-risk," but does not include the southern portion.

Bald Hills

The last 10 years of lek counts of the Bald Hills population estimate it to range between 116 and 472 birds (29 to 118 males counted on 10 leks). The Bald Hills population area is located in southwestern Utah, in Beaver and Iron counties and is part of WAFWA Southern Great Basin MZ III (Stiver et al. 2006). Habitats within the area are characterized by salt desert shrub and Wyoming big sagebrush at the lower elevations (5,200 feet elevation), ranging up to patches of Wyoming and mountain big sagebrush, pinyon-juniper, aspen, and white fir between 6,500 to 8,000 feet elevation. The risk of fire within the population area is high and that risk increases during dry years. The primary threats within the Bald Hills Population Area are the risk of fire within low-elevation sagebrush habitats and pinyon-juniper woodland expansion into sagebrush habitat. There is a lot of opportunity to improve and restore greater sage-grouse habitats within this population area. The COT Report (USFWS 2013a) identifies the Bald Hills Population Area as showing resiliency. Due to the size and trends of this population, the COT Report (USFWS 2013a) considers this population "low risk."

Emery

Comprised of the Horn Mountain and Wildcat Knolls populations, the last 10 years of lek counts for the Emery Population Area estimate a population ranging between 12 and 248 birds (average 128 birds) (3 to 62 males counted on 4 leks). Lek counts over the last 10 years have indicated that the number of birds in these small complexes have appeared to increase. Both populations are found on the southeast end of the Wasatch Plateau and fall within WAFWA MZ III (Stiver et al. 2006). The habitat in these areas is limited to small, high-elevation sagebrush areas bordered by large canyons, cliffs, and mountains (Perkins 2010). The Horn Mountain and Wildcat Knolls populations occupy relatively small sagebrush areas, approximately 16,817 acres and 10,245 acres, respectively, while mapped occupied habitat that includes other potential habitat area is approximately 96,000 acres. Due to the small habitat areas, geographic isolation, small population size, and low genetic diversity (especially Horn Mountain), these populations are more susceptible to stochastic events and lack general resiliency. Therefore, small impacts may have proportionately large or amplified impacts on these populations. The COT Report (USFWS 2013a) considers these populations "at-risk."

Emma Park

Based on the last 10 years of lek counts (2003 to 2012), the Emma Park population is estimated to range between 400 and 1,000 birds (68 to 223 males counted on 11 leks). This area occurs in central Utah in the eastern portions of Utah and Wasatch counties and the northwestern portion of Carbon County (Crompton and Mitchell 2005), on the eastern edge of WAFWA MZ III (Stiver et al. 2006). The primary Emma Park habitat is a northerly sloping plateau dissected by a number of drainages. Four other small habitat areas are south and southwest of the primary Emma Park area.

The Emma Park area supports a medium-sized greater sage-grouse population in a relatively small, geologically and vegetationally diverse landscape. The population has been directly and indirectly impacted by various anthropogenic disturbances. The size of the population area combined with the nonmigratory behavior of the birds may make this population more susceptible to stochastic events. Limiting factors are not well understood but precipitation and limited habitat quantity and quality may be driving this population. The COT Report (USFWS 2013a) considers this population "at-risk."

Anthro Mountain

From the last 10 years of lek counts (2003 to 2012), the Anthro Mountain greater sage-grouse population is estimated to be about 150 birds (ranging between 64 and 176 birds and based on lek counts ranging between 16 and 44 males on 5 leks). The area is part of the southwestern portion of the Uinta Basin but is part of WAFWA's Utah Northeast Interior population in MZ III (Stiver et al. 2006). This area ranges broadly from high-elevation sagebrush areas (9,000 feet elevation) to drier sagebrush areas (5,600 feet elevation).

This area is a small collection of separate blocks of habitat. While upper elevation habitat has intact sagebrush cover and herbaceous understory, lower-elevation habitat blocks are degraded and more fragmented. This population encompasses bird home ranges that span separate seasonal habitats, sometimes extending to the adjacent populations. Energy development is expected to continue. Not all seasonal habitats and movement corridors are well understood. Due to this population's small size and noncontiguous habitats, this population is likely more susceptible to stochastic events. This population is not included in the COT Report.

Whooping Crane (Endangered)

The whooping crane was listed as endangered on March 11, 1967 (32 FR 4001). In May 2007, the third revision of the Whooping Crane Recovery Plan was issued (72 FR 29544). Critical habitat for the whooping crane is not present in the special status wildlife analysis area (USFWS 2011b). As of August 2011, the total population of whooping cranes in the wild was estimated at 437.

Whooping cranes nest in and adjacent to the Aransas-Wood Buffalo National Park in Canada, and winter in coastal marshes in Texas at the Aransas NWR (USFWS 2011b). During spring and fall migration, the Aransas-Wood Buffalo National Park whooping crane population migrates through the central Great Plains. Birds from the Aransas-Wood Buffalo National Park population depart from their wintering grounds in Texas starting in late March through the beginning of May. Fall migration typically begins in mid-September with most birds arriving on wintering grounds between late October and mid-November (Canadian Wildlife Service and USFWS 2007).

Whooping cranes utilize a variety of habitats during migration including freshwater marshes, wet prairies, shallow portions of rivers, reservoirs, lakes, and lagoons and they forage in grain and stubble fields. Whooping cranes roost on submerged or barren sandbars.

The occurrence of this species within the special status wildlife analysis area would be limited to accidental migrants from the Aransas-Wood Buffalo population and is highly unlikely. Nevertheless, potential indirect impacts to whooping crane could occur as a result of construction-related water depletions in the Platte River watershed in Wyoming. Potential Project-related water depletions to the Platte River system will be determined during the ESA Section 7 consultation process and will be presented in the BA.

Yuma Clapper Rail (Endangered)

The Yuma clapper rail was designated as endangered on March 11, 1967 (32 FR 4001). This listing protects only the populations in California, Arizona, and Nevada; Mexican populations are not protected. No critical habitat has been designated for this subspecies. The Yuma Clapper Rail Recovery Plan was issued in 1983. A draft Revised Recovery Plan was issued on February 10, 2010.

The Yuma clapper rail is a subspecies of clapper rail. This subspecies breeds and forages in freshwater marshes with dense vegetation exceeding 16 inches in height and water depth of 12 inches or less. Important habitat components include pond openings, flowing channels, and emergent soils. Yuma clapper rails that remain near their breeding grounds through the winter occupy tall, dense bulrush/cattail stands. They also utilize flooded salt cedar and willow stands (Rosenberg et al. 1991). Yuma clapper rails were originally thought to migrate to Mexico because they were not detected on their breeding grounds in the U.S. during the winter months (Todd 1986). It is possible that they were not detected during the winter because wintering populations are almost completely silent (Rosenberg et al. 1991).

The Yuma clapper rail was formerly restricted to an area near Yuma, Arizona but has since expanded its range. Over 70 percent of the breeding population winters along the lower Colorado River (Rosenberg et al. 1991). The subspecies potentially occurs only in the far southern limit of the Yuma clapper rail analysis area in southern Nevada along the Muddy and Virgin rivers and at the Ash Meadows NWR. The subspecies also is suspected to occur at the Pahranagat NWR and the Las Vegas Wash (GBBO 2010). The Yuma clapper rail analysis area is defined as herbaceous wetland areas in the HUC10 watersheds traversed by the route alternatives in Regions III and IV.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

The gray wolf (northern Rocky Mountain population) was designated as endangered on January 4, 1974 (39 FR 1175-1176) and a Recovery Plan was released on August 3, 1987. Currently, the species is listed as endangered in Utah and Colorado. The USFWS designated the gray wolf as an NEP in Wyoming. This status is defined as a reintroduced population believed not to be essential for the survival of the species but important for its full recovery and eventual removal from the endangered and threatened list. These NEPs are treated as threatened species except that the ESA Section 7 regulations, which require consultation to reduce adverse impacts from federal actions, do not apply (except when the species occurs within national parks or NWRs) and critical habitat cannot be designated.

The established northern Rocky Mountain population recovery goal of 30 breeding pairs of wolves well distributed throughout Idaho, Montana, and Wyoming for three consecutive years was achieved in December 2002. By 2007, the gray wolf population exceeded 1,500 individuals and the USFWS proposed delisting the species. The gray wolf population in the northern Rocky Mountains of Montana, Idaho, and Wyoming continued to experience an increase in distribution and estimated wolf population numbers have exceeded 1,600 individuals in recent years within the three-state area (USFWS et al. 2009). On March 28, 2008, the USFWS designated and removed the northern Rocky Mountain gray wolf from listing under the ESA (73 FR 10514-10560). However, in July 2008, a federal judge issued an injunction to suspend this removal. A number of environmental groups have challenged the USFWS delisting decision. On March 6, 2009, Secretary Salazar confirmed the USFWS decision to delist the wolf in all states except Wyoming. In March 2011, the northeastern corner of Utah (east of I-15 and north of I-80 and I-84) was designated as a recovery area for gray wolves. Elsewhere in Utah, most notably the Uinta Mountains and the Book Cliffs region of eastern Utah, the species remains protected. Colorado has no established gray wolf population, but has developed guidelines in anticipation of a time when individuals dispersing from the northern Rocky Mountain population may become established in the state (Colorado Wolf Management Working Group 2004).

Gray wolves are considered habitat generalists and have few specific habitat requirements for survival. These requirements are primarily related to the density of prey species found within a given area. While lone wolves can travel through, or temporarily live, almost anywhere, much of the historic range located within the gray wolf analysis area is no longer suitable habitat that could support wolf packs due to inadequate prey densities and increased human presence across the landscape (Carroll et al. 2006; Oakleaf et al. 2006). Wolf populations have been expanding since the northern Rocky Mountain reintroduction effort, which began in 1995 and 1996. Recent records exist for a few individual, long-distance dispersing gray wolves within the historic range of the species. However, these individuals are believed to be dispersing away from habitat that is at carrying capacity (Jimenez 2012; Licht and Fritts

1994; Licht and Huffman 1996) Although it is possible for these dispersers to encounter and mate with another wolf outside the primary range of the recovered populations, no information currently exists to verify that any of these naturally dispersing animals have formed persistent reproducing packs or constitute a population. Since the gray wolf utilizes a wide variety of habitats, the species could potentially be present along any portion of the refined transmissison corridor regardless of habitat type, with the exception of intensively managed agricultural areas. The gray wolf analysis area includes aspen forest and woodland, conifer forest, deciduous forest, grassland, montane grassland, montane shrubland, pinyon-juniper woodland, ephemeral wash, sagebrush shrubland, tundra, and woody riparian and wetlands habitat types in the HUC10 watersheds crossed by the route alternatives in Regions I and II.

Interior Least Tern (Endangered)

The interior least tern was designated as endangered on May 28, 1985 (50 FR 21784). No critical habitat has been designated for this subspecies but suitable breeding habitat has been identified within its historic range (USFWS 2011c). The Interior Least Tern Recovery Plan was issued in September 1990.

Historically, the breeding range of this subspecies extended from Texas to Montana and from eastern Colorado and New Mexico to southern Indiana. It included the Rio Grande, Red, Missouri, Arkansas, Mississippi, and Ohio river systems. The interior least tern continues to breed in most of the historic river systems although its distribution generally is restricted to less altered river segments (USFWS 1990). The interior least tern breeds and forages on barren or sparsely vegetated sandbars adjacent to waterbodies. This subspecies nests in colonies on sandy or pebbly, sparsely vegetated islands or shorelines. Interior least terns spend 4 to 5 months at their breeding sites. Nest locations are usually well above the water's edge since nesting is typically initiated during high river flows, when only small amounts of sandy shoreline are exposed. Therefore, the size of nesting habitat depends on water levels and the extent of associated sandbars. The interior least tern also will nest on artificial habitats including sand and gravel pits and dredge islands (USFWS 1990).

It is unlikely that nesting interior least terns would be present within the special status wildlife analysis area. Nevertheless, indirect impacts to least tern habitat could occur as a result of construction-related water depletions in the Platte River system in Wyoming. Potential Project-related water depletions to the Platte River system will be determined during the ESA Section 7 consultation process and will be presented in the BA.

Piping Plover (Threatened)

The piping plover was designated as endangered/threatened on December 11, 1985 (50 FR 50726). The Great Lakes piping plover population was listed as endangered while the remaining Atlantic and northern Great Plains populations were listed as threatened. Migrating and wintering populations of piping plover also were classified as threatened. Designated critical habitat for the piping plover does not exist within the special status wildlife analysis area. A recovery plan for the Great Lakes and Northern Great Plains Piping Plover populations was issued on May 12, 1988. The 5-Year Review for this population was issued in September 2009.

The piping plover breeds and forages on sandy lakeshore beaches, sandbars within riverbeds or sandy wet pastures. Nesting habitat for the piping plover consists of sparsely vegetated shorelines around small alkali lakes, large reservoir beaches, river islands and adjacent sandpits and shorelines associated with industrial ponds. It constructs a scrape nest in sand or gravel (Haig and Plissner 1993). Nesting piping plovers have been found in least tern nesting colonies at a number of sites on Great Plains river sandbars and sand pits (USFWS 1988a).

It is unlikely that nesting piping plovers would be present within the special status wildlife analysis area. However, indirect impacts to piping plover habitat could occur as a result of construction-related water depletions in the Platte River system in Wyoming. Potential Project-related water depletions to the Platte

River system will be determined during the ESA Section 7 consultation process and will be presented in the BA.

Western Yellow-billed Cuckoo (Threatened)

The Western U.S. Distinct Population Segment (DPS) of the yellow-billed cuckoo (hereafter referred to as western yellow-billed cuckoo) became a candidate species for listing as threatened or endangered on October 30, 2001 (66 FR 54807-54832). On October 3, 2013, the western yellow-billed cuckoo was proposed for listing under the ESA (78 FR 61621 61666). On November 3, 2014, the species was listed as threatened by the USFWS (79 FR 59992 - 60038). Designated critical habitat is proposed in one unit in Wyoming, seven units in Colorado, eight units in Utah, and three units in Nevada.

Western populations of yellow-billed cuckoos breed in dense riparian woodlands along riparian corridors in otherwise arid areas (Hughes 1999). Dense undergrowth may be an important factor in selection of nest sites (Ehrlich et al. 1988). Western yellow-billed cuckoos appear to require relatively large tracts of riparian woodland. Several studies have reported the species to only nest in tracts greater than 25 acres in size.

The range of the western population of yellow-billed cuckoo has been determined as the portion of yellow-billed cuckoo range west of the crest of the Rocky Mountains (USFWS 2001). Currently, the western yellow-billed cuckoo is very rare in scattered drainages in western Wyoming, Colorado, Idaho, Nevada, and Utah (NatureServe 2012, USFWS 2014). The species has been documented within the special status wildlife analysis area in Utah County, Utah. It also has been documented within 5 miles of the special status wildlife analysis area in Emery, Grand, Uintah, and Washington counties, Utah (UNHP 2010). In Nevada, the species has been documented in the Meadow Valley Wash along the lower Virgin River in the Pahranagat Valley and in the Las Vegas Wash (GBBO 2010; Wildlife Action Plan Team 2012; NNHP 2010). It also is a confirmed breeder along the Muddy River in Nevada (Floyd et al. 2007). The western yellow-billed cuckoo analysis area is defined as herbaceous wetland and woody riparian and wetlands habitat types in the HUC10 watersheds traversed by the route alternatives in Regions I, II, III, and IV.

Mexican Spotted Owl (Threatened)

The Mexican spotted owl was designated as threatened on March 16, 1993 (58 FR 14248-14271) and a Recovery Plan was released on June 6, 1995 (60 FR 29913-29951). A revised Recovery Plan was issued in September 2012. Critical habitat was originally designated on March 16, 1993 (58 FR 14248-14271) and subsequently revoked on March 25, 1998 (63 FR 14378-14379). Critical habitat was re-established on February 1, 2001 (66 FR 8530-8553) and a comment period was re-opened on November 18, 2003 (68 FR 65020-65023). The currently defined critical habitat was established on August 31, 2004 (69 FR 53181-53298).

The Mexican spotted owl is one of three recognized subspecies of spotted owl in North America. The Mexican spotted owl is a permanent resident in the interior mountain ranges of western North America, ranging from southern Utah and central Colorado south through the mountains of Arizona, New Mexico, and extreme west Texas. The species typically occupies old growth forest in mixed conifer, pine-oak woodland, deciduous riparian, or a combination of these habitats that will support a home range of 1,400 to 4,500 acres (Ehrlich et al. 1988; Gutierrez et al. 1995). An undisturbed core area of approximately 600 acres, centered on the nest site is the currently recommended disturbance buffer (Gutierrez et al. 1995).

Mexican spotted owls typically inhabit steep canyons with mature or old growth forest but they also may occur in canyons with steep cliffs and relatively little forest habitat. Mexican spotted owl habitat typically has a structured canopy, a perennial water source, and a rodent-dominated prey base of adequate size (Gutierrez et al. 1995). Mexican spotted owls have been reported at elevations ranging from 3,700 feet amsl to the subalpine transition zone (Ganey 1998; Gutierrez et al. 1995; Johnsgard 1988).

Mexican spotted owls exhibit high nest fidelity and construct nests in rock crevices, tree cavities (usually in live trees) or on constructed platforms on tree limbs. In Utah, they nest almost exclusively in shallow caves (Sutter et al. 2005). Mexican spotted owls also will utilize abandoned raptor or corvid platform nests (Ehrlich et al. 1988; Terres 1980).

There are several areas where the subspecies could occur within the Mexican spotted owl analysis area in Utah including the Desolation Canyon area of the Green River on the boundary between Carbon and Uintah counties and the Kolob Terrace area (including Zion National Park) near Cedar City (Sutter et al. 2005; UDWR 2008). The Mexican spotted owl analysis area is defined as the modeled habitat in the BLM Vernal FO.

Southwestern Willow Flycatcher (Endangered)

The southwestern willow flycatcher was designated as endangered, without designated critical habitat, on February 27, 1995 (60 FR 10693-10715). Critical habitat was later designated on July 22, 1997 (62 FR 39129-39147) and the Final Recovery Plan for the subspecies was issued on March 5, 2003 (68 FR 10485). A court decision in 2001 resulted in a subsequent Final Rule on Critical Habitat on October 19, 2005 (70 FR 60885-61009). A 5-year review of the subspecies was completed by the USFWS in 2005 (73 FR 14995-14997). On January 3, 2013, the USFWS designated revised critical habitat for the southwestern willow flycatcher.

Four specific types of breeding habitat have been described for the southwestern willow flycatcher. The first is comprised of dense stands of willows 10 to 23 feet in height with no distinct overstory. This community is often associated with sedges, rushes, or other herbaceous wetland plants. A second habitat type includes dense stands of salt cedar or Russian olive up to 33 feet in height. These species form a dense, closed canopy with no distinct understory layer. Native broadleaf-dominated communities form a third habitat type. The final habitat type is a mixture of native and exotic riparian species (Sogge et al. 1997).

Regardless of the vegetation species composition, all of these habitats share common structural characteristics. Occupied southwestern willow flycatcher habitats always have dense vegetation in the interior and dense areas are often interspersed with small clearings, open water, or areas of sparse shrubs. Habitat patches can vary in size and shape with some occupied areas being relatively dense, linear, contiguous stands and others being large, irregularly shaped mosaics of dense vegetation intermingled with open areas. Habitat patch sizes can range from as little as 2 acres to several hundred or a thousand acres. Southwestern willow flycatchers may occur at elevations as high as 7,875 feet amsl. They also inhabit willow or cottonwood riparian areas that extend out into desert regions (Terres 1980). Migration and winter habitat could differ from breeding habitat for this subspecies. During migration, riparian habitat along major southwestern drainages is commonly utilized but a close association with water may not always exist. These drainages might be considered stopover areas and could be very important migration habitat for the southwestern willow flycatcher (USFWS 2002).

The southwestern willow flycatcher has been documented within 5 miles of the Project in Washington County, Utah (UNHP 2010). It also has been documented in Iron County, Utah near Newcastle Reservoir and Pinto Creek. In Nevada, the species has been documented in Pahranagat Valley, at the Ash Meadows NWR, along the Muddy River at Overton, and Warm Springs (GBBO 2010; USFWS 2014). Suitable habitat occurs in Emery, Grand, Iron, and Uintah counties, Utah, and in Clark and Lincoln counties, Nevada.

A total of 1,227 stream miles has been designated as critical habitat. These areas are designated as stream segments with the lateral extent including the riparian areas and streams that occur within the 100-year floodplain or flood-prone areas (FR 50 CFR Part 17). Designated critical habitat exists in Lincoln and Clark counties, Nevada; Mohave County, Arizona; and Washington County, Utah. Designated critical habitat consists of the Virgin River, contiguous with habitat that is essential to the conservation of the species, from Lake Mead upstream through the northwestern corner of Arizona into

Utah. The total length of critical habitat on the Virgin River is 73 miles (USFWS 2005a). Other potentially suitable habitat for the southwestern willow flycatcher in Nevada includes portions of the Meadow Valley Wash, the Muddy River, the Las Vegas Wash, and the Colorado River System (Hiatt and Boone 2003). The southwestern willow flycatcher analysis area is defined as woody riparian habitat in the HUC10 watersheds traversed by the route alternatives in Regions III and IV.

Black-footed Ferret (Endangered; EXP/NE)

The black-footed ferret was designated as endangered in 1966. The species was subsequently listed as threatened with extinction under the ESA on March 11, 1967 (32 FR 4001) and as endangered under the Endangered Species Act on June 2, 1970 (35 FR 8491). No critical habitat has been designated for the species. Eight reintroduced black-footed ferret populations have been designated as NEP under Section 10(j) of the ESA. The USFWS initiated a 5-year species status review for the black-footed ferret on July 7, 2005 (70 FR 39326). In the 2008 status review summary, the USFWS recommended no change in status and a Recovery Priority Number of 2C (USFWS 2008b). The current Black-footed Ferret Recovery Plan was approved in 2013 (USFWS 2013b). This plan replaced the 1978 recovery plan which was drafted when no extant, wild black-footed ferrets were known to exist (USFWS 1988b).

The black-footed ferret is considered to be a prairie dog obligate species. The black-footed ferret is entirely dependent upon prairie dogs colonies utilizing the burrows for shelter and den sites and preying almost exclusively on prairie dogs (Biggins et al. 2006).

No wild black-footed ferret populations are known to occur within the black-footed ferret analysis area in Wyoming. Although the Shirley Basin supports the only known extant population of wild black-footed ferrets in Wyoming, it is not located within the analysis area. There are numerous white-tailed prairie dog complexes within the black-footed ferret analysis area in both the Rawlins and Rock Springs BLM FOs that constitute suitable habitat for the species. Many of these complexes have not been surveyed for black-footed ferrets. The State of Wyoming is now entirely block-cleared for the black-footed ferret (USFWS 2013b).

There is only one reintroduction site within the black-footed ferret analysis area: the Northwestern Colorado/Northeastern Utah Black-footed Ferret Experimental Population Area (ExPA). The ExPA encompasses portions of Rio Blanco and Moffat counties in Colorado, Sweetwater County, Wyoming, and Uintah and Duchesne counties, Utah. The ExPA has been separated into the Northwestern Colorado Experimental Population Sub-Area and the Northeastern Utah Experimental Population Sub-Area. Within the Northwestern Colorado Sub-Area, the Little Snake Black-footed Ferret Management Area was established as a specific reintroduction site although no black-footed ferrets have been released at this site to date. The Little Snake area is located in northwestern Moffat County, Colorado along the Colorado-Wyoming border. Within the Northeastern Utah Sub-Area, the Coyote Basin Black-footed Ferret Management Area was established as a specific reintroduction site. The Coyote Basin area is located in Uintah County, Utah along the Utah-Colorado state border.

A total of 255 black-footed ferrets have been released into the Coyote Basin Area since 1999. Reproduction was confirmed in Coyote Basin in 2000 and the population is currently estimated at 25 individuals (USFWS 2008b). Ferret releases at the Wolf Creek site, northeast of Rangely, Colorado, were initiated in 2001 and, to date, a total of 189 individuals have been released at this location. The Wolf Creek population is currently estimated at 16 individuals (USFWS 2008b) although plague has impacted the Wolf Creek population of white-tailed prairie dogs and black-footed ferrets in recent years. The USFWS classifies both populations as “marginal” (USFWS 2008b). The only non-NEP areas found within the black-footed ferret analysis area are located in Grand, Emery, and Carbon counties, Utah, and portions of Sweetwater and Carbon counties, Wyoming. The black-footed ferret analysis area includes the non-essential Experimental Population Areas in Utah and Colorado.

Canada Lynx (Threatened)

The contiguous DPS of the Canada lynx was designated as threatened on March 24, 2000 (65 FR 16051). This DPS includes lynx inhabiting forested portions of multiple states, including Colorado and Utah. In response to a 2002 court order, the USFWS reconfirmed the species' status as threatened (68 FR 40076). A final rule on critical habitat for the Canada lynx was issued in February 2009. Designated critical habitat does not exist within the Canada lynx analysis area. A 5-year species status review was initiated in 2007 (72 FR 19549). Although a formal recovery plan has not been published for the Canada lynx, an interim Recovery Outline was issued in 2005 to guide recovery efforts and critical habitat designation for the DPS until a draft recovery plan is completed (USFWS 2005b). The Recovery Outline identifies preliminary Canada Lynx Recovery Areas throughout the contiguous U.S. These areas are categorized as Core Areas, Provisional Core Areas, Secondary Areas and Peripheral Areas based upon habitat quality and evidence of current Canada lynx occurrence.

At the time of listing, the USFWS identified the main threat to the DPS as the inadequacy of existing regulatory mechanisms to protect the Canada lynx and its habitat, particularly the lack of protection conferred by USFS LRMPs (65 FR 16051). To address this inadequacy, the USFS, BLM, and USFWS developed the Lynx Conservation Assessment Strategy (LCAS) to provide a consistent and effective approach to conserve Canada lynx on federal lands across the contiguous U.S. (Ruediger et al. 2000). The LCAS included the identification of Lynx Analysis Units (LAUs). LAUs are based upon 5th and 6th level HUCs, and a HUC becomes a LAU when at least 30 percent of the HUC is suitable Canada lynx habitat. LAUs have been identified in suitable lynx habitat throughout lands managed by the USFS and BLM. No LAUs, as designated by USFS, are within the Canada lynx analysis area for this Project.

The Canada lynx inhabits the boreal forests of North America. Lynx are secretive, nocturnal, and solitary. Home range sizes vary widely, depending on prey availability and regional habitat characteristics (Meaney and Beauvais 2004). Canada lynx require a complex mosaic within their home range to meet different habitat needs. Specifically, lynx utilize early successional habitats for foraging and mature forests with large woody debris for denning (Ruediger et al. 2000). While Canada lynx populations in northern boreal habitats are known to oscillate in direct response to natural snowshoe hare population cycles, southern populations rely more heavily on alternate prey species and do not exhibit the dramatic cycles experienced by northern populations.

Although existing lynx habitat in Utah has been identified as "peripheral" by the USFWS (USFWS 2010), the species has been documented within 5 miles of the Project in Uintah County, Utah (UNHP 2010). Peripheral habitat is characterized as sub-optimal habitat where the capacity to support adequate snowshoe hare or lynx populations is questionable. Within the areas of potentially suitable peripheral habitat in the Canada lynx analysis area, there is no evidence of long-term presence or reproduction that might indicate colonization or sustained use of these areas by lynx (Interagency Lynx Biology Team 2013). The Canada lynx analysis area also encompasses an identified "linkage area" in northern Utah (USFS 2007). Linkage habitat is defined as "areas that facilitate movements of lynx beyond their home range, such as dispersal, breeding season movements, or exploratory movements. Linkage areas may incorporate topographic features that tend to funnel animal movements and may encompass areas of non-lynx habitat." (Interagency Lynx Biology Team 2013)

Additionally, a reproducing lynx population has been established in south-central Colorado as a result of a reintroduction program initiated in 1999 by the CPW. Individuals from this population have been documented traversing northern Colorado and Utah. The Canada lynx analysis area is defined as aspen forest and woodland, conifer forest, tundra, and woody riparian and wetlands habitat types in the HUC10 watersheds traversed by the route alternatives in Region Iand II.

Utah Prairie Dog (Threatened)

The Utah prairie dog was designated as endangered in 1968 but was subsequently delisted in1970. It was again designated as endangered on June 4, 1973 due to a substantial decline in population from

1970 to 1972 (Pizzimenti and Collier 1975). In 1979, the UDWR petitioned the USFWS to remove the Utah prairie dog from the endangered species list. The USFWS published a Final Rule on May 29, 1984 (49 FR 22330) to reclassify the Utah prairie dog as threatened, with a special rule to allow regulated take. In 2003, the USFWS received a petition to reclassify the species as endangered. In February 2004, the USFWS received a NOI to sue for failure to issue a 90-day finding for the petition. Eventually the petitioning party and the USFWS reached a settlement agreement to make a 90-day finding on the petition by February 17, 2007. Published in the FR on February 21, 2007, the USFWS issued a notice of the 90-day petition finding, determining that the petition failed to provide substantial scientific or commercial information to warrant the reclassification of the species to endangered status (72 FR 7843). With this determination, the USFWS also initiated a 5-Year Review of the species to determine whether the status of the Utah prairie dog should be changed. A Final Recovery Plan for the Utah Prairie Dog was issued on September 9, 1991 (USFWS 1991). This plan was revised in March 2012 (USFWS 2012).

The Utah prairie dog is a colonial species. It inhabits grassland and shrublands in central Utah, and is found at elevations ranging from approximately 4,900 to 9,800 feet amsl (Hoogland et al. 2006). Because most of their water requirement is met through plant ingestion, there is a positive correlation between the amount of available moisture in vegetation and Utah prairie dog population densities. The species prefers swale formations where moist vegetation is available even during times of drought (USFWS 1991). Utah prairie dogs require well-drained soils for their burrows in order to be able to burrow deeply enough to be protected from predators and environmental temperature extremes (USFWS 1991). Colony population densities vary considerably (6.25 per acre to more than 185 per acre). Habitat condition is the most likely influence on population density (Pizzimenti and Collier 1975). Vegetation within a colony must be low enough to allow a standing Utah prairie dog to scan the environment for predators. Utah prairie dogs are true hibernators and most surface activity ceases during harsh winters (72 FR 7843).

The Utah prairie dog has the most restricted range of all prairie dog species in the U.S. and is limited to the southwestern quarter of Utah (USFWS 1991). As of 2010, the majority of Utah prairie dog populations existed in only three areas: the Awapa Plateau, the Paunsaugunt region along the east fork and main stem of the Sevier River, and the West Desert region of eastern Iron County (USFWS 2010). However, several isolated colonies exist in the mountain and desert valleys in western Iron and Beaver counties (Pizzimenti and Collier 1975; USFWS 1991).

Distribution records for the Utah prairie dog since 1983 show occurrences in Beaver, Garfield, Iron, Millard, Piute, Sanpete, Sevier, and Washington counties (UNHP 2003). The species has been documented within the Utah prairie dog analysis area in Iron, Millard, and Sevier counties, Utah (UNHP 2010). The greatest concentrations of Utah prairie dogs occur in eastern Iron and southern Sevier counties. The Utah prairie dog analysis area is defined as the West Desert Recovery Unit, Paunsaugunt Recovery Unit, and the Awapa Plateau Recovery Unit.

3.8.4.2 BLM, USFS, and State Sensitive Wildlife Species

In addition to federally listed, candidate, and proposed species, a total of 106 BLM sensitive, USFS sensitive, or state sensitive species potentially occur within the special status wildlife analysis area (**Table 3.8-5**). This list includes 12 terrestrial invertebrate species, 18 reptile species, 42 avian species, and 34 mammal species. Descriptions of occurrence and habitat utilized by these species are provided in **Appendix G**, **Table G-2**.

<u>Special Status Raptors and Other Migratory Birds - Overview of Analysis</u>

Avian Habitat Analysis

Special status raptors and other migratory birds inhabit the vegetation communities/habitat types present throughout the special status wildlife analysis area. Impacts to habitat types are presented in **Tables 3.5-7** through **3.5-21**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction

disturbance. Impact acreages remaining as a result of operations are presented for each vegetation community/habitat type, as are indirect impact acreages.

Avian Species Analysis

Although migratory birds in general are discussed in Section 3.22, a variety of special status raptors and other migratory birds inhabits the special status wildlife analysis area. **Appendix G** presents general range, habitat, and occurrence potential for special status avian species. Fifty-two avian species are identified in **Appendix G**. The Gunnison sage-grouse and Baird's sparrow are eliminated from further analysis because the geographic ranges for these species are outside the special status wildlife analysis area. Nine federally listed, proposed, and candidate species are analyzed for the Project. The whooping crane, interior least tern, and piping plover do not inhabit the special status wildlife analysis area but are included as part of the Platte River depletion analysis for the Project. Forty-one avian species that are classified as BLM sensitive, USFS sensitive, or state-sensitive are presented in **Appendix G** and analyzed in Section 3.8 according to their habitat associations by region. The bald eagle is protected under BGEPA and MBTA and also is classified as BLM, USFS, and state sensitive. The golden eagle is protected under BGEPA and MBTA and also is classified as BLM sensitive. Both eagle species could occur in all four Project regions.

Avian Breeding Seasons

It is generally believed that birds are most sensitive to disturbance during the breeding season. During this time period, the integrity of the nest and foraging habitat used by adults feeding young is crucial to survival. In addition, young birds are at greater risk to predation during the nestling period and immediately post fledging when their motor skills and foraging behaviors are becoming developed. Consequently, measures to protect birds involve avoidance of construction activities in the immediate vicinity of nests to reduce potential impacts during the breeding season.

Most bird species have relatively well-defined breeding seasons as a result of hormonal influence that is triggered by photoperiod changes such as increasing day length. A few species (e.g., crossbills) may breed at any time of year, provided abundant food is available. Typically the breeding season has evolved to coincide with the abundance of critical resources (e.g., food or nesting material) that allow the young sufficient time to reach independence before winter. For example, great horned owls breed very early in the year so that the critical period of greatest food need by the nestlings coincides with the period when small mammal populations are high. Conversely, cedar waxwings breed late in the summer when berries, their dietary staple, are abundant.

The timing and duration of the breeding season is species-specific and may vary according to latitude, elevation, and climatic conditions. Since weather is a major determinant of nesting season, breeding generally occurs later in higher latitudes of a species' range. This trend also applies to higher elevations, where snow and cold temperatures remain longer than at lower elevations. In areas with significant elevation gradients, the breeding season for a given species may be prolonged. In addition, many species have extended breeding periods because they may produce two or even three clutches each year.

In general, large avian species (e.g., condors and eagles) have prolonged periods of development when the young remain in the nest and are dependent upon the parents. Other species, such as quail and grouse, may leave the nest within hours of hatching and forage with their parents long before they can fly. Small songbirds remain in the nest until they can fly; however, their development is often so rapid that the adults may complete the entire nesting cycle in a month or less. The duration of incubation and nestling periods is well established and may be predicted within a few days for most avian species.

Protection of nests and nestlings would occur through monitoring and nest avoidance measures (**WLF-1**) in areas of habitat removal and other surface disturbance. Preconstruction surveys would be utilized to locate nests around which a spatial restriction on disturbance would be established while the young

remain present in the nest. Raptors typically produce one clutch per year and many exhibit high nest fidelity. For this reason, raptor nests are identified and monitored by a variety of agencies and organizations. Existing raptor nests within 1 mile of potential disturbance areas for the Project are presented in tables throughout this analysis.

Breeding seasons for raptor and other migratory bird species have been conservatively estimated by region. **Figures 3.22-5, 3.22-8,** and **3.22-13** present the approximate breeding seasons for each species group, by Project region. In general, the avian breeding season in Region I is considered to begin 1 week later than for Regions II and III; the breeding season for Region IV is considered to begin 1 week earlier than for Regions II and III.

Raptor Nest Data Assumptions

Raptor nest data are compiled from seven BLM FOs, four National Forest datasets, NDOW, and two private consultants. Every effort was made to compile the most accurate dataset for the Project; however, there is potential for duplication. The EIS analysis reports nests within 1 mile of the alternative corridors and terminal sites. It is possible for a particular raptor nest to occur within 1 mile of multiple alternative routes, micro-siting options, alternative connectors, alternative variations, electrode sites, and terminal sites. Thus, a given nest could be reported as potentially impacted multiple times, once for each of the facilities in its proximity, and therefore, should not be used as an indicator of species abundance.

The occurrence of raptor nests within 1 mile of Project disturbance areas (in total, a 4-mile-wide corridor centered on the 250-foot-wide transmission line ROW) is the primary metric used to analyze potential impacts to raptor species. This metric is based on USFWS recommendations for buffering occupied raptor nests up to 1 mile to prevent impacts to the most sensitive raptor species. Beyond 1 mile, construction noise would attenuate approximately to background levels and have negligible impact. This metric is a conservative estimate of indirect impacts as raptor sensitivity to noise disturbance varies by species.

Recommended seasonal and spatial buffers to protect occupied raptor nests vary accordingly (**Table 3.22-4**). BLM FOs have specific seasonal and spatial stipulations to protect nesting raptors on BLM-administered lands. These stipulations are presented in **Appendix C**, **Table C-3**. USFS required stipulations to protect nesting raptors have only been developed for the northern goshawk and are included in the individual forest Standards and Guidelines shown in **Appendix C**, Section C.4. Buffers recommended by USFWS and the appropriate state wildlife agency would be applied to all other land jurisdictions in coordination with TransWest and respective landowners whose lands would be crossed by the Project.

It is common for raptor nests to be used by different species, including ravens, in different years. An occupied raptor nest would be ascribed the spatial and seasonal buffers appropriate for the species using it during the year(s) of construction. An occupied nest is defined as one that is repaired or tended in the current year by a pair of raptors. Presence of raptors (adults, eggs, or young), evidence of nest repair or nest marking, freshly molted feathers or plucked down, or current year whitewash are all considered signs that suggest nest site occupancy. All nest sites within a nesting territory are deemed occupied while raptors are demonstrating pair-bonding activities and developing an affinity to a given area. If these activities culminate in an individual nest being selected for use by a breeding pair, then the other nests in the nesting territory would no longer be considered occupied for the current breeding season and would not require spatial-temporal buffers for that season. A nest site is considered occupied throughout the periods of initial courtship and pair bonding, egg laying, incubation, brooding, fledging, and post-fledging dependency of the young (Romin and Muck 2002). In this EIS, the number of historic raptor nests is reported by region for each of the transmission line alternatives and other Project components. While the number, activity status, and species using individual raptor nests vary annually, a tabulation of historic raptor nests is useful in comparing the general availability of raptor nesting habitat along each of the alternatives.

Table 3.22-4 provides recommended seasonal and spatial restrictions for raptor nests as a supplement to the required raptor nest buffers on BLM-administered lands and northern goshawk buffers on NFS lands (**Appendix C**, Sections C.3 and C.4). The recommended spatio-temporal disturbance buffers listed in **Table 3.22-4** have been developed in coordination with various state and federal agencies. In many cases, these recommended buffers are identical or similar to buffers required by respective BLM RMPs and USFS LRMPs. For locations in which BLM and USFS buffers are not specified or on lands outside of BLM or USFS jurisdiction, these recommended buffers would be implemented at the discretion of the respective land management agency.

Raptors typically produce one clutch per year and many exhibit high nest fidelity. For this reason, raptor nests are identified and monitored by a variety of agencies and organizations.Raptor species are known to use nests for multiple years. The species using a particular nest may vary annually. For example, most owls do not construct their own nests; they use previously constructed nests or burrows. Non-raptor species also use raptor nests and vice versa. Common ravens are not raptors, but raptor nest data often include common raven nests for this reason.

It should be noted that raptor nest data is not necessarily an accurate portrayal of the actual distribution and abundance of nesting raptors. The availability of nest data is partially dependent on whether previous surveys have been conducted for other projects or for research or for monitoring purposes. Alternatives located in areas where previous research or monitoring has been done will likely include more raptor nests than alternatives without such additional occurrence information. Therefore, it is difficult to compare potential impacts to raptors among alternatives solely on the basis of known raptor nest locations.

When a raptor nest is identified outside of the nesting season or when no birds are present, it is often not possible to determine the species that uses the nest. Such nest occurrence data is still valuable and is included in analyses as the nest of an unknown species. As previously described, the species using a nest can change over time. Nests for which the species is unknown are reported both in Section 3.7, Wildlife, and Section 3.8, Special Status Wildlife Species, because there is the potential that a nest of an unknown species could be used by a special status raptor species. Finally, while the most recent raptor nest data has been used in this analysis, nests and nest structures (e.g., trees) can be destroyed and new nests constructed each year. Prior to construction, a comprehensive raptor nest survey would be conducted along the approved alternative. This survey would provide the data needed to inform final micro-siting adjustments within the refined transmission line corridor and restrict the timing of construction activities to avoid or minimize impacts to nesting raptors. Disturbance to nests during the avian breeding season would be avoided as much as possible during project construction, operation, and maintenance. The timing of the breeding season can vary substantially based on species, latitude, elevation, weather, and numerous other factors. **Figures 3.7-7** through **3.7-9** identify general breeding seasons for raptor and passerine species, by Project region.

Avian Conservation Measures

TransWest has committed to avoiding disturbance to avian species during breeding season as much as possible (TWE-32). Pre-construction nest surveys would be conducted for both raptors and non-raptor species. **Table 3.22-4** presents raptor seasonal and spatial buffers, which have been developed by various state and federal agencies to protect raptors and their nests during the breeding season. TransWest has committed to following APLIC guidelines designed to protect avian species from electrocution with transmission lines. The Project is consistent with applicable conservation measures from State Wildlife Action Plans (SWAPs) for Wyoming, Colorado, Utah, and Nevada. Mitigation measures **WLF-1** and **WLF-2** would further protect nesting raptors and other migratory birds.

Avian Protection Plan

TransWest has committed to developing an operational policy and a comprehensive strategy for avoiding and minimizing impacts to birds during construction and operation of the proposed Project. This

plan, termed an Avian Protection Plan (APP), would be an over-arching document containing a full listing of all avoidance and minimization measures included in this EIS, avian-safe construction design standards, nest management procedures, monitoring and reporting requirements, and other components described in the APP Guidelines developed by the USFWS and APLIC in 2005 (APLIC 2012). APPs are typically living documents that are modified over time to improve their effectiveness at reducing avian mortality associated with powerlines.

Avian Regulations

Avian species, including special status species, are subject to a variety of statutory and policy protections. Section 3.7.4.3 presents an explanation of relevant migratory bird regulations and associated programs, which also are pertinent to special status avian species.

3.8.4.3 USFS Management Indicator Species

The USFS defines MIS for each national forest. A MIS is a plant or animal species selected because its status is believed to: 1) be indicative of the status of a larger group of species; 2) be reflective of the status of a key habitat type; or 3) act as an early warning of an anticipated stressor to ecological integrity. The key characteristics of MIS are that their status and trends provide insight into the integrity of the larger ecological system to which they belong. Wildlife species that have been selected as MIS for the national forests crossed by the Project are presented in **Table 3.7-5** Seven MIS also are categorized as special status species and are addressed in this section, as listed in **Table 3.8-6**. Mule deer and Rocky Mountain elk are analyzed as big game species in Section 3.7, Wildlife.

Table 3.8-6 USFS Management Indicator Species for National Forests Crossed by the Project

Species/Habitat Association[1]	Scientific Name	Ashley National Forest Region II	Dixie National Forest Region III	Fishlake National Forest Region II	Manti-La Sal National Forest Region II	Uinta-Wasatch-Cache National Forest Region II
Northern goshawk Habitat Association: Aspen forest and woodland, conifer forest, deciduous forest	*Accipiter gentilis*	MIS; USFS; BLM - WY, CO, UT, NV; NV-S; UT-SS Tier I	MIS; USFS; BLM - WY, CO, UT, NV; NV-S; UT-SS Tier I	MIS; USFS; BLM - WY, CO, UT, NV; NV-S; UT-SS Tier I	MIS; USFS; BLM - WY, CO, UT, NV; NV-S; UT-SS Tier I	MIS; USFS; BLM - WY, CO, UT, NV; NV-S; UT-SS Tier I
Golden eagle Habitat Association: Agricultural land, cliff and canyon, desert shrubland, grassland, montane grassland, montane shrubland, pinyon-juniper woodland, sagebrush shrubland, saltbush shrubland, tundra	*Aquila chrysaetos*	MIS; BLM - NV			MIS; BLM - NV	
Greater sage-grouse Habitat Association: Sagebrush shrubland	*Centrocercus urophasianus*	FC; MIS; USFS; BLM - WY, CO, UT, NV; UT-SS Tier I				
Red-naped sapsucker Habitat Association: Aspen forest and woodland, conifer forest, deciduous forest	*Sphyrapicus nuchalis*	MIS; BLM - NV				
American three-toed woodpecker Habitat Association: Conifer forest	*Picoides dorsalis*					MIS, USFS; BLM - UT; UT-SS Tier II

Table 3.8-6 USFS Management Indicator Species for National Forests Crossed by the Project

Species/Habitat Association[1]	Scientific Name	Ashley National Forest Region II	Dixie National Forest Region III	Fishlake National Forest Region II	Manti-La Sal National Forest Region II	Uinta-Wasatch-Cache National Forest Region II
Sage thrasher Habitat Association: Sagebrush shrubland	*Oreoscoptes montanus*			MIS; BLM - WY; NV-S		

[1] Habitat association refers to vegetation communities as presented in **Table 3.7-2**.

Status is defined as: BLM = BLM Sensitive (by state: WY, CO, UT, NV); USFS = USFS Sensitive; MIS = USFS MIS; UT-SS = Utah Sensitive Species (Tier I and Tier II species are defined in Utah's Comprehensive Wildlife Strategy); NV-P = Nevada State Protected; NV-S = Nevada State Sensitive; BCC = Birds of Conservation Concern; PIF = Partners in Flight.

3.8.5 Regional Summary

As described in Section 3.8.4, Baseline Description, a wide variety of wildlife habitats and species is found within the special status wildlife analysis area. Many of these species are found over a wide geographic area in various habitat types and at various elevations. As described in Section 3.5, Vegetation, 20 habitat types described as vegetation communities are found within the special status wildlife analysis areas. Each Project region has several dominant habitat types (**Table 3.5-2**). Although the developed/disturbed land cover type is not considered to be suitable wildlife habitat and is not included in analyses and reported disturbance acreages, some wildlife species may utilize these areas. Special status wildlife species and habitats specific to each region are summarized in **Table 3.8-7**. The highest number of special status wildlife species occurs in Region II due to topographic variation and associated habitat diversity.

Terminals

Section 2.4.3.1 provides a description of the Northern Terminal, Southern Terminal, and Southern Terminal Alternate. The exact terminal sites have not yet been determined; however, it is known that the terminals will be constructed within the terminal siting areas. The Northern Terminal would be sited within the Northern Terminal siting area in Region I. The Southern Terminal would be sited within the Southern Terminal siting area in Region IV. The Southern Terminal Alternate would be constructed within the same habitat types as the Southern Terminal and would be within the Southern Terminal Siting Area. Section 2.1.2 provides an explanation of Project Design Options. Design Options 2 and 3 would involve construction of the Southern Terminal near IPP at the border of Regions II and III. Baseline descriptions for species and habitats that could occur at the terminal siting locations are presented first in this analysis because construction of these facilities would be necessary, regardless of the final transmission alignment alternative chosen.

Table 3.8-7 Summary of Special Status Wildlife Species by Terminal Location and Project Region

Species	Total Species Within the Special Status Wildlife Analysis Area (All Regions)[2]	Northern Terminal	Southern Terminal	Southern Terminal Alternate	Southern Terminal near IPP (DO2 and DO3)	Region I	Region II	Region III	Region IV
Mammals - Bats	15	7	15	15	6	5	6	12	14
Mammals - Other	17	4	1	1	2	8	13	7	1
Birds[1]	40	15	9	9	5	19	24	22	10
Reptiles	19	2	8	8	2	0	4	11	4

Table 3.8-7 Summary of Special Status Wildlife Species by Terminal Location and Project Region

Species	Total Species Within the Special Status Wildlife Analysis Area (All Regions)[2]	Northern Terminal	Southern Terminal	Southern Terminal Alternate	Southern Terminal near IPP (DO2 and DO3)	Region I	Region II	Region III	Region IV
Terrestrial Invertebrates	7	-	4	4	1	1	2	5	4
Total	98	27	37	37	16	33	49	57	33

[1] Includes whooping crane, interior least tern, and piping plover.

[2] Total number of species is not equal to a sum of regions and other project components due to the fact that most species are present in multiple regions.

3.8.5.1 Northern Terminal

Vegetative communities located within the Northern Terminal siting area include: cliff and canyon, grassland, greasewood flat, herbaceous wetland, sagebrush shrubland, saltbush shrubland, and woody riparian and wetlands. The Northern Terminal would not be constructed within cliff and canyon, herbaceous wetland, or woody riparian and wetlands habitat types. However, these habitat types are present within the Northern Terminal siting area. Direct impacts resulting from construction of the terminal and associated facilities could occur within grassland, greasewood flat, sagebrush shrubland, and saltbush shrubland vegetative communities only. A description of these communities is presented in Section 3.5, Vegetation.

Table 3.8-8 presents special status wildlife species potentially occurring at the Northern Terminal.

Table 3.8-8 Special Status Wildlife Species Potentially Occurring at the Northern Terminal

Mammals - Bats		
	California myotis	
Long-eared myotis		Pallid bat
	Spotted bat	Townsend's (Western) big-eared bat
Western pipestrelle		Yuma myotis
Fringed myotis		
Mammals - Other		
Pygmy rabbit	Wyoming pocket gopher	Swift fox
White-tailed prairie dog		
Birds		
Swainson's hawk	Ferruginous hawk	Golden eagle
Greater sage-grouse	Mountain plover	Long-billed curlew
Burrowing owl	Long-eared owl	Short-eared owl
Loggerhead shrike	Sage thrasher	
Brewer's sparrow		Sage sparrow[1]
Grasshopper sparrow	Bobolink	
Reptiles		
Corn snake	Smooth greensnake	

[1] The sage sparrow species (*Amphispiza belli*) has recently been has been split into sagebrush sparrow (*Artemisiospiza nevadensis*) and Bell's sparrow (*Artemisiospiza belli*). The sagebrush sparrow is the species that could occur in the special status wildlife analysis area in all four regions.

3.8.5.2 Southern Terminal

The Southern Terminal would be sited almost entirely within the developed/disturbed land cover type. Although the developed/disturbed land cover type is not considered to be suitable wildlife habitat and is not included in analyses and reported disturbance acreages, some wildlife species may utilize these areas. Approximately 11 percent of the Southern Terminal siting area is within desert shrubland. **Table 3.8-9** presents special status wildlife species potentially occurring at the Southern Terminal siting area.

Table 3.8-9 Special Status Wildlife Species Potentially Occurring at the Southern Terminal and Southern Terminal Alternate Siting Area

Mammals - Bats		
Allen's big-eared bat		Big free-tailed bat
Brazilian free-tailed bat	California leaf-nosed bat	California myotis
Cave myotis	Fringed myotis	Greater western mastiff bat
	Long-eared myotis	
Pallid bat		Spotted bat
Townsend's (Western) big-eared bat		Western red bat
	Yuma myotis	Long-eared owl
Mammals - Other		
Desert bighorn sheep		
Birds		
Swainson's hawk	Ferruginous hawk	Golden eagle
Peregrine falcon		Burrowing owl
	Le Conte's thrasher	
Loggerhead shrike	Long-eared owl	
Reptiles		
Banded Gila monster	Chuckwalla	Desert glossy snake
Mojave shovel-nosed snake	Sidewinder	Desert tortoise
Mojave desert sidewinder		
Terrestrial Invertebrates		
	Mojave gypsum bee	Mojave poppy bee
Mono Basin skipper (Railroad Valley skipper) butterfly	Northern Mojave blue (Mojave blue) butterfly	

Southern Terminal Alternate

The Southern Terminal Alternate is sited within the same vegetation communities as the Southern Terminal. Special status wildlife species that could potentially occur at this terminal siting area would be the same as presented in **Table 3.8-9**.

3.8.5.3 Southern Terminal Located Near IPP (Design Option 2)

Vegetative communities located within the Southern Terminal located near IPP (Design Option 2) siting area include, grassland, greasewood flat, herbaceous wetland, saltbush shrubland, and a small amount of sagebrush shrubland. The Southern Terminal located near IPP (Design Option 2) would not be constructed within the herbaceous wetland habitat type. However, this habitat type is present within the siting area for this terminal. Direct impacts resulting from the construction of the Southern Terminal near IPP and associated facilities could occur within the grassland, saltbush shrubland, and greasewood flat vegetative communities only.

Table 3.8-10 presents special status wildlife species potentially occurring at the Southern Terminal located near IPP (Design Option 2).

Table 3.8-10 Special Status Wildlife Species Potentially Occurring at the Southern Terminal Located near IPP (Design Option 2)

Mammals - Bats		
	Big free-tailed bat	Spotted bat
Brazilian free-tailed bat	California myotis	Fringed myotis
	Long-eared myotis	
Pallid bat		Townsend's (Western) big-eared bat
	Western red bat	
Yuma myotis		
Mammals - Other		
Dark kangaroo mouse	Kit fox	
Birds		
Burrowing owl	White-faced ibis	Swainson's hawk
Ferruginous hawk	Golden eagle	Peregrine falcon
	Black tern	Long-eared owl
Long-billed curlew	Short-eared owl	Loggerhead shrike
Reptiles		
Corn snake	Long-nosed leopard lizard	Midget faded rattlesnake
Utah milk snake	Smooth greensnake	
Terrestrial Invertebrates		
Eureka mountainsnail	Great Basin silverspot (Nokomis fritillary) butterfly	
	MacNeill sooty wing skipper (MacNeill saltbush sootywing) butterfly	Mono Basin skipper (Railroad Valley skipper) butterfly

3.8.5.4 Substation Located Near IPP (Design Option 3)

The Substation located near IPP (Design Option 3) would be sited entirely within the boundaries of the Southern Terminal located near IPP (Design Option 2). Special status wildlife species that could potentially occur at this substation would be the same as presented in **Table 3.8-10**.

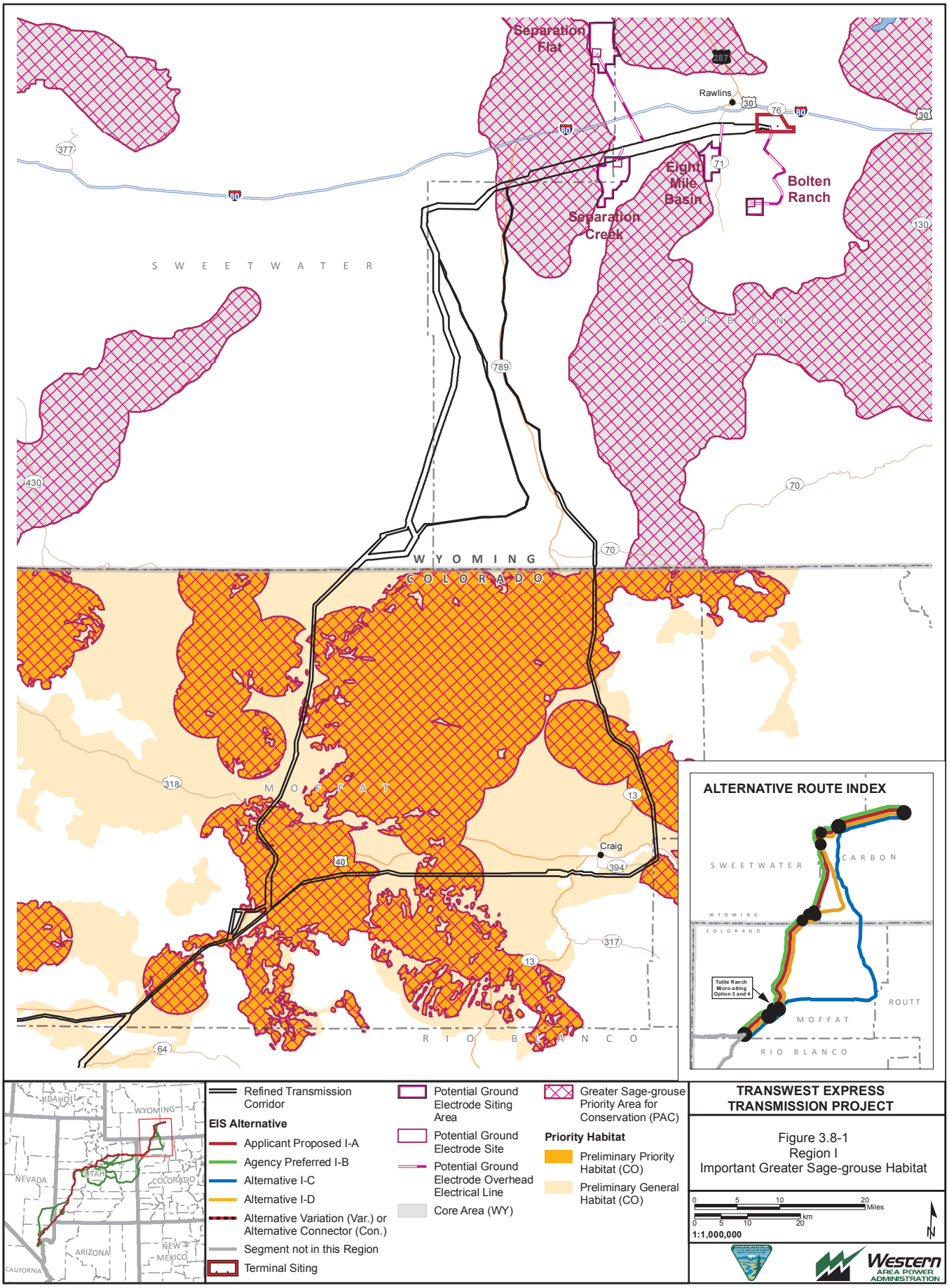
3.8.5.5 Region I

Region I extends from the Northern Terminal siting area near Rawlins, Wyoming, southwest through northwestern Colorado and northeastern Utah. Dominant vegetation community types are sagebrush shrubland and saltbush shrubland. A description of vegetation communities is presented in Section 3.5, Vegetation. Special status wildlife species that may occur in Region I are presented in **Table 3.8-11**. Habitat within the sage-grouse analysis area in Region I is presented in **Figure 3.8-1**. White-tailed prairie dog colonies within the black-footed ferret analysis area in Region I are presented in **Figure 3.8-2**.

Table 3.8-11 Special Status Wildlife Species Potentially Occurring in Region I

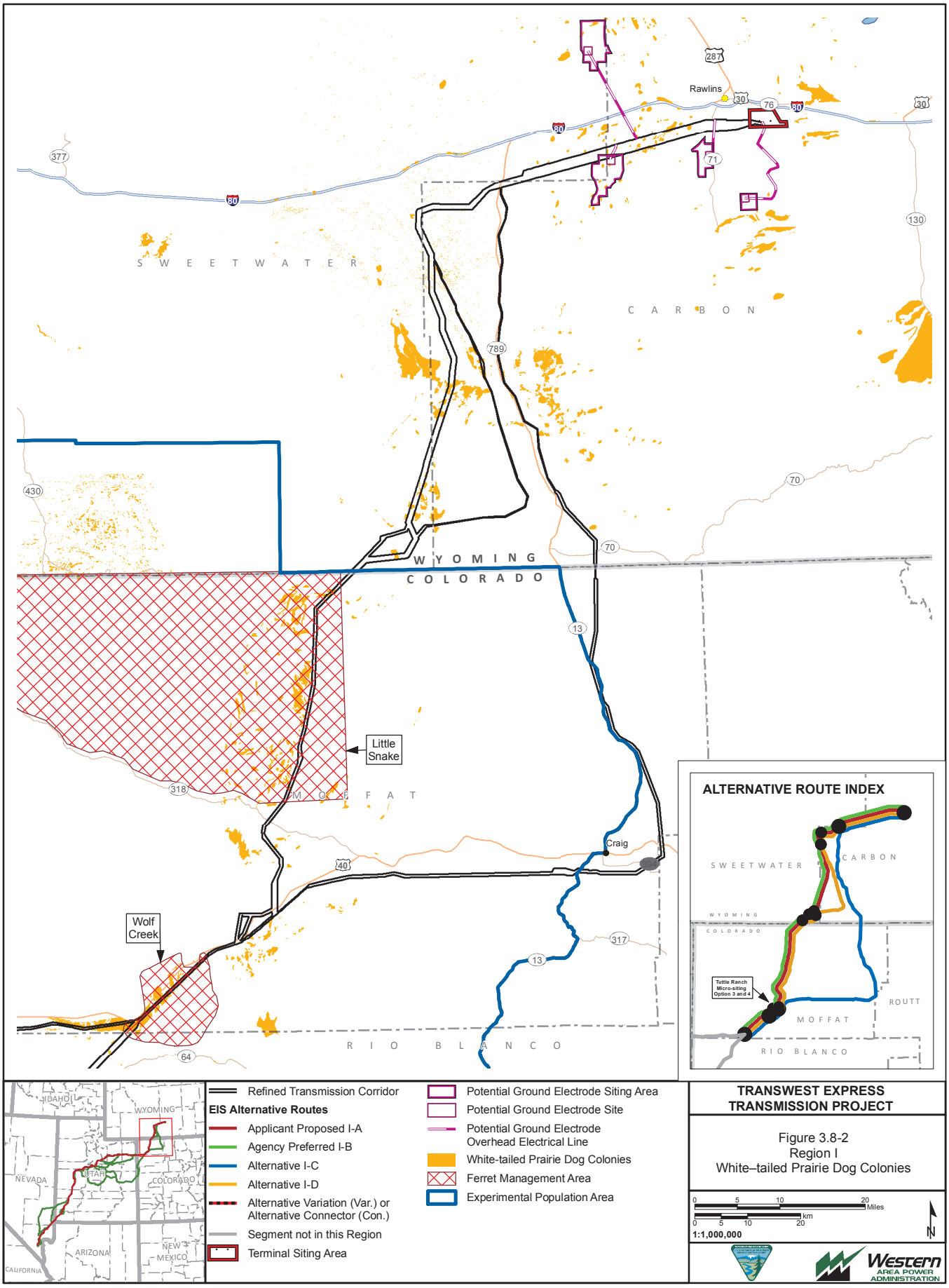
Mammals - Bats		
	California myotis	
Long-eared myotis		Pallid bat
	Spotted bat	Townsend's (Western) big-eared bat
	Western red bat	
Yuma myotis	Fringed myotis	
Mammals - Other		
Black-footed ferret	North American wolverine	Wyoming pocket gopher
Fisher	Gray wolf	Idaho pocket gopher
Pygmy rabbit	River otter	Rocky Mountain bighorn sheep
Swift fox	White-tailed prairie dog	
Birds		
American white pelican		Mountain plover
Trumpeter swan	Barrow's goldeneye	Western yellow-billed cuckoo
Northern goshawk	Swainson's hawk	Long-eared owl
Golden eagle	Peregrine falcon	Black swift
Greater sage-grouse	Columbian sharp-tailed grouse	American three-toed woodpecker
Long-billed curlew	Black tern	Sage sparrow[1]
Flammulated owl	Burrowing owl	
Short-eared owl	Boreal owl	
Lewis's woodpecker	Red-naped sapsucker	
Loggerhead shrike	Sage thrasher	
Brewer's sparrow	Bobolink	
Grasshopper sparrow	White-faced ibis	
Ferruginous hawk	Bald eagle	
Reptiles		
Corn Snake	Smooth greensnake	
Terrestrial Invertebrates		
Great Basin silverspot (*Nokomis fritillary)* butterfly		

[1] The sage sparrow species (*Amphispiza belli*) has recently been has been split into sagebrush sparrow (*Artemisiospiza nevadensis*) and Bell's sparrow (*Artemisiospiza belli*). The sagebrush sparrow is the species that could occur in the special status wildlife analysis area in all four regions.



Exported On: 3/22/2015

K:\Projects_4\TransWestExpress\12907_003_Transwest_Express\Figures\DocumentFigures\2014_PFEIS_v2\SpecialStatusSpecies\Fig_3_08_01_SRI_GSGHab.mxd



Exported On: 2/10/2015

K:\Projects_4\TransWestExpress\12907_003_Transwest_Express\Figures\DocumentFigures\2014_PFEIS_v2\SpecialStatusSpecies\Fig_3_08_02_SRI_WhiteTailedPDog.mxd

3.8.5.6 Region II

Region II extends from northeastern Utah and northwestern Colorado to the IPP in western Utah. Vegetation in Region II is diverse, with the dominant community types consisting of sagebrush shrubland, saltbush shrubland, and pinyon-juniper woodland. All other vegetation communities also occur in Region II. A description of vegetation communities is presented in Section 3.5, Vegetation. **Table 3.8-12** presents the Region II and Region III alternatives and project components that occur in or cross these national forests. Special status wildlife species that may occur in Region II are presented in **Table 3.8-13**. Habitat within the sage-grouse analysis area in Region II is presented in **Figure 3.8-3**. The Ashley, Fishlake, Manti-La Sal, and Uinta-Wasatch-Cache National Forests are crossed by the Project in Region II.

Table 3.8-12 Miles of National Forest Crossed by Region, Alternative, Alternative Connector, or Alternative Variation

National Forest	Region II												Region III			
	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D[1]	Alternative II-E	Alternative II-F	Alternative II-G	Reservation Ridge Alternative Variation	Comparable Portion of Reservation Ridge Alternative	Strawberry Micro-siting Option 2	Strawberry Micro-siting Option 3	Comparable Portion of Alternative II-A	Alternative III-A	Ox Valley East	OX Valley West	Pinto
Uinta-Wasatch-Cache	18	–	–	–	8	8	18	2	2	5	5	5	–	–	–	–
Manti-La Sal	1	15	–	8	1	1	1	–	–	–	–	–	–	–	–	–
Ashley	–	–	–	–	10	–	–	1	1	–	–	–	–	–	–	–
Fishlake	–	2	34	–	–	–	–	–	–	–	–	–	–	–	–	–
Dixie	–	–	–	–	–	–	–	–	–	–	–	–	20	16	16	20
Total miles of forest crossed by route in region	19	17	34	8	19	9	19	3	3	5	5	5	20	16	16	34

[1] While Alternative II-D alignment does not cross the Ashley National Forest, because the route so closely follows the boundary, there are potential associated impacts that are discussed in the Region II section.

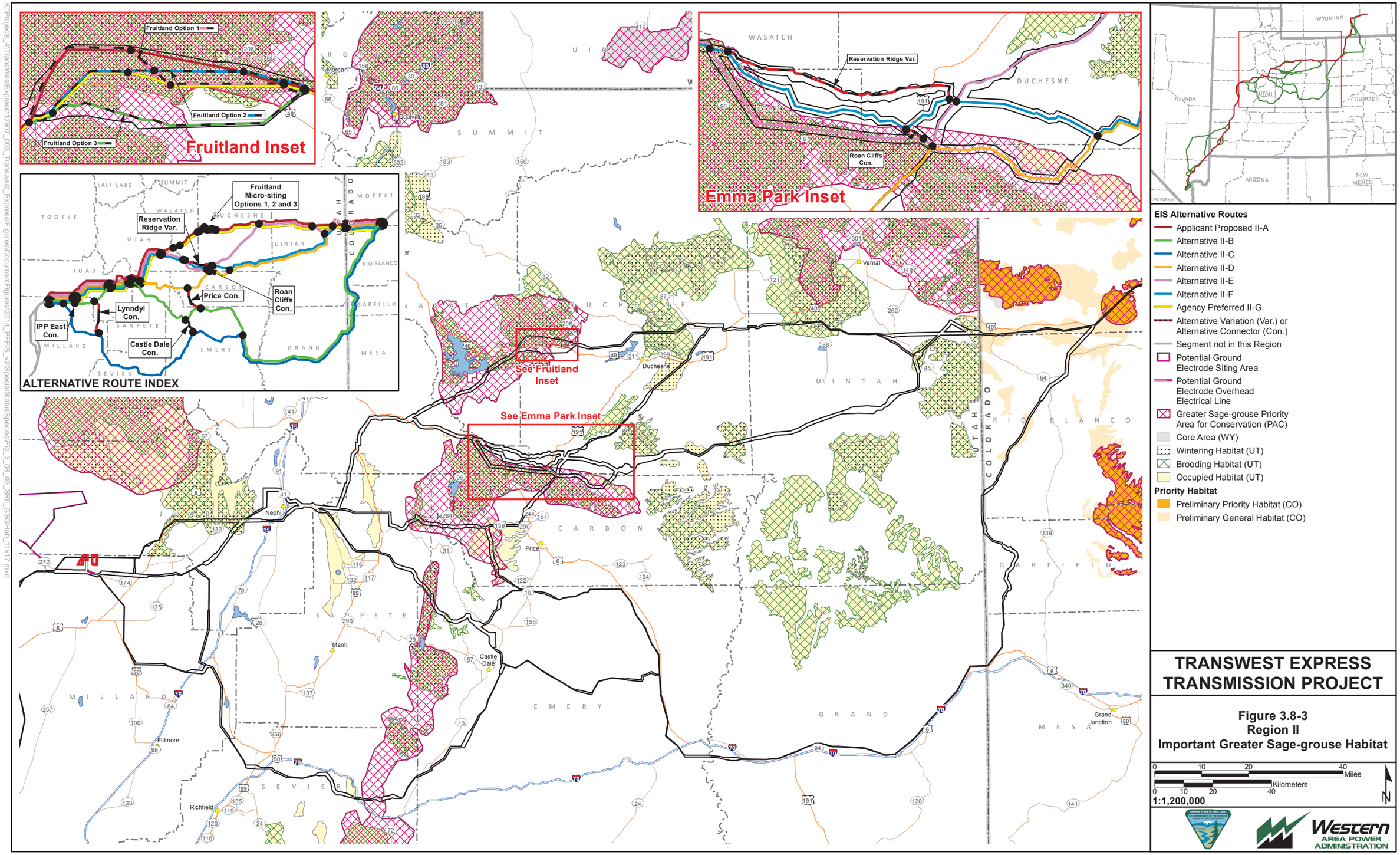

Fruitland Inset
Fruitland Option 1
Fruitland Option 2
Fruitland Option 3
Emma Park Inset
Reservation Ridge Var.
Roan Cliffs Con.
ALTERNATIVE ROUTE INDEX
Fruitland Micro-siting Options 1, 2 and 3
Reservation Ridge Var.
Price Con.
Roan Cliffs Con.
Lynndyl Con.
IPP East Con.
Castle Dale Con.
See Fruitland Inset
See Emma Park Inset
EIS Alternative Routes
Applicant Proposed II-A
Alternative II-B
Alternative II-C
Alternative II-D
Alternative II-E
Alternative II-F
Agency Preferred II-G
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Potential Ground Electrode Siting Area
Potential Ground Electrode Overhead Electrical Line
Greater Sage-grouse Priority Area for Conservation (PAC)
Core Area (WY)
Wintering Habitat (UT)
Brooding Habitat (UT)
Occupied Habitat (UT)
Priority Habitat
Preliminary Priority Habitat (CO)
Preliminary General Habitat (CO)
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.8-3
Region II
Important Greater Sage-grouse Habitat
Miles
Kilometers
1:1,200,000
Western AREA POWER ADMINISTRATION
Exported On: 3/22/2015

Table 3.8-13 Special Status Wildlife Species Potentially Occurring in Region II

Mammals - Bats		
	Big free-tailed bat	Brazilian free-tailed bat
California myotis	Fringed myotis	
Long-eared myotis		Pallid bat
	Spotted bat	Townsend's (Western) big-eared bat
	Western red bat	
Yuma myotis		
Mammals - Other		
Black-footed ferret	Canada lynx	Dark kangaroo mouse
Desert bighorn sheep	Fisher	Gray wolf
Kit fox	Pygmy rabbit	River otter
Rocky Mountain bighorn sheep	Utah prairie dog	White-tailed prairie dog
North American wolverine		
Birds		
American white pelican	White-faced ibis	Bald eagle
Northern goshawk	Swainson's hawk	Ferruginous hawk
Golden eagle	Peregrine falcon	Mountain plover
Greater sage-grouse	Columbian sharp-tailed grouse	Western yellow-billed cuckoo
Long-billed curlew	Black tern	Mexican spotted owl
Flammulated owl	Burrowing owl	Bobolink
Great gray owl	Long-eared owl	
Boreal owl	Black swift	
Red-naped sapsucker	American three-toed woodpecker	
Lewis's woodpecker	Loggerhead shrike	
Sage thrasher	Short-eared owl	
Brewer's sparrow	Sage sparrow[1]	
Reptiles		
Corn snake	Long-nosed leopard lizard	Midget faded rattlesnake
Smooth greensnake	Utah milk snake	
Terrestrial Invertebrates		
Eureka mountainsnail	Great Basin silverspot (*Nokomis fritillary*) butterfly	

[1] The sage sparrow species (*Amphispiza belli*) has recently been has been split into sagebrush sparrow (*Artemisiospiza nevadensis*) and Bell's sparrow (*Artemisiospiza belli*). The sagebrush sparrow could occur in the special status wildlife analysis area in all four regions.

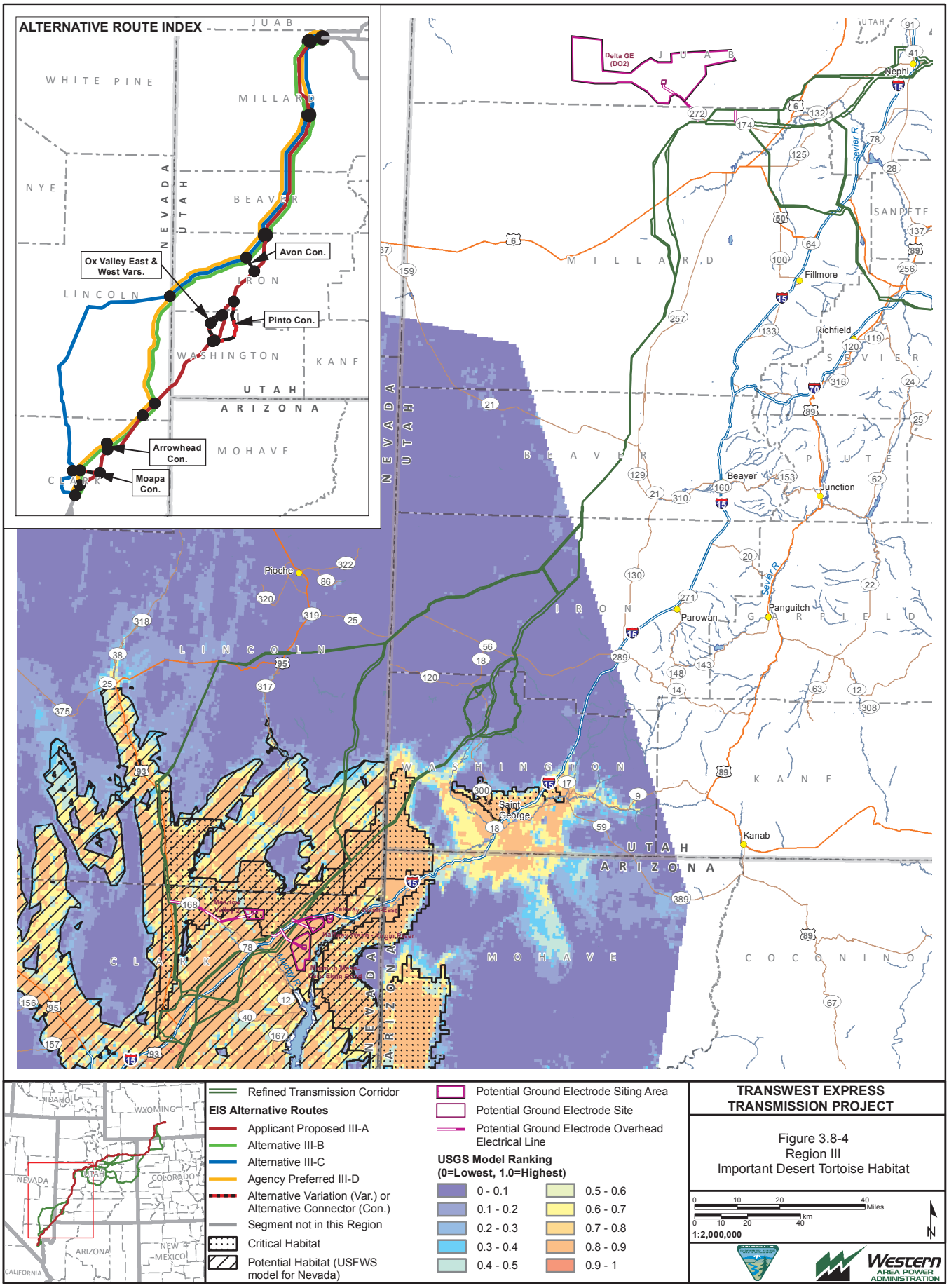
3.8.5.7 Region III

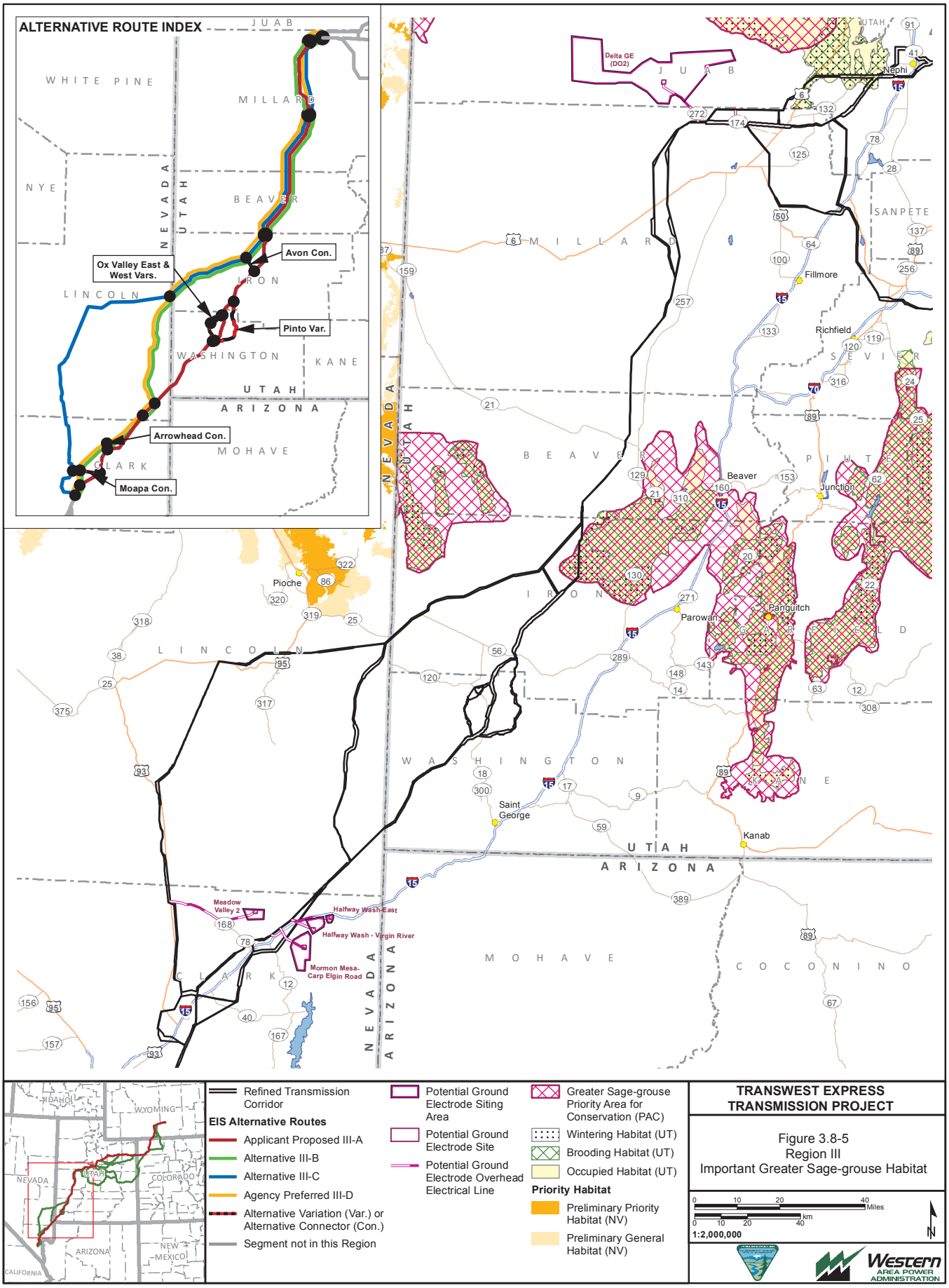
Region III extends from the IPP in western Utah to a point northwest of Las Vegas, Nevada. In Region III, desert shrubland is the dominant community. All other vegetation communities except tundra occur in Region III. A description of vegetation communities is presented in Section 3.5, Vegetation. Special status wildlife species that may occur in Region III are presented in **Table 3.8-14**. Habitat within the desert tortoise analysis area in Region III is presented in **Figure 3.8-4**. Habitat within the sage-grouse analysis area in Region III is presented in **Figure 3.8-5**. The Dixie National Forest is crossed by the Project in Region III. **Table 3.8-12** presents the Region III alternatives and project components that occur in or cross the Dixie National Forest.

Table 3.8-14 Special Status Wildlife Species Potentially Occurring in Region III

Mammals - Bats		
Allen's big-eared bat		Big free-tailed bat
Brazilian free-tailed bat	California leaf-nosed bat	California myotis
Cave myotis	Fringed myotis	
Long-eared myotis		Pallid bat
	Spotted bat	Townsend's (Western) big-eared bat
	Western red bat	
Yuma myotis		
Mammals - Other		
Dark kangaroo mouse	Desert bighorn sheep	Desert Valley kangaroo mouse
Kit fox	Pygmy rabbit	Rocky Mountain bighorn sheep
Utah prairie dog		
Birds		
	White-faced ibis	Le Conte's thrasher
Bald eagle	Swainson's hawk	Sage sparrow[1]
Golden eagle	Peregrine falcon	
Greater sage-grouse	Yuma clapper rail	
Western yellow-billed cuckoo	Burrowing owl	
Long-eared owl	Great gray owl	
Lewis's woodpecker	Red-naped sapsucker	
Loggerhead shrike	California condor	
Sage thrasher	Ferruginous hawk	
Brewer's sparrow	Mexican spotted owl	
Bobolink	Short-eared owl	
Long-billed curlew	Southwestern willow flycatcher	
Reptiles		
Banded Gila monster	Chuckwalla	Corn snake
Desert iguana	Desert night lizard	Desert tortoise
Long-nosed leopard lizard	Mojave rattlesnake	Sidewinder
Speckled rattlesnake	Western banded gecko	Nevada shovel-nosed snake
Western threadsnake (blindsnake)	Zebra-tailed lizard	
Terrestrial Invertebrates		
MacNeill sooty wing skipper (MacNeill saltbush sootywing) butterfly	Mojave gypsum bee	Mojave poppy bee
Mono Basin skipper (Railroad Valley skipper) butterfly	Northern Mojave blue (Mojave blue) butterfly	

[1] The sage sparrow species (*Amphispiza belli*) has recently been has been split into sagebrush sparrow (*Artemisiospiza nevadensis*) and Bell's sparrow (*Artemisiospiza belli*). The sagebrush sparrow could occur in the special status wildlife analysis area in all four regions.


ALTERNATIVE ROUTE INDEX
Ox Valley East & West Vars.
Avon Con.
Pinto Con.
Arrowhead Con.
Moapa Con.
WHITE PINE
NYE
LINCOLN
MILLARD
BEAVER
IRON
WASHINGTON
KANE
MOHAVE
CLARK
NEVADA
UTAH
ARIZONA
Delta GE (DO2)
Nephi
Fillmore
Richfield
Beaver
Junction
Parowan
Panguitch
Kanab
Pioche
Saint George
SANPETE
SEVIER
PIUTE
GARFIELD
COCONINO
Sevier R.
Refined Transmission Corridor
EIS Alternative Routes
Applicant Proposed III-A
Alternative III-B
Alternative III-C
Agency Preferred III-D
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Critical Habitat
Potential Habitat (USFWS model for Nevada)
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
USGS Model Ranking (0=Lowest, 1.0=Highest)
0 - 0.1
0.1 - 0.2
0.2 - 0.3
0.3 - 0.4
0.4 - 0.5
0.5 - 0.6
0.6 - 0.7
0.7 - 0.8
0.8 - 0.9
0.9 - 1
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.8-4
Region III
Important Desert Tortoise Habitat
Miles
km
1:2,000,000
Western AREA POWER ADMINISTRATION
Exported On: 1/28/2015
K:\Projects_4\TransWestExpress\12907_003_Transwest_Express\Figures\Documentfigures\2014_PFEIS_v2\SpecialStatusSpecies\Fig_3_08_04_SRIII_DTortoiseHab.mxd



K:\Projects_4\TransWestExpress\12907_003_Transwest_Express\Figures\Document\Figures\2014_PFEIS_v2\SpecialStatusSpecies\Fig_3_08_05_SRIII_GSGHab.mxd

Exported On: 3/22/2015

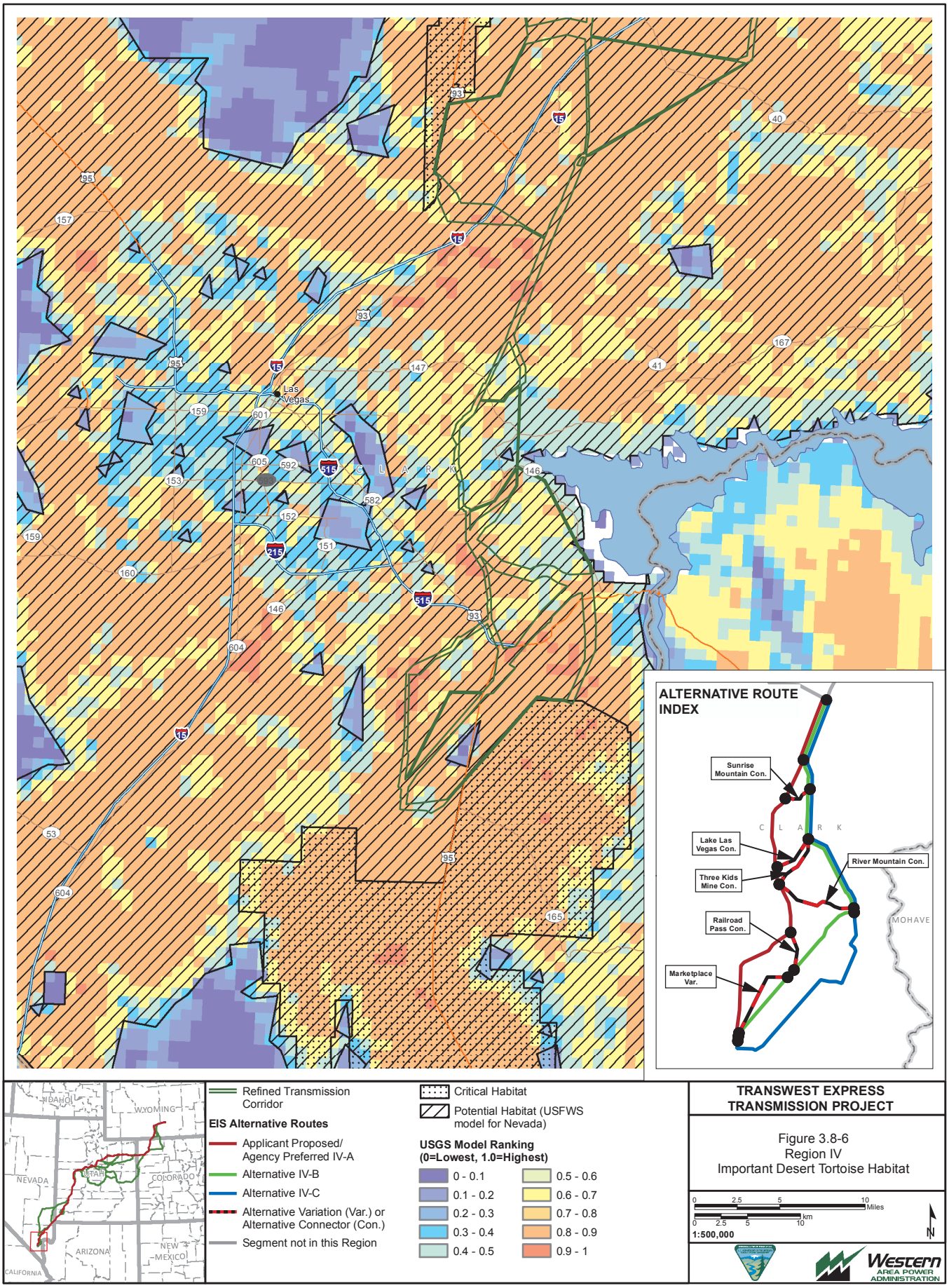
3.8.5.8 Region IV

Region IV extends from northern Las Vegas, Nevada to Marketplace, Nevada. There is less diversity of vegetation communities in Region IV. The dominant community type is desert shrubland. The remaining vegetation communities include: barren/sparsely vegetated, cliff and canyon, desert shrub, grassland, herbaceous wetland, open water, pinyon-juniper woodland, sagebrush shrubland, saltbush shrubland, and woody riparian and wetlands. A description of these communities is presented in Section 3.5, Vegetation. Special status wildlife species that may occur in Region IV are presented in **Table 3.8-15**. Habitat within the desert tortoise analysis area in Region IV is presented in **Figure 3.8-6**.

Table 3.8-15 Special Status Wildlife Species Potentially Occurring in Region IV

Mammals - Bats		
Allen's big-eared bat		Big free-tailed bat
Brazilian free-tailed bat	California leaf-nosed bat	California myotis
Cave myotis	Fringed myotis	Greater western mastiff bat
	Long-eared myotis	
Pallid bat		Spotted bat
Townsend's (Western) big-eared bat		Western red bat
	Yuma myotis	
Mammals - Other		
Desert bighorn sheep	Kit fox	
Birds		
	White-faced ibis	
Swainson's hawk	Ferruginous hawk	
Peregrine falcon	Westren yellow-billed cuckoo	
Western snowy plover	Red-naped sapsucker	
Long-eared owl	Bald eagle	
Loggerhead shrike	Golden eagle	
Le Conte's thrasher	Yuma clapper rail	
Burrowing owl	Southwestern willow flycatcher	
Reptiles		
Banded Gila monster	Chuckwalla	Desert glossy snake
Desert iguana	Desert night lizard	Desert tortoise
Long-nosed leopard lizard	Mojave rattlesnake	Mojave shovel-nosed snake
Sidewinder	Speckled rattlesnake	Western banded gecko
Mojave desert sidewinder		
Nevada shovel-nosed snake	Western threadsnake (blindsnake)	Zebra-tailed lizard
Terrestrial Invertebrates		
		Mojave gypsum bee
Mojave poppy bee	Mono Basin skipper (Railroad Valley skipper) butterfly	Northern Mojave blue (Mojave blue) butterfly

K:\Projects_4\TransWestExpress\12907_003_Transwest_Express\Figures\DocumentFigures\2014_PFEIS_v2\SpecialStatusSpecies\Fig_3_08_06_SRIV_DTortoiseHab.mxd



Exported On: 1/28/2015

3.8.6 Impacts to Special Status Wildlife Species

Direct and indirect impacts to special status wildlife species have been calculated based on the methodology described in Chapter 3.0. Impacts resulting from construction and operation activities could occur within the refined transmission corridor and could extend to within 1 mile to each side of the preliminary engineered alignment. The 250-foot-wide transmission line ROW would be located within the refined transmission corridor. The precise location of Project components is not yet known. However, the refined corridors would contain transmission line infrastructure, including towers and conductors, pulling and tensioning sites, as well as access roads where practicable depending on site-specific resource and engineering constraints. Disturbance areas for access roads and temporary use areas such as concrete batch plants, staging areas, and other facilities would generally be confined to within 1 mile to each side of the alignment. Temporary use areas would be removed and their sites reclaimed following construction. The impact analysis area also includes the siting areas for terminals and ground electrode systems. The identification of habitats potentially impacted by Project activities is based on the various vegetation communities that support different wildlife species and species groups seasonally or throughout the year.

Several small reroutes and micro-siting adjustments to the proposed alternative routes in Regions I, II, III, and IV have been included in this impact analysis and are described in detail in Section 2.5.1. These adjustments would occur along Alternatives I-A, I-B, I-C, I-D, II-A, II-F, II-G, III-A, IV-A, and IV-B. Alternatives I-B and I-D have been adjusted slightly to accommodate possible micro-siting adjustments to avoid sage-grouse habitat. Alternatives I-A, I-B, and II-F have been adjusted slightly to address other resource concerns. The slight changes in impact acreages for micro-siting, widening, reroutes, or merged alternative segments are included in the analyses but are not expected to cause more than incremental differences in impacts to special status species. These Project adjustments have been incorporated to address concerns regarding USFS IRAs, BLM designated utility corridors, and sage-grouse habitat.

Direct impacts expected from each alternative route within each region are analyzed based on the 250-foot-wide transmission line ROWs and preliminary engineered alignments. Although the 250-foot-wide disturbance corridor could shift within the refined transmission corridor based on surveys and final engineering design, for the purposes of this analysis, it is assumed that the disturbance corridor is centered on the identified alignment. Impact analyses include wildlife habitat either directly disturbed or indirectly affected by construction or operation. This could include direct removal or alteration of habitat or loss of habitat value, both inside or outside of the refined transmission corridors due to access road construction, human presence, and noise. Wildlife habitats are based on the vegetation communities identified in **Tables 3.8-3** and **3.8-4** that support various species of wildlife seasonally or throughout the year.

The methodology for evaluating impacts to special status wildlife species focuses on those species that were identified as potentially occurring within the special status wildlife analysis area (**Table 3.8-5**). Special status wildlife species included in this analysis include 31 mammals, 40 birds, 20 reptiles, and 7 terrestrial invertebrate species. In total, 4 federally listed mammals, 7 bird species, and 1 reptile species were analyzed. One federal candidate species and 2 federally proposed species were analyzed, along with 104 BLM sensitive, USFS sensitive, and/or state sensitive species. Three federally listed bird species do not occur in the special status wildlife analysis area but are included on the special status species lists due to their occurrence in the North Platte sub-basin and the potential for these species to be affected by construction-related water depletions in that river system.

<u>Special Status Raptors and Other Migratory Birds</u>

A variety of special status raptor and other migratory bird species may occur either seasonally or remain as yearlong residents in the habitats found within the special status wildlife analysis area. Potential direct impacts to avian species would include the loss of potentially suitable breeding, roosting, and foraging habitat. Impacts to avian species can result from the loss or alteration in habitat, reduction in prey base,

and increased human disturbance, particularly during the breeding season. The loss of native habitat to development has resulted in declines of hawks and eagles throughout the West (Boeker and Ray 1971; Schmutz 1984). In some cases, habitat changes have not reduced numbers of raptors but have resulted in shifts in species composition (Harlow and Bloom 1987). Impacts to small mammal populations due to habitat loss and fragmentation can result in a reduced prey base for raptors, causing lower raptor densities. Thompson et al. (1982) and Woffinden and Murphy (1989) found that golden eagles and ferruginous hawks had lower nesting success where native vegetation had been disturbed and the habitat was unable to support jackrabbit (prey) populations. Furthermore, raptors have a high potential of being disturbed from nests and roosts which contributes to displacement and reduced nesting success (Holmes 2008; Postovit and Postovit 1987; Stalmaster and Newman 1978).

Prior to construction, a comprehensive raptor nest survey would be conducted for the approved alternative. If construction of the proposed Project was to occur during the raptor breeding season (approximately January 1 to September 15, depending upon the species and location), impacts to breeding raptors could include the possible loss of nests or nest abandonment due to increased noise and human activity in proximity to active nest sites. Implementation of design feature TWE-30 and mitigation measures **WLF-1** and **WLF-2** (Section 3.7.6 and **Appendix C**) would result in the avoidance or minimization of these impacts.

Bald Eagle

Formerly listed as a federally endangered species, the bald eagle was delisted on August 8, 2007 (72 FR 37345). The species continues to receive protection under the BGEPA of 1940 and the MBTA of 1918 as well as protection as a BLM sensitive, USFS sensitive, and state sensitive species. The species experienced tremendous population decline as a result of habitat loss, shooting, trapping, pesticide contamination, and pollution. Nationally, bald eagle populations have recovered dramatically; however, continued threats include habitat loss, environmental contaminants, and human disturbance (Messmer 1998).

The USGS Breeding Bird Survey trend analysis for the bald eagle from 1966 through 2012 indicates that the species is experiencing strong recovery in the U.S. (8.6 percent increase 1966-2012) and in the Great Basin region (7.5 percent increase 1966-2012). In Wyoming and Colorado, the bald eagle population has increased at 9.6 percent and 15.7 percent, respectively. Trend analysis for this species is not available for Utah and Nevada (Sauer et al. 2014a).

Nesting bald eagles require mature conifer or cottonwood trees near large waterbodies with adequate prey such as fish, waterfowl, small mammals, and carrion. The species typically constructs large stick nests and exhibits high nest fidelity. In winter, bald eagles congregate at winter roost sites in large trees along areas of open water. Known bald eagle nests occur along Alternative I-C and known winter roosts occur along Alternatives II-A, II-D, II-E, II-F, and II-G (Sections 3.8.6.3 and 3.8.6.4). Suitable woody riparian and wetlands and open water habitats in the special status wildlife area are present at the Northern Terminal siting area and in Regions I, II, III, and IV.

Potential impacts to nesting and foraging bald eagles from transmission lines include collision and electrocution. Potential electrocution impacts resulting from operation of the transmission line are considered to be negligible due to the separation distance of charged components as discussed in Section 3.22. Although smaller capacity (<69-kV) distribution lines associated with the ground electrode bed systems do present some electrocution risk to eagles, these components would be constructed and operated consistent with APLIC guidelines for reducing electrocution risk (APLIC 2012). Potential impacts to bald eagle suitable habitat include vegetation management around large waterbodies, such as tree trimming or removal for construction or maintenance. Potential impacts to individuals, breeding pairs, and local populations include human disturbance as a result of increased public access via Project roads and ROWs.

Best management practices to minimize collision and electrocution risk to bald eagles are detailed in Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006) and Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012). Applicant-committed measure TWE-30 commits the Project to comply with APLIC guidelines to minimize electrocution risk to bald eagles. Proposed mitigation measure **WLF-8** would commit the Project to comply with APLIC guidelines to minimize collision risk to bald eagles. Proposed mitigation measures **WLF-6** and **SSWS-14** would minimize impacts to forested habitats. **SSWS-13** and **SSWS-15** would minimize disturbance to bald eagles at winter roost sites. TWE-8 would minimize disturbance to riparian vegetation at stream crossings.

Golden Eagle

The golden eagle receives protection under the Bald and Golden Eagle Protection Act of 1940 and the MBTA of 1918 as well as protection as a BLM sensitive and a USFS MIS. It is further designated as a USFWS BCC.

Recent data suggests that the golden eagle population in western states is stable to increasing after a period of decline, particularly in sagebrush habitat (GBBO 2010; Millsap et al. 2013). The USGS Breeding Bird Survey trend analysis for the golden eagle from 1966 through 2012 indicates that the current overall U.S. population trend is stable (no measurable change 1966-2012) and slightly increasing in the Great Basin region (0.3 percent increase 1996-2012). In Wyoming, golden eagle populations have increased 1.6 percent (1966-2012) and in Nevada, populations are increasing at 0.6 percent. In contrast, Colorado and Utah population trends are decreasing at -0.2 percent and -1.0 percent, respectively (Sauer et al. 2014b).

In the early 1900s, golden eagles were the focus of eradication campaigns, frequently encouraged by the use of bounties. Other threats to the species include ingestion of poison intended for coyotes, ingestion of toxic water from mining activities, occasional shootings, ingestion of lead shot, habitat loss, loss of potential food resources as a result of habitat degradation or rodent/rabbit control, mortality in inappropriately designed stock tanks, and collisions with structures and vehicles on roadways. Human disturbance or activity may cause nest abandonment or avoidance (DeLong 2004; GBBO 2010).

Golden eagles breed and forage in a variety of habitats including large expanses of grasslands, sagebrush, agricultural lands, and tundra. The species constructs a large stick nest on cliffs and in large trees and exhibits high nest fidelity. Over 500 golden eagle nests are documented within 1 mile of the Northern Terminal siting area, the refined transmission corridors, and other Project components. As described in Section 3.8.4.2, there is potential for duplication in nest reporting.

Potential impacts to nesting and foraging golden eagles from transmission lines include collision and electrocution. Potential electrocution impacts resulting from operation of the transmission line are considered to be negligible due to the separation distance of charged components as discussed in Section 3.22. Although smaller capacity (<69-kV) distribution lines associated with the ground electrode bed systems do present some electrocution risk to eagles, these components would be constructed and operated consistent with APLIC guidelines for reducing electrocution risk (APLIC 2012). Potential impacts to golden eagle suitable habitat include reduction in prey populations due to loss and alteration of native vegetation. Potential impacts to individuals, breeding pairs, and local populations include human disturbance as a result of increased public access via Project access roads and ROWs. These impacts would be of particular concern in areas where there are large congregations of eagles, such as winter habitat and migration corridors.

Best management practices to minimize collision and electrocution risk to golden eagles are detailed in Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006) and Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012). Applicant committed measure TWE-30 commits the Project to comply with APLIC guidelines to

minimize electrocution risk to golden eagles. Proposed mitigation measure **WLF-8** would commit the Project to comply with APLIC 2012 guidelines to minimize collision risk to golden eagles and is consistent with TransWest's commitments in the Project Avian Protection Plan. Proposed mitigation measures **WLF-6** and **SSWS-14** would minimize impacts to forested habitats. **SSWS-15** would protect individual golden eagles during construction of the Project.

Special status wildlife-related issues addressed by this impact assessment were determined through the public scoping process and in consultation with BLM, Bureau of Reclamation, CPW, NDOW, UDWR, USFS, USFWS, Western, and WGFD. Issues ranged from direct loss and fragmentation of desert tortoise habitat and sage-grouse habitat to the direct loss of birds, primarily sage-grouse and raptor species, as a result of electrocution and collision with transmission lines. The primary impact issues and the analysis considerations for special status wildlife species are listed in **Table 3.8-16**.

Table 3.8-16 Relevant Analysis Considerations for Special Status Wildlife Species

Resource Topic	Analysis Considerations and Relevant Assumptions
Habitat loss, alteration, degradation, and fragmentation	• Acres of habitat for wildlife species located within the 250-foot-wide transmission line ROW and construction areas for access roads and temporary work areas are quantified; • Species-specific avoidance measures are discussed; • The degree to which the loss or fragmentation of habitat would affect individuals and whether these effects could impact populations of affected species are qualitatively discussed; • Changes in vegetation communities that influence wildlife habitat are referenced; • The timeline for vegetation communities to recover to baseline levels is estimated; • Habitat disturbance is related to overall habitat availability in the respective analysis areas; and • Impacts resulting from habitat loss and fragmentation are evaluated using the best available literature.
Loss of or injury to a species, displacement of individuals, and loss of breeding success from exposure to increased noise and human activity	• Impacts of bird and bat collisions from transmission lines on overall populations are evaluated in qualitative terms; • Electrocution of birds is discussed; • Destruction of nests, eggs, and hatchlings from vegetation clearing activities is discussed; • A qualitative discussion of how construction and operation activities may displace or impact breeding activity for wildlife species is included; and • The wildlife/vehicle collision potential is described in both quantitative and qualitative terms.
Potential impacts of increased perches/predation from Project infrastructure	• Impacts of increased predation by raptors and corvids (e.g., ravens, crows) on wildlife species is evaluated in qualitative terms.

Through the implementation of the following Project design features and BMPs, impacts to special status wildlife resources would be avoided or minimized. Implementation of the proposed mitigation measures identified below would result in further reductions in Project impacts to these species. BMPs, design features, and proposed mitigation measures also are presented in **Appendix C**. Project design features, BMPs, and proposed mitigation measures would apply during all phases of the Project through decommissioning.

- WWEC BMPs:
  - ECO-1/ECO-2/ECO-4/ECO-6/ECO-7/ECO-8 (protection of sensitive wildlife and habitats);
  - FIRE-1/FIRE-2 (fire management and fuels strategies);
  - NOISE-2 (noise reduction strategy);

  - REST-1 (topsoil salvage, seeding with weed-free and native seeds, and restoring pre-development contours); and
  - REST-2 (restoring vegetation to values commensurate with the ecological setting).

- Agency BMPs - All applicable State and Federal agency NSO restrictions, CSO restrictions, and TL as outlined in **Appendix C**;
- Project Design Features:
  - TWE-1: The TWE Project will be planned, constructed, operated, and decommissioned in accordance with the agencies' RODs, the BLM's ROW grant stipulations, USFS Special Use Permit stipulations, and requirements of other permitting agencies.
  - TWE-2: The Applicant will comply with all applicable environmental laws and regulations. Applicable laws and regulations may include, but are not limited to, the CWA Section 303(d) and Section 404; the Wild and Scenic Rivers Act, Section 3(a) or 2(a) ii; the ESA, Section 7; the NHPA, Section 106; and the NAGPRA. Compliance with all applicable laws and regulations will be documented in the Final POD/COM Plan.
  - TWE-4: Prior to construction, all personnel will be instructed on the protection of cultural, paleontological, ecological resources, and other natural resources in accordance with the COM Plan provisions. To assist in this effort, the construction contract would address (a) federal, state, and tribal laws regarding cultural resources, fossils, plants, and wildlife, including collection and removal; and (b) the importance of these resources and the purpose and necessity of protecting them.
  - TWE-13: In construction areas (e.g., marshalling yards, structure sites, spur roads from existing access roads) where ground disturbance is significant or where re-contouring is required, surface restoration will occur as required by the landowner or land management agency. The method of restoration will normally consist of returning disturbed areas back to their natural contour, reseeding (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches.
  - TWE-14: The COM Plan will show the location of borrow sites, from which material will be obtained. Borrow pits will be stripped of topsoil to a depth of approximately 6 inches. Stripped topsoil will be stockpiled and, upon completion of borrow excavation, spread to a uniform depth of six inches over areas of borrow pits from which it was removed. Before replacing topsoil, excavated surfaces will be reasonably smooth and uniformly sloped. The sides of borrow pits will be brought to stable slopes with slope intersection shaped to carry the natural contour of adjacent undisturbed terrain into the pit to give a natural appearance. When necessary, borrow pits will be drained by open ditches to prevent accumulation of standing water.
  - TWE-16: Watering facilities (tanks, natural springs and/or developed springs, water lines, wells, etc.) will be repaired or replaced, if damaged or destroyed by construction activities, to their pre-disturbed condition as required by the landowner or land management agency.
  - TWE-26: The COM Plan will include a Vegetation Management Plan and a Noxious Weed Management Plan. The Vegetation Management Plan will address plant removal and selective clearing. The Noxious Weed Management Plan will be developed in accordance with appropriate land management agencies' standards and will be consistent with applicable regulations and agency permitting stipulations for the control of noxious weeds and invasive species (EO 13112). Included in the Noxious Weed Management Plan will be stipulations regarding construction, restoration, and operation (use of weed-free materials, washing of equipment, etc.).

- TWE-27: In construction areas where re-contouring is not required, vegetation will be left in place wherever possible and original contours will be maintained to avoid excessive root damage and allow for re-sprouting.
- TWE-28: Clearing will be performed so as to minimize marring and scarring the countryside and preserve the natural beauty to the maximum extent possible. Except for danger trees, no clearing will be performed outside the limits of the ROW.
- TWE-29: The COM Plan will include a Biological Protection Plan and an APP, which will identify important, sensitive, or unique habitats and BLM sensitive, USFS Sensitive, and state-listed species in the vicinity of the TWE Project. The COM Plan will identify measures to be taken to avoid, minimize, or mitigate impacts to these habitats and species.
- TWE-30: In applicable areas, the TWE Project will be designed to meet or exceed the raptor safe design standards described in the Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006).
- TWE-31: Mitigation measures that will be developed during the consultation period with the BLM and the USFWS under Section 7 of the ESA will be adhered to, along with mitigation developed in conjunction with state authorities.
- TWE-32: Seasonal restrictions may be implemented in certain areas to mitigate impacts on wildlife. With the exception of emergency repair situations, ROW construction, restoration, maintenance, and termination activities in designated areas will be modified or discontinued during sensitive periods (e.g., nesting and breeding periods) for candidate, proposed or listed threatened and endangered, or other sensitive animal species, as required by permitting agencies. Potential seasonal restrictions and avoidance buffers for nesting raptors have been identified in the Draft EIS. The Biological Protection Plan will incorporate the seasonal restrictions and stipulations contained in the federal agency RODs.
- TWE-33: Prior to the start of construction, the Applicant will provide training to all Contractor and Subcontractor personnel and others involved in construction activities where/if there is a known occurrence of protected species or habitat in the construction area. Sensitive areas will be considered avoidance areas. Prior to any construction activity, avoidance areas will be marked on the ground and maintained through the duration of the Contract. The Applicant will remove markings during or following final inspection of the Project.
- TWE-34: If evidence of a protected species not previously identified or known is found in the Project area, the Contractor will immediately notify the appropriate land management agencies and provide the location and nature of the findings.

- Proposed Mitigation Measures:
  - ***SSWS-1****: In order to protect nesting mountain plovers, TransWest would follow the USFWS 2002 Mountain Plover Survey Guidelines and would conduct mountain plover nest surveys if construction were to occur in suitable habitat,* as identified by the BLM and applicable state wildlife agencies, *during the mountain plover breeding season (April 10 to July 10). If a nest is located, a 0.25-mile protection buffer would be implemented around the active nest until the birds fledge from the nest.*

    Effectiveness: This proposed mitigation measure would minimize impacts to nesting mountain plovers by avoiding construction activities in areas of suitable nesting habitat during the active breeding season.

  - ***SSWS-2****: Prior to construction activities in suitable pygmy rabbit habitat, TransWest would be required to conduct presence/absence surveys consistent with the Interagency Pygmy Rabbit Working Group Survey Protocols (Ulmschneider et al. 2008). Survey areas would be selected in coordination with the BLM, Western, and appropriate state wildlife management agencies and would be limited to locations within 0.5 mile of proposed Project disturbance*

areas. If presence/absence surveys conclude that pygmy rabbits are present, TransWest would be required to further coordinate with the BLM and applicable agencies to avoid or minimize impacts to the extent practicable through micro-siting. The BLM also may determine to require additional measures including installation of alternative structure types (e.g., tubular monopoles) with perch deterrents on transmission line segments within occupied habitat in order to minimize perching and nesting by raptors that could prey upon pygmy rabbits. Use of these alternative measures would be implemented on a site-specific basis and in coordination with the BLM, Western, and the appropriate state wildlife agency.

Effectiveness: This proposed mitigation measure would minimize impacts to the pygmy rabbit and its habitat by avoiding occupied habitat through micro-siting adjustments, limiting surface disturbance activities in suitable habitat, and by implementing site-specific protection measures to limit avian predation within areas of occupied habitat.

There are mixed conclusions in the scientific literature regarding reducing the occurrence of raven and raptor nests through the use of monopole structures. However, the BLM anticipates that transmission structures of solid construction are harder for large avian predators to nest on in comparison to the lattice structures, as suggested in Boarman (2003) and supported by empirical data in Dixon et al. (2013).

Perch deterrents were initially designed to reduce electrocution risks by discouraging birds from perching on smaller distribution power poles and transmission towers in locations were the separation distance between charged and grounded components was less than the average wingspan of common avian species and are not intended to remove all perching opportunities along a transmission line (APLIC 2006). Research into the use of perch deterrents has shown that the effectiveness of specific deterrents is limited and can vary by deterrent type and transmission structure configuration. Lammers and Collopy (2007) concluded that the use of perch deterrents were ineffective in completely eliminating perching by avian predators, but were shown to result in reduced perching duration by predators upon transmission structures. The effectiveness of perch deterrents can vary by design and transmission structure type, but has been shown in significance tests to reduce perch frequency, duration, and prey captures (Dwyer and Doloughan 2014; Lammers and Collopy 2007; Oles 2007 [not peer reviewed]; Slater and Smith 2010).

Although current scientific literature does not provide direct support of the effectiveness of these measures, the BLM's optional site-specific requirement to install self-supporting tubular strucutres and perch deterrents within areas of occupied pygmy rabbit habitat is supported by unpublished data collected from monitioring of other recent transmission line projects in Nevada that have installed these design features to reduce perching opportunity and avian predation on sensitieve species populations.

– ***SSWS-3****: Prior to construction activities in suitable Wyoming pocket gopher habitat, TransWest would conduct presence/absence surveys following appropriate protocols. If active pocket gopher mounds are identified, the proposed surface disturbing activities would avoid the active pocket gopher mounds by 75 m (BLM 2009). If avoidance of the active pocket gopher mounds by 75 m is not possible, classification surveys (via live capture) must be completed to identify the pocket gopher responsible for the mounds to the species level. If the results conclude that the Wyoming pocket gopher is responsible for the mounds, the "Occupied Wyoming Pocket Gopher Habitat Protection Measures" would apply (BLM 2009). If the results conclude that the associated species is a northern pocket gopher, then the proposed surface disturbance may proceed without mitigation. If the classification survey fails to conclusively identify the associated pocket gopher to the species level, then it would be assumed that the species is a Wyoming pocket gopher and the "Occupied Wyoming Pocket Gopher Habitat Protection Measures" would apply (BLM 2009).*

Effectiveness: This proposed mitigation measure would minimize impacts to the Wyoming pocket gopher by limiting surface disturbance activities in suitable habitat and by implementing specific protection measures to protect individuals in occupied habitat.

- ***SSWS-4**: To avoid and minimize impacts to the desert tortoise and its habitat, TransWest would coordinate with the BLM, Western, Boulder City, Clark County (Nevada), Bureau of Reclamation, and USFWS to implement appropriate mitigation measures during construction, including but not limited to:*

  1. *Depending on the distance between concurrent construction activities in desert tortoise habitat, TransWest would provide at least one Field Contact Representative (FCR) to be responsible for overseeing compliance with protective measures for the desert tortoise. Where the distance between activities is over 100 miles, an additional FCR would be required. The FCR would be an authorized biologist approved by the BLM, applicable state wildlife agencies, such as the NDOW and the USFWS and would be present during all project activities within desert tortoise habitat. TransWest would ensure that FCR(s) and supporting authorized biologists and desert tortoise monitors would have authority to halt any activities that are in violation of the stipulations in the BO for the Project. The FCR would prepare and submit a daily report to the BLM and USFWS for all work activities within desert tortoise habitat.*

  2. *All TransWest employees and its contractors working in the field would be required to complete a desert tortoise education program prior to reporting in the field. The program would be approved by the BLM and USFWS and would cover such topics as desert tortoise distribution within the Project Area, general behavior and ecology, sensitivity to human activities, legal protection, penalties for violation (ESA), conservation and protection measures, reporting requirements, fire prevention, etc. All field workers would be instructed that activities must be confined to locations within the approved areas. The program would instruct participants to report all observations of desert tortoises and their sign during construction activities to the nearest tortoise monitor or authorized biologist who would, in turn, inform the FCR.*

  3. *An authorized desert tortoise biologist would possess at least a bachelor's degree in biology, ecology, wildlife science, herpetology, or closely related fields as determined by the BLM, NDOW, and USFWS. The authorized biologist must have demonstrated prior field experience using accepted resource agency techniques to survey for desert tortoises and tortoise sign. Authorized biologists would have special training in accepted techniques for moving desert tortoises, excavating tortoise burrows and relocating burrow contents including tortoises and eggs. As a guideline, USFWS approval of an authorized biologist requires that the applicant have at least 60 days project experience as a desert tortoise monitor. In addition, the biologist would have the ability to recognize and accurately record survey results and must be familiar with the terms and conditions of the biological opinion that resulted from project-level consultation between BLM and the USFWS. All tortoise biologists would be familiar with the Desert Tortoise (Mojave Population) Field Manual (USFWS et al. 2009).*

     Desert tortoise monitors would possess at least a bachelor's degree in biology, ecology, wildlife science, herpetology, or closely related fields as determined by the BLM and USFWS and have prior field experience using accepted resource agency techniques to survey for desert tortoises and tortoise sign. Desert tortoise monitors would not be permitted to move tortoises or excavate tortoise burrows. All FCRs, other authorized biologists, and tortoise monitors would have the ability to recognize and accurately record biological information in the field.

  4. *TransWest would coordinate with the BLM and USFWS to ensure that an appropriate number of authorized biologists and tortoise monitors are onsite during construction to ensure the protection of desert tortoises. TransWest would submit the names of all*

authorized biologists and tortoise monitors to the BLM and USFWS for review and approval at least 30 days prior to initiation of any desert tortoise clearance surveys. Project activities would not begin until authorized biologists and tortoise monitors have been approved. Replacements of authorized biologists and tortoise monitors would require BLM and USFWS approval. Authorized biologists would be assigned to monitor each area of activity where conditions exist that may result in take of desert tortoise (for example, clearing, construction, grading, recontouring, and reclamation activities). The BLM and TransWest would ensure that a tortoise monitor or authorized biologist would be assigned to each piece/group of large equipment. All authorized biologists and tortoise monitors would be responsible for determining compliance with terms and conditions of the Biological Opinion, the Project ROD, and other applicable agreements. With input from authorized biologists and tortoise monitors, the FCR(s) would maintain a detailed record of all desert tortoises encountered during project surveys and monitoring.

5. *All construction vehicle movement outside of the ROW would to be restricted to pre designated access, contractor acquired access, or public roads. Any routes of travel that require construction or modification would have an authorized biologist or desert tortoise monitor survey the area for tortoises prior to modification or construction of the route. Off-road travel by vehicles and equipment would be prohibited.*
6. *To limit the potential for adverse impacts resulting from contact with construction equipment, vehicles, and personnel, TransWest would implement a Project area vehicle speed limit of 15 mph during the tortoise active season (temperatures >65ºF) and 20 mph during the tortoise inactive season (temperatures <65ºF).*
7. *Whenever a vehicle or construction equipment is parked longer than 2 minutes within desert tortoise habitat, whether the engine is engaged or not, the ground around and underneath the vehicle would be inspected for desert tortoises prior to moving the vehicle. If a desert tortoise is observed, the vehicle would not be moved and an authorized biologist would be contacted. If possible, the tortoise would be left to move on its own. If the tortoise does not move within 15 minutes, the tortoise would be removed and relocated by the authorized biologist in accordance with the tortoise handling procedures, as presented in the Desert Tortoise Field Manual (USFWS et al. 2009), which should be included or incorporated by reference in the POD.*
8. *The area of construction activity will be pre-determinedwith removable flagging and confine all activities to these areas. All construction sites and access roads would be clearly marked or flagged at the outer limits prior to the onset of any surface-disturbing activity. All personnel would be informed that their activities must be confined within the marked or flagged areas. No permanent paint or other marking agents would be applied to vegetation or rocks.*
9. *All desert tortoise burrows and pallets that fall outside of, but within 50 feet of, the construction work area would be flagged for avoidance. Desert tortoise burrows would not be marked in a manner that facilitates poaching or provides a cue for predators. Avoidance flagging would be designed to be easily distinguished from access route or other flagging, and would be designed in consultation with experienced construction personnel and authorized biologists. All flagging would be removed immediately following construction activities.*
10. *Construction sites, staging areas, and access routes would be cleared by an authorized tortoise biologist before the start of construction. An authorized biologist(s) would survey the site for desert tortoises using survey techniques providing 100-percent coverage of the area proposed for disturbance. If construction occurs during the desert tortoise active season (March 1 through October 31), or when temperatures and environmental conditions are conducive to tortoise activity as determined by an authorized biologist,*

two surveys would occur. The first survey would be conducted within 14 days prior to surface-disturbance; the second survey would occur immediately before surface disturbance. During the inactive season (November 1 through February 28, except as noted above) when conditions are not conducive to tortoise activity as determined by an authorized biologist, one survey would occur within 72 hours of surface disturbance or up to 5 days in advance of disturbance if conditions are not favorable for tortoise activity.

11. *To limit the potential for adverse impacts resulting from contact with construction equipment, vehicles, and personnel, TransWest would ensure that all construction-related activities are monitored by an authorized biologist or desert tortoise monitor with the authority to stop construction activities upon the detection of a tortoise within the Project area. During the active season (March 1 - October 31), an authorized biologist or approved desert tortoise monitor would be onsite for the duration of construction activities in desert tortoise habitat. During the inactive season (November 1 through February 28, except when conditions are conducive to tortoise activity (i.e., when temperatures are above 65ºF), authorized biologists or desert tortoise monitors would be onsite during all phases of transmission line construction to ensure that all construction vehicles and heavy equipment remain within the boundaries of the marked construction zone. If necessary, an authorized desert tortoise biologist would be brought on site to excavate any tortoise burrow that might be impacted.*

12. *Desert tortoises and eggs found within construction sites would be removed by authorized desert tortoise biologists in accordance with the most current protocols identified by BLM and USFWS. If any tortoise active nests are encountered, USFWS would be contacted immediately, prior to removal of any tortoises or eggs from those burrows, to determine the most appropriate course of action. Unoccupied burrows would be collapsed or blocked to prevent tortoise re-entry. All desert tortoises located in harm's way would be relocated to safe areas up to 1,000 feet from the point of capture. Desert tortoises that are found above-ground would be placed in the shade of a shrub and out of harm's way, following the most current protocol approved by BLM and USFWS. Relocated tortoises would not be placed in existing occupied burrows. If an existing burrow that is similar in size, shape, and orientation to the original burrow is unavailable, the authorized biologist would construct one. Desert tortoises moved during inactive periods would be monitored for at least two days after placement in the new burrows to ensure their safety. The authorized biologist would be allowed some judgment and discretion to ensure that survival of the desert tortoise is likely. Desert tortoises would not be placed on lands outside the administration of the federal government without the written permission of the landowner. Desert tortoises would be purposely moved only by authorized tortoise biologists and solely for the purpose of moving them out of harm's way.*

13. *Authorized desert tortoise biologists would follow procedures for handling tortoises in accordance with the most current protocols identified by BLM and USFWS. All tortoises would be handled using disposable surgical gloves. The gloves would be disposed of after handling each tortoise. Equipment or materials that contact desert tortoises would be sterilized, disposed of, or changed before contacting another tortoise. The authorized biologist would document each tortoise encounter/handling with the following information, at a minimum: a description of the situation; vegetation type; date of observation; weather conditions; condition and health; any apparent injuries and state of healing; if moved, the GPS location from which it was captured and the location in which it was released; map locations; whether the animal voided its bladder; and identifying markings (that is, identification numbers marked on lateral scutes or attached transmitters).*

14. *If desert tortoises need to be moved at a time of day when harmful ambient temperatures exist (i.e., less than 40ºF or greater than 95ºF or 35ºC at 5 cm above ground or 43ºC at ground surface), they would be held overnight in a clean plastic box. These tortoises would be kept in the care of the authorized biologist under appropriate controlled temperatures and released the following day when temperatures are favorable. All cardboard boxes would be appropriately discarded after one use and never hold more than one tortoise.*

15. *Any excavated holes or trenches related to transmission line construction (e.g., tower foundations, ground electrode wells) left open overnight would be covered and/or tortoise-proof fencing would be installed to prevent the possibility of tortoises falling into the open holes. Any tortoise found in an excavated hole or trench would be promptly removed by an authorized desert tortoise biologist in accordance with USFWS-approved protocols or if the biologist is not allowed to enter the excavation for safety reasons, the alternative method for removal must have prior approval by USFWS. Tortoise escape ramps would be placed inside the excavation or trench so as to not entrap tortoises. All excavations would be inspected for tortoises before filling.*

16. *Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches left above ground on the construction site for one or more nights would be inspected for tortoises before the material is moved, buried, or capped. As an alternative, all structures may be capped before being stored on the construction site.*

17. *Permanent tortoise-proof fencing would be installed around the perimeters of the Southern Terminal and approved ground electrode site to prevent tortoises from wandering onto the Project site where they would be in harm's way. Any gates or gaps in the fence would be constructed and operated so as to prevent tortoise entry (e.g., "tortoise guards and/or keeping gates closed). Tortoise fencing would be inspected on a regular basis to ensure that there are no breaches in the fencing material. Fence specifications would be consistent with those approved by the USFWS (USFWS et al. 2009). Permanent tortoise-proof fencing along the project area would be appropriately constructed, monitored, and maintained. Fencing would be inspected in accordance with Table SSWS-4.1 unless modified by the USFWS. Monitoring and maintenance would be conducted by TransWest staff or contractors and would include removal of trash and sediment accumulation and restoration of zero ground clearance between the ground and the bottom of the fence, including re-covering the bent portion of the fence if not buried. Maintenance activities would occur regularly for the life of the project and would be carried out concurrently and in conjunction with fence inspections. Fence monitoring and maintenance activities would be documented as they occur and this documentation would be provided to the BLM on a quarterly basis.*

18. *Water applied for dust control would not be allowed to pool outside of desert tortoise fenced areas, as this can attract desert tortoises. Leaks from water trucks or water tanks would be promptly repaired to prevent pooling water. During the desert tortoise active season, an authorized biologist or desert tortoise monitor would be assigned to patrol each area being watered. This individual would patrol the area immediately after the water is applied and at approximate 60-minute intervals until the ground is no longer wet enough to attract tortoises. No dust palliatives (e.g., calcium or magnesium chlorides, dust oils, plant or animal extracts, enzymes, synthetic polymers, etc.) other than water are approved for use in desert tortoise habitat.*

19. *In construction areas where re-contouring is not required, vegetation would be left in place wherever possible and original contours would be maintained to avoid excessive root damage and allow for re-sprouting.*

20. *If blasting is necessary, a 200-foot radius area around the blasting site would be surveyed and all desert tortoises located aboveground within this 200-foot radius of the blasting site would be moved 500 feet from the blasting site, placed in an unoccupied burrow, and temporarily penned to prevent tortoises that have been temporarily relocated from returning to the site. Tortoises in burrows would be left in their burrows. All burrows, regardless of occupied status, would be stuffed with newspapers, flagged, and location recorded using a GPS unit. Immediately after blasting, newspaper and flagging would be removed. If a burrow or cover site that could be occupied has collapsed, it would be excavated to ensure that no tortoises have been buried and are in danger of suffocation.*
21. *Constructed road berms would be less than 12 inches in height and have slopes of less than 30 degrees. Where road berms consist primarily of rocks, gaps would be opened to allow for tortoise passage.*
22. *To prevent mortality, injury, and harassment of desert tortoises and damage to their burrows and cover sites, no pets would be permitted in any Project construction area.*
23. *To limit the potential for predation of desert tortoise by corvids and raptors, TransWest would construct self-supporting tubular/monopole towers with perch discouragers throughout USFWS-designated critical habitat and in all tortoise habitat (USGS model rating of 0.6 or higher) where the Project is not co-located with existing transmission lines with steel lattice towers. Islands of non-habitat (USGS model rating of <0.6) within surrounding tortoise habitat (USGS model rating of 0.6 or higher) also will be subject to self-supporting tubular/monopole towers with perch discouragers.*
24. *To limit the potential for predation of desert tortoise by corvids, TransWest would prepare a Raven Management Plan (in accordance with BLM Southern Nevada District requirements) that outlines active adaptive management strategies for controlling raven predation and nesting within the Project ROW, including post-construction monitoring for ravens and removal of raven nests, consistent with the restrictions implemented by the MBTA. If evidence of raven nesting is observed in the ROW, the USFWS would be notified within three calendar days.*
25. *To limit the potential for predation of desert tortoise by corvids, coyotes, feral dogs, and other opportunistic predators, TransWest would require all construction waste to be contained and removed from the Project area in a manner that does not attract corvids to the Project area. All trash and food items would be placed in raven-proof containers and removed daily.*
26. *The use of herbicides within USFWS-designated critical habitat, ACECs, and general desert tortoise habitat (USGS model rating of 0.6 or higher) would be prohibited without prior approval from the USFWS, BLM, and applicable state wildlife agency.*
27. *TransWest would coordinate with the BLM to ensure that appropriate measures are implemented to minimize public access and use of the transmission line ROW following completion of the Project. Such measures may include signs and substantial physical barriers, and rehabilitation actions that would make the ROW impassible to vehicles.*
28. *To compensate for desert tortoise habitat affected during construction, TransWest would offset these effects through either an acceptable land acquisition or an assessed financial contribution, based on the final construction footprint. The BLM requires section 7 desert tortoise mitigation fees for all acres of new disturbance (permanent and temporary). As of March 1, 2014, the current rate is $836 per acre for tortoise habitat and is subject to a multiplier ranging from 1 to 6. The multiplier(s) used for TWE would be determined by USFWS based on habitat quality, timing and duration of impacts, existing and adjacent levels of disturbance, and other factors. This rate will increase on March 1, 2015.*

29. *Upon completion of construction, a thorough inspection of the site would be conducted by the FCR(s) and authorized biologists to determine the extent of compliance with the conditions of USFWS's BO, including agreements between TransWest and the agencies. Annual and comprehensive final project reports would be submitted to BLM and the USFWS's Nevada Fish and Wildlife Office in Las Vegas. Project reports would document the numbers and locations of desert tortoises encountered, their disposition, effectiveness of protective measures, practicality of protective measures, recommendations for future measures that allow for better protection or more workable implementation, and the number of acres disturbed. Annual reports would cover the calendar year and are due April 1st of the following year (e.g., the annual report for calendar year 2014 is due April 1, 2015). Final project reports are due within 60 days following completion of the project or each phase of the project.*

30. *All vehicles and equipment that are not in areas enclosed by desert tortoise exclusion fencing would stop activities in desert tortoise habitat during rainfall events in the more-active season (generally March 1 to October 31), and if temperatures are above 60°F but below 95°F for more than 7 consecutive days. The FCR or designee would determine, in coordination with the BLM and USFWS, when it is appropriate for project activities to continue.*

31. *Any deaths and injuries of desert tortoises would be investigated as thoroughly as possible to determine the cause. The wildlife staff of the USFWS Las Vegas FO (702-515-5230), BLM Southern Nevada FO (702-515-5000), BLM Caliente FO (775-726-8100) and Nevada Department of Wildlife Las Vegas Office (702-486-5127) must be verbally informed of desert tortoise injuries or death immediately and within 5 business days in writing (electronic mail is sufficient). The FCR or other authorized desert tortoise biologist would complete a Desert Tortoise Handling and Take Report.*

    TranWest would undertake the following measures to minimize potential project effects on desert tortoises during operation and maintenance activities:

32. *TransWest would submit a list of planned maintenance activities by name, category, location, and approximate start date to the BLM Southern Nevada and Caliente FOs. TransWest also would forward the list of activities to the USFWS and state agencies. The agencies would have 30 days following receipt of the report to consider the proposed action. In the event of a rejection, TransWest would work with the agencies to resolve issues. Agency approval of the proposed list of projects is valid for one year after agency acceptance.*

33. *The following measures would apply to normal maintenance activities that do not result in new disturbance.*

    a. *All TransWest employees and its contractors involved with transmission line ROW inspection and maintenance activities would be required to take a tortoise education program described previously (Measure 2).*

    b. *If desert tortoises or their burrows occur in the work area, TransWest would implement appropriate measures described previously.*

    c. *Upon completion of each maintenance activity in the ROW, all used material and equipment would be removed from the site. This condition does not apply to fenced sites.*

    d. *Routine road surface maintenance activities on existing access and/or patrol roads would be conducted during the inactive season of the desert tortoise, unless accompanied by an authorized biologist. Localized repair of major damage may take place throughout the year.*

34. *All mitigation measures stipulated for construction activities during the construction phase for the desert tortoise inactive season would be applicable to operation and maintenance activities that result in surface disturbance during the inactive season.*
35. *All mitigation measures stipulated for construction activities during the construction phase for the desert tortoise active season would be applicable to operation and maintenance activities that result in surface disturbance during the active season.*
36. *All maintenance activities in critical tortoise habitat that use heavy equipment (whether there is surface disturbance or not) would require an authorized desert tortoise biologist to be on-site during the active season and on-call during the inactive season.*
37. *The following measures would apply to maintenance activities that may extend outside the transmission line ROW corridors.*
    a. *In addition to measures (b) and (c), TransWest would implement appropriate measures for operations and maintenance activities described for construction-phase activities (Measures 1-31, above);*
    b. *For maintenance activities that result in surface disturbance during the active season of the desert tortoise: the width of the activity corridor would be determined prior to the onset of ground-disturbing activities. Work areas would be restricted to the narrowest possible corridors and generally would not be expected to extend beyond the Project ROW;*
    c. *TransWest would contact the BLM if activities may extend outside of the transmission line ROW in all or in part; re-initiation of Section 7 consultation may be required for activities that extend beyond the ROW.*
38. *Emergency Repairs: for emergency situations, TransWest would notify the local BLM and USFWS offices within 48 hours. As a part of this emergency response, the BLM and USFWS may require specific measures to protect desert tortoises. During cleanup and repair, the agencies also may require measures to recover damaged habitats.*

Effectiveness: All mitigation measures proposed to reduce impacts from the TransWest Project upon the desert tortoise have been developed in coordination with the USFWS, BLM Utah, BLM Nevada, UDWR, NDOW, and other stakeholders. While the majority of specific measures listed under **SSWS-4** are commonly accepted practices intended to avoid and minimize the potential for direct impacts to tortoises proven to be effective when applied to proposed projects within desert tortoise habitat, effectiveness determinations of certain practices and transmission structure types intended to avoid and minimize adverse indirect impacts to desert tortoise populations remain unclear.

As discussed in Section 3.8.6.5, Impacts to Desert Tortoise, Region III, predation of juvenile tortoise and nests has been attributed to multiple species, including common ravens. Common raven abundance has been documented to increase in response to newly constructed transmission lines (Coates et al 2014; Howe et al 2014). Recent research has documented increased raven abundance along transmission lines constructed of self-supporting tubular structures (Gibson et al. 2013) and other studies have been unable to identify significant differences in raven abundance between common transmission structure types (Steenhof et al 1993). There are mixed conclusions in the scientific literature regarding reducing the occurrence of raven and raptor nests through the use of monopole structures. However, the BLM anticipates that transmission structures of solid construction are harder for large avian predators to nest on in comparison to the lattice structures, as suggested in Boarman 2003 and supported by empirical data in Dixon et al. (2013).

Perch deterrents were initially designed to reduce electrocution risks by discouraging birds from perching on smaller distribution power poles and transmission towers in locations were

the separation distance between charged and grounded components was less than the average wingspan of common avian species and are not intended to remove all perching opportunities along a transmission line (APLIC 2006). Research into the use of perch deterrents has shown that the effectiveness of specific deterrents is limited and can vary by deterrent type and transmission structure configuration. Lammers and Collopy (2007) concluded that the use of perch deterrents were ineffective in completely eliminating perching by avian predators within occupied greater sage-grouse habitat in Nevada, but were shown to result in reduced perching duration by predators upon transmission structures. The effectiveness of perch deterrents can vary by design and transmission structure type, but has been shown in significance tests to reduce perch frequency, duration, and prey captures (Dwyer and Doloughan 2014; Lammers and Collopy 2007; Oles 2007 [not peer reviewed]; Slater and Smith 2010).

Although current scientific literature does not provide direct support of the effectiveness of these measures, the BLM's requirement to install self-supporting tubular strucutres and perch detterrents within ACECs and designated Critical Habitat for the desert tortoise is supported by unpublished data collected from monitioring of other recent transmission line projects in Nevada that have installed these design features to reduce perching opportunity and avian predation.

– ***SSWS-5*** *- To avoid or minimize Project-related impacts to greater sage-grouse and its habitat, the BLM and Western have coordinated with applicable federal and state land and wildlife management agencies and other stakeholders to develop a suite of measures for this species. In addition, TransWest has developed a HEA to quantitatively determine an appropriate level of compensatory mitigation that would be implemented to offset unavoidable impacts to sage-grouse habitat. Applicant-committed measures proposed as part of the HEA process are further discussed in Section 3.8.6.3. The BLM and Western support the implementation of the applicant's HEA process and compensatory mitigation measures in conjunction with the following impact avoidance and minimization measures developed through the NEPA process.*

General Measures: *To reduce impacts to greater sage-grouse from construction and operation of the proposed Project, TransWest, in consultation with the BLM, Western, and applicable federal and state land and wildlife management agencies, would be required to implement the following general design features:*

1. Placement of Project structures and access roads would maximize use of topographic features to visually screen Project facilities from high quality greater sage-grouse habitat (i.e., Wyoming - within sage-grouse core habitat and within 4 miles of active leks; Colorado - within preliminary priority habitat; Utah - within occupied habitat and within 4 miles of active leks;

   Effectiveness: Visual screening of Project facilities from lekking and nesting greater sage-grouse would reduce both direct and indirect impacts resulting from construction and operation activities.

2. To minimize fragmentation of suitable sage-grouse breeding, brood-rearing, and wintering habitats, the approved transmission line ROW would use existing roads, create no new permanent roads, be accessed via drive and crush wherever possible, and be micro-sited in coordination with applicable state and federal wildlife management;

   Effectiveness: Limiting the construction of new access roads and clearing of existing native vegetation would reduce both direct and indirect impacts from construction and operation by avoiding removal and degradation of otherwise suitable habitat.

3. To limit corvid predation on greater sage-grouse, TransWest would develop a Raven Management Plan that outlines active adaptive management strategies for controlling raven predation and nesting within the Project ROW and includes post-construction monitoring for ravens and removal of raven nests;

   Effectiveness: Development and implementation of a Raven Management Plan is anticipated to reduce predation pressure on greater sage-grouse eggs and chicks through direct removal of raven nests within the ROW and control of raven abundance within the ROW.

4. To limit disturbance to lekking and nesting activity, disruptive construction and maintenance activities within 4 miles of occupied/active leks would be prohibited between March 1 and June 30. Activities determined to be non-disruptive by the BLM, Western, and applicable federal and state land and wildlife management agencies would be permitted between March 1 and June 30.

   Effectiveness: Recent studies have observed impacts of increased noise levels on male greater sage-grouse activity at lekking sites during the breeding season (Blickley et al. 2012). The impacts of increased anthropogenic noise levels on nesting greater sage-grouse have not been determined through direct investigation. Although information on greater sage-grouse communication is lacking in the scientific literature, the species may be particularly vulnerable to noise impacts during the breeding season because their low-frequency vocalizations can be masked by most sources of anthropogenic noise (Blickely et al. 2012). Seasonal restrictions of disruptive construction and maintenance activities is anticipated to be effective in reducing adverse noise impacts to breeding and nesting greater sage-grouse within the Project area.

5. To limit the potential for adverse impacts resulting from contact with construction equipment, vehicles, and personnel, TransWest would implement a vehicle speed limit of 15 mph on roads without posted speed limits in areas of occupied sage-grouse habitat.

   Effectiveness: Reductions in vehicle speed have been shown to be effective in reducing wildlife mortality within active construction areas and during maintenance activities (Danks and Porter 2010; Meisingset et al. 2014; Neumann et al. 2012; Seiler 2005).

6. Under Applicant Committed Design Feature TWE-26, TransWest has committed to developing a Noxious Weed Management Plan in accordance with existing BLM Pesticide Use Plan requirements. Control of noxious weeds would minimize the potential for weed-related degradation of occupied sage-grouse habitat. Prior to the use of chemical weed control agents, herbicide applications would be reviewed by agency wildlife biologists to ensure consistency with state and local greater sage-grouse conservation goals.

   Effectiveness: Development and implementation of a Noxious Weed Management Plan is anticipated to reduce adverse impacts to greater sage-grouse habitat suitability by reducing the frequency of noxious weed invasions within the Project area. Conformance with BLM Pesticide Use Plan requirements would ensure that chemical weed treatments do not harm greater sage-grouse individuals or native habitats.

Site-specific Measures: In addition to requiring implementation of the general mitigation measures discussed above, the BLM and Western would consider requiring additional impact avoidance and minimization measures on a site-specific basis in areas of greater sage-grouse habitat located within areas that meet all of the following state-specific criteria:

- Areas within 4 miles of active leks and within Wyoming Core Areas designated under EO 2011-05;
- Areas within 4 miles of active leks and within areas of PPH in Colorado; and

- Areas within 4 miles of active leks and within areas of designated brood-rearing habitats and winter concentration areas in Utah.

Identification of additional greater sage-grouse mitigation measures to be implemented in local areas would be completed prior to finalization of the POD in coordination with the Applicant, BLM, Western, and local interdisciplinary teams comprised of applicable federal and state land and wildlife management agency staff. Criteria for determining site-specific measures could include, but would not be limited to: existing vegetation communities, existing fragmentation, proximity to active leks, visibility of the proposed transmission line and towers from active lek locations, presence of noxious and invasive weed species, topography, proximity to USFWS PACs, proximity to designated winter concentration areas, proximity to nesting habitat, proximity to brood rearing habitat, proximity to available water sources, proximity to other anthropogenic sources of disturbance, and co-location with existing transmission infrastructure.

Additional measures identified by the BLM and Western for consideration on a site-specific basis in coordination with appropriate federal and state agencies would include:

- Installation of alternative structure types consisting of self-supporting tubular steel monopole structures to reduce the potential for perching and nest construction by avian predators of greater sage-grouse.

  Effectiveness: There are mixed conclusions in the scientific literature regarding reducing the occurrence of raven and raptor nests through the use of monopole structures. However, the BLM anticipates that transmission structures of solid construction are harder for large avian predators to nest on in comparison to the lattice structures, as suggested in Boarman 2003 and supported by empirical data in Dixon et al. (2013). Following construction, specific locations identified as requiring this mitigation would be monitored to identify the effectiveness of self-supporting monopoles in reducing predation pressure on greater sage-grouse from increased raven and raptor abundance along the transmission line corridor.

  Installation of self-supporting tubular monopole structures are anticipated to result in additional impacts to greater sage-grouse habitat during construction and operation as these structures require a larger area to install structure foundations, increased vehicle traffic to deliver foundation materials to each tower location, increased vehicle traffic to remove excavated spoils from foundation installations, and approximately 20 to 30 percent more transmission towers per mile of transmission line due to reduced span lengths.

- Installation of perch deterrents on transmission structures to reduce the potential for perching by avian predators of greater sage-grouse.

  Effectiveness: Perch deterrents were initially designed to reduce electrocution risks by discouraging birds from perching on smaller distribution power poles and transmission towers in locations were the separation distance between charged and grounded components was less than the average wingspan of common bird species. They were not intended to remove all perching opportunities along a transmission line (APLIC 2006). Research into the use of perch deterrents has shown that the effectiveness of specific deterrents is limited and can vary by deterrent type and transmission structure configuration. Lammers and Collopy (2007) concluded that the use of perch deterrents were ineffective in completely eliminating perching by avian predators within occupied greater sage-grouse habitat in Nevada, but they were shown to result in reduced perching duration by predators upon transmission structures. In some cases, deterrents also may be useful in decreasing avian predation on sensitive prey species by reducing avian use of power lines. Other studies have observed the ability of avian predators to defeat perch deterrents and use the deterrents themselves as substrate for nest materials. To the extent that perch deterrents could result in increased predator nesting success and recruitment, their use would have potential to result in the unintended consequence of increased predation on greater sage-grouse (APLIC 2012, 2006). Although no direct evidence of the

effects of perch deterrents upon predator abundance or predation rates of greater sage-grouse has been identified in the current scientific literature, the BLM and Western, in coordination with the USFWS, have identified this type of mitigation as having the potential to reduce the impacts of predation upon greater sage-grouse populations. The effectiveness of perch deterrents/discouragers is based on appropriate design, proper siting and a commitment for long-term maintenance. Following construction, locations in which perch deterrents are installed would be monitored to identify the effectiveness of these measures in reducing raven and raptor predation pressure on greater sage-grouse.

- In areas determined to be unsuitable for the installation of self-supporting tubular steel monopoles, applicants may be required to install agency-approved guy wire marking devices on all transmission tower guy lines to increase the visibility of each wire and reduce the risk of collision by flying greater sage-grouse.

Effectiveness: Although research into the use of wire marking devices on guy wires associated with large communication towers has indicated that wire marking can be effective in reducing avian collision mortality (Gehring et al. 2011, 2009), current literature supporting the effectiveness of marking transmission tower guy wires is lacking. Furthermore, APLIC 2012 found that there is no published information suggesting that guyed power line structures pose a significant collision risk for birds. Although no direct evidence of the effects of guy wire marking upon collision rates of greater sage-grouse has been identified in the current scientific literature, the BLM and Western have identified this type of mitigation as having the potential to reduce the impacts of collision with guy wires upon greater sage-grouse populations. Following construction, locations identified as requiring this mitigation would be monitored to identify the effectiveness of guy wire marking in concert with other site-specific conservation measures within the transmission line corridor.

- Outfit all newly-constructed fencing with agency-approved bird diverters/wire markers.

Effectiveness: Research into the effectiveness of fence marking has shown that marking fences within close proximity to active lek locations has been found to reduce collisions by greater sage-grouse by up to 83 percent (Christiansen et al. 2009; Stevens et al. 2012).

For site-specific locations where it is determined that alternative structure types, perch deterrents, and guy wire marking are not feasible due to other resource issues or physical constraints, the BLM and Western will consider alternative mitigation approaches proposed by the Applicant and local stakeholders to ensure adequate avoidance, minimization, or compensation of potential adverse impacts to greater sage-grouse

SSWS-6: To prevent impacts to the western yellow–billed cuckoo during the breeding season, TransWest would avoid all pre-construction, construction, operations, maintenance, decommissioning, vegetation clearing, spraying, and other surface–disturbing activities within 0.25 mile of suitable habitat from May 1 to September 15. If avoidance is not possible, the following mitigation measures would apply:

- Breeding season surveys would be completed in suitable habitat for western yellow-billed cuckoo within the analysis area in accordance with established protocols. If western yellow-billed cuckoos are documented within this area, additional avoidance and minimization measures would be identified and implemented in coordination with the BLM, Western, USFWS, and applicable state wildlife agencies.
- If an active western yellow-billed cuckoo nest is identified during surveys, it would be avoided by a minimum of 500 feet, and Project activities would ensure that sufficient habitat within a minimum 50-acre habitat patch size is retained. Vegetation management would ensure that a 65 percent canopy cover with a mean canopy height of 23 to 33 feet would be retained. Herbicide application would be avoided within riparian areas, as described in conservation measure NX-2 (**Table 3-2**).

Effectiveness: This proposed mitigation measure would minimize impacts to the western yellow-billed cuckoo and its habitat by avoiding construction activities in areas of suitable habitat, restricting disruptive activities within suitable habitat to outside of the active breeding season, and prohibiting alteration of native vegetation in areas of suitable habitat.

– **SSWS-7**: To reduce impacts to Utah prairie dogs, TransWest has conducted surveys to determine whether occupied habitat occurs within the disturbance footprint of the proposed Project. Surveys were conducted following USFWS protocols and did not identify any locations of occupied habitat within the Project refined transmission line corridor. If general pre-construction surveys identified active Utah prairie dog colonies within the Project area, implementation of the following species-specific conservation measures would be required:

1. Pre-construction surveys during the active season, would be conducted according to approved methods, at a minimum of 2 weeks prior to surface disturbance within suitable habitat (as determined during 2013 and 2014 surveys), unless species occupancy and distribution information is complete, current, and available through coordination with local agencies (BLM, UDWR, and USFWS). Surveys would be conducted by USFWS-certified Utah prairie dog surveyors. In the event species occurrence is verified, consultation with USFWS would be re-initiated and TransWest may be required to modify operational plans, at the discretion of the authorized officer, to include additional appropriate protection measures for the minimization of impacts on the Utah prairie dog and its habitat.
2. All Project employees would be informed of the occurrence of the Utah prairie dog in the general area, and of the threatened status of the species. They would be informed of activities that constitute “take,” and the potential penalties (up to $200,000 in fines and 1 year in prison) for taking Utah prairie dogs, which are listed under ESA.
3. Project-related vehicle maintenance activities would be conducted in maintenance facilities. Should it become necessary to perform vehicle or equipment maintenance on-site, these activities would avoid identified Utah prairie dog colonies, or would be conducted outside of a 350-foot buffer surrounding the colonies. Precautions would be taken to ensure contamination of maintenance sites by fuels, motor oils, grease, etc., does not occur, and such materials are contained and properly disposed of off-site. Inadvertent spills of petroleum based, or other toxic materials would be cleaned up and removed immediately.
4. Construction equipment and materials extending beyond one breeding season (i.e., laydown yards) would not be staged within 0.5 mile of an occupied Utah prairie dog colony. Temporary laydown yards (that do not extend beyond more than one breeding season) may be approved within 350 feet of identified Utah prairie dog colonies; however, to ensure Utah prairie dogs do not move into these areas additional conservation measures such as silt fencing and barriers would be applied.
5. Reclamation and restoration efforts in suitable Utah prairie dog habitat would be conducted in accordance with the Vegetation Composition Guidelines for Utah Prairie Dog Habitat using native seed, unless otherwise specified in coordination with the USFWS and BLM.
6. Project personnel would not be permitted to have firearms or pets in their possession while on the Project site within Utah prairie dog habitat.
7. If a dead or injured Utah prairie dog is located, initial notification would be made to the USFWS Division of Law Enforcement, Utah FO at (801) 975-3330, to the Southern Region UDWR at (435) 865-6100, and to the BLM Authorized Officer at (435) 865-3000. Instruction for proper handling and disposition of such specimens would be issued by the Division of Law Enforcement. Care would be taken in handling sick or injured animals to ensure effective treatment, and care and in handling dead specimens to preserve biological material in the best possible state.
8. To limit the potential for adverse impacts resulting from contact with construction equipment, vehicles, and personnel, TransWest would implement a project area vehicle speed limit of

15 miles per hour (mph) in areas of suitable habitat identified by the USFWS, BLM, and UDWR.

Effectiveness: Although impacts to the species are not anticipated due to a lack of active colonies within the refined transmission corridor, this proposed mitigation measure would minimize impacts to the Utah prairie dog by ensuring compliance with USFWS regulations and implementation of site-specific conservation measures in the event that Utah prairie dogs re-colonize suitable habitat within the Project areas of potential disturbance prior to the initiation of construction. This conservation measure would protect Utah prairie dogs that could be encountered during construction along the 250-foot-wide transmission line ROW by reducing the potential for collisions with vehicles and equipment and ensuring that they would not be shot; hunted or disturbed by pets; or exposed to disease by pets. These measures would also ensure proper care and handling of dead or injured individuals,

SSWS-8: To prevent impacts to the southwestern willow flycatcher, TransWest would implement the following measures:

1. All surface disturbing activities would be restricted within a 0.25-mile buffer from suitable riparian habitats and permanent surface disturbances would be avoided within 0.5 mile of suitable southwestern willow flycatcher habitat.
   - Unavoidable ground disturbing activities in occupied southwestern willow flycatcher habitat would only be conducted when preceded by current year USFWS-protocol level survey, would only occur between August 16 and April 30 (the period when southwestern willow flycatcher are not likely to be breeding), and would be monitored to ensure that adverse impacts to southwestern willow flycatcher are minimized or avoided, and to document the success of project-specific mitigation/protection measures. As monitoring is relatively undefined, project specific requirements must be identified.
2. Native species would be preferred over non-native for revegetation of habitat in disturbed areas.
3. Habitat disturbances would be avoided within 0.25 mile of occupied Southwestern willow flycatcher habitat from May 1 to August 15.

   Effectiveness: This proposed mitigation measure would minimize impacts to the southwestern willow flycatcher and its habitat by avoiding construction activities in areas of suitable habitat, restricting disruptive activities within potentially occupied habitat to outside of the active breeding season, and restrict alteration of native vegetation in areas of suitable nesting habitat.

– ***SSWS-9****: To limit raptor predation on black-footed ferret and associated prey populations (i.e., white-tailed prairie dog colonies >200 acres in area), TransWest would be required to construct perch discouragers and alternative structure types (e.g., tubular monopoles) on segments of the proposed Project near high quality black-footed ferret habitat (e.g., within areas of active white-tailed prairie dog colonies) on a site-specific basis in consultation with the BLM, USFWS, Western, and applicable state wildlife agencies.*

  Effectiveness: There are mixed conclusions in the scientific literature regarding reducing the occurrence of raven and raptor nests through the use of monopole structures. However, the BLM anticipates that transmission structures of solid construction are harder for large avian predators to nest on in comparison to the lattice structures, as suggested in Boarman 2003 and supported by empirical data in Dixon et al. (2013). While tubular molopole transmission structures and transmission lines fitted with anti-perching devices do not necessarily eliminate perching entirely (APLIC 2006; Lammers and Collopy 2007), they are designed to discourage use of the transmission line as a hunting perch which may in turn decrease the potential for predation by raptors on black-footed ferrets. Thus, to the extent that this proposed mitigation measure would limit raptor perching and/or nesting opportunities, it

would minimize the potential for increased predation on black-footed ferret resulting from the presence of the transmission line.

- ***SSWS-10:*** *To avoid and minimize impacts to Mexican spotted owl in Utah, TransWest would implement the following measures in accordance with the conservation measures outlined in BLM Utah's Programmatic Land Use Plan:*

  1. *Surveys, conducted according to USFWS protocol, would be required prior to any disturbance-related activities that have been identified to have the potential to impact Mexican spotted owl, 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.*
  2. *Habitat suitability would be assessed for both nesting and foraging owls using accepted habitat models in conjunction with field reviews. The following conservation measures would be applied if project activities are to occur within 0.5 mile of suitable owl habitat, dependent in part on if the action is temporary [1]or permanent[2]:*

    - *a. 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 would 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, gating access points, etc.*

    - *b. For all permanent actions that may impact owls or suitable habitat:*

    - *Survey two consecutive years for owls according to established protocol prior to commencing of activity.*
    - *If owls are found, no actions will occur within 0.5 mile of identified nest site.*
    - *If nest site is unknown, no activity will occur within the designated PAC.*
    - *Avoid placing permanent structures within 0.5 mile of suitable habitat unless surveyed and not occupied.*
    - *Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims (Delaney et al. 1999). Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5-mile buffer for suitable habitat, including canyon rims.*
    - *Limit disturbances to and within suitable owl habitat by staying on designated routes.*
    - *Limit new access routes created by the project.*

---

[1] Temporary activities are defined as those that are completed prior to the start of the following raptor breeding season, leaving no permanent structures and resulting in no permanent habitat loss.

[2] Permanent activities continue for more than one breeding season and/or cause a loss of owl habitat or displacement of owls through disturbance, e.g., creation of a permanent structure including but not limited to roads, communication facilities, and power lines.

3. *For all BLM actions that "may adversely affect" the primary constituent elements in any suitable Mexican spotted owl habitat, 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, gating access points, etc.*
4. *Prior to surface disturbing activities in Mexican spotted owl 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 greatest 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, avoid areas where large cuts and fills would be required.*
- *Locate roads to minimize roadway drainage areas and to avoid modifying the natural drainage areas of small streams.*

5. *Project developments should be designed and located to avoid direct or indirect loss or modification of Mexican spotted owl nesting and/or identified roosting habitats.*

Effectiveness: This proposed mitigation measure are anticipated to minimize impacts to the Mexican spotted owl and its habitat by avoiding construction activities in areas of suitable habitat and restricting disruptive activities within potentially occupied habitat to outside of the active breeding season.

– ***SSWS-11:*** *To avoid or minimize impacts to Canada lynx, TransWest would:*

1. Limit disturbance to and within suitable habitat by staying on approved access routes.
2. Limit new access routes created by the Project.
3. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway, etc.) in a manner that is likely to lead to significant increases in traffic volume, traffic speed, increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx habitat.

Effectiveness: This proposed mitigation measure would minimize impacts to the Canada lynx and its habitat by restricting disruptive activities and limiting construction of new access roads.

– ***SSWS-12:*** *To reduce impacts to the banded Gila monster from the construction and operation of the Project, TransWest would be required to implement measures outlined in the NDOW 2012 Gila Monster Status, Identification, and Reporting Protocol for Observations.*

Effectiveness: This proposed mitigation measure would minimize impacts to the banded Gila monster and its habitat.

– **SSWS-13:** To prevent impacts to bald eagles, TransWest would be required to avoid disturbance within 0.25 mile of an active winter roost site (0.5 mile if there is a direct line of sight to disturbance) from November 15 to March 15, and avoid disturbance within 0.5 mile of communal winter roosts from November 1 to April 1. Construction of aboveground structures would be restricted within 0.5 mile of bald eagle nests and communal winter roost sites. Below ground structures (e.g., pipelines, buried power lines, fiber optic lines) may be

sited closer as long as construction occurs outside of the active nesting or roosting season and will not result in the loss of alternate nest sites or roost trees.

Effectiveness: This proposed mitigation measure would minimize impacts to the bald eagle and its winter and nesting habitat by avoiding construction activities in areas of suitable habitat and restricting disruptive activities within potentially occupied habitat to outside of the active breeding season.

- ***SSWS-15:*** *If evidence of a protected species not previously identified or known is found in the construction area, the Contractor would immediately notify the appropriate land management agencies and provide the location and nature of the findings. Construction in the vicinity of the newly located protected species would be halted and would resume when a biologist from the appropriate agency determines that the species would not be affected by continued construction.*

  Effectiveness: This proposed mitigation measure would minimize impacts to special status species that may be encountered during construction along the 250-foot-wide transmission line ROW.

- ***SSWS-16:*** *To reduce impacts to federally listed wildlife species, TransWest would be required to obtain approval from the USFWS, lead agencies, and all applicable land management agencies prior to applying dust palliatives to construction areas located within areas designated as suitable habitat for federally listed species.*

  Effectiveness: This proposed mitigation measure would minimize impacts to federally listed special status species that may be adversely impacted by the application of dust palliatives within the 250-foot-wide transmission line ROW during construction and decommissioning.

- ***WLF-1:*** *To minimize disturbance to migratory birds during the breeding and nesting season, no vegetation clearing or trimming, blasting, or other new surface-disturbing activities would occur during the avian breeding season as defined by Project Region and illustrated in* ***Figures 3.22-5, 3.22-8,*** *and* ***3.22-13****. If avoidance of vegetation clearing during the nesting season is not possible, then a qualified biologist would conduct nest searches no more than 7 days prior to clearing and trimming activities. Active nests would be identified and protected in accordance with the following procedure.*

  *On lands administered by the BLM and USFS, spatial avoidance buffers and seasonal restrictions would be applied as required by applicable land and resource management plan stipulations (****Appendix C****). On federal lands for which there are no stipulations applicable to non-raptorial migratory birds, the habitat- or species-specific nest buffers recommended by the BLM Ely District (BLM 2012) would apply. Seasonal and spatial nest buffers that are more restrictive than the applicable required BLM and USFS plan stipulations and BLM Ely District recommendations would be applied at the discretion of local federal and state wildlife management agency biologists. Additionally, the BLM Ely District-recommended nest buffers would be applied to all other land jurisdictions in coordination with TransWest and respective landowners whose lands would be crossed by the Project.*

  Effectiveness: This proposed mitigation measure would minimize disturbance to nesting migratory birds by limiting disturbance from construction and maintenance activities during critical breeding periods.

- ***WLF-2:*** *To minimize disturbance to nesting raptors, no vegetation clearing or trimming, blasting, or other new surface-disturbing activities would occur within the appropriate spatial buffer for an occupied nest during the breeding season of the species using it. Raptor breeding seasons vary widely based on species, weather conditions, prey availability, latitude, elevation, and other factors.* ***Figures 3.22-5****,* ***3.22-8****, and* ***3.22-13*** *present approximate raptor breeding seasons by species and Project region. If surface-disturbing activities within the appropriate spatial buffer cannot be avoided during the associated raptor*

nesting season, preconstruction raptor nest surveys and monitoring using agency-approved protocols would be performed to identify and protect occupied nests.

*Spatial avoidance buffers and seasonal restrictions would be applied as required by applicable BLM and USFS land and resource management plan stipulations (Appendix C) on lands administered by these agencies. Seasonal and spatial raptor nest buffers recommended by the USFWS and the appropriate state wildlife agency that are more restrictive than the applicable, required BLM and USFS plan stipulations would be applied at the discretion of these land management agencies (**Table 3.22-4**). Additionally, raptor seasonal and spatial buffers recommended by USFWS and the appropriate state wildlife agency would be applied to all other land jurisdictions in coordination with TransWest and respective landowners whose lands would be crossed by the Project.*

Effectiveness: This proposed mitigation measure would minimize disturbance to nesting raptors by limiting disturbance from construction and maintenance activities during critical breeding periods.

- ***WLF- 3:*** *To ensure wildlife access to existing wildlife water developments (e.g., "guzzlers"), TransWest would avoid impacts to these developments to the extent possible during final Project siting and development. The Applicant would be required to offset the loss of any permanently impacted wildlife water developments by installing new developments of equal capacity in coordination with the appropriate state wildlife agency.*

  Effectiveness: This proposed mitigation measure would ensure continued wildlife access to wildlife water developments.

- ***WLF-4:*** *For the protection of migratory birds, TransWest would be required to install dark-sky lighting at all terminals, sub-stations, and series compensation facilities that is fully shielded to keep light from extending above the horizontal plane and is designed to provide the minimum amount of illumination necessary for safety and security purposes.*

  Effectiveness: This proposed mitigation measure would minimize collision impacts to migratory birds which could be attracted by lighting at Project components.

- ***WLF-5:*** *In Audubon Important Bird Areas crossed by the 250-foot-wide transmission line ROW, TransWest would employ line marking as recommended in Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012). In addition, vegetation management Level 3, as described in the Project Vegetation Management Plan, would be employed in IBAs crossed by the 250-foot-wide transmission line ROW.*

  Effectiveness: This proposed mitigation measure would minimize impacts to habitat at Audubon Important Bird Areas. It also would minimize collision risk in areas of high avian use.

- ***WLF-6****:* To minimize fragmentation impacts to forested habitats on public lands, TransWest would employ vegetation management Level 3, as described in the Project Vegetation Management Plan, to portions of the 250-foot-wide transmission line ROW located in forest and woodland habitat areas identified by local federal or state wildlife management agency biologists as being of particular importance to wildlife. In these areas, TransWest also would be required to leave downed woody debris greater than 3 inches in diameter (not including merchantable timber) in place to provide habitat for insects, small mammals, and other small prey species utilized by owls, raptors, and other predators.

  Effectiveness: This proposed mitigation measure would minimize impacts to forested habitats.

- ***WLF-7****: In BHCAs, TransWest would employ line marking as recommended in Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012). In addition,*

vegetation management Level 3, as described in the Project Vegetation Management Plan, would be employed in BHCAs crossed by the 250-foot-wide transmission line ROW.

Effectiveness: This proposed mitigation measure would minimize impacts to habitat in Bird Habitat Conservation Areas. It also would minimize collision risk in areas of high avian use.

- ***WLF-8****: To minimize collision potential for avian species, TransWest would design the Project to meet the standards described in the Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012).*

  Effectiveness: This proposed mitigation measure would minimize avian collision potential and is consistent with commitments made by TransWest in the Project's Avian Protection Plan.

- ***WLF-9****: To minimize collision potential for avian species, TransWest would be required to install avian flight diverters on all guy wires in all areas of priority migratory bird habitats which include IBAs, BHCA, riparian crossings, and other sensitive habitats identified in coordination with land management, USFWS, and applicable state wildlife agencies. TransWest also would be required to install flight diverters on guyed structures at tower locations identified by post construction monitoring as having high collision potential.*

  Effectiveness: This proposed mitigation measure would minimize avian collision potential.

- ***WLF-10****: To avoid or minimize long-term disturbance to wildlife associated with public use of the ROW and new access roads during Project operation, these roads would be closed or rehabilitated using methods and monitoring developed through consultation with the landowner or land management agency. Depending on facility and ROW maintenance needs, methods for closure could include gates, obstructions such as berms or boulders, or partial or full restoration to natural contour and vegetation.*

  Effectiveness: This proposed mitigation measure would minimize impacts to wildlife species and their habitats by limiting public access. Limiting public access would decrease human disturbance to wildlife and prevent habitat degradation by humans and vehicles.

- ***VEG-2:*** *TransWest would develop an integrated vegetation management plan consistent with applicable regulations and agency policies for the control of unwanted vegetation, noxious weeds, and invasive species (EO 13112). The plan would address monitoring; ROW vegetation management; the use of certified weedseed-free hay, straw, and/or mulch; the cleaning of vehicles to avoid the introduction of invasive weeds; education of personnel on weed identification; the manner in which weeds spread; and the methods for treating infestations (BLM 2008, 2007b,c, 2006).*

  Effectiveness: This proposed mitigation measure would minimize impacts to special status wildlife habitat.

- ***NX-1:*** *The Noxious Weed Management Plan to be developed as part of the COM Plan would include the following:*

  1. *Pre-construction surveys for noxious weeds in the footprints of the ROW, access roads, and ancillary facilities;*
  2. *Pre-construction weed control;*
  3. *Education of construction and operation personnel in each Project region;*
  4. *Washing of vehicles and equipment before entering and leaving the ROW; and*
  5. *Herbicide spraying and annual monitoring and reporting. Survey information collected during pre-construction surveys would include species name, global positioning system*

location of weed infestations, percent cover, and approximate size of weed infestations. Control of noxious and invasive species could include chemical, physical, and biological methods and would be developed in consultation with the land agencies and private landowners. The plan would identify species of concern for each BLM FO and USFS and focus monitoring and control methods on these species. The plan would comply with the existing BLM, USFS, USFWS, state, and federal regulations concerning noxious weed management. Post-construction annual monitoring would be determined with the appropriate land management agencies.

Effectiveness: This proposed mitigation measure would minimize impacts to special status wildlife habitat.

- ***NX-2:*** *Herbicide spraying would be conducted following all applicable state and federal laws regarding chemical use, adverse weather, chemical storage, and chemical drift. Further guidelines and protocols for herbicide spraying on BLM land are provided in the Final BLM Vegetation Treatment Using Herbicides Programmatic EIS (BLM Vegetation EIS) (BLM 2007c). Standard operating procedures for herbicide spraying include buffers for sensitive areas such as riparian and wetland areas and threatened and endangered species habitat, timing restrictions, and safety protocols.*

  Effectiveness: This proposed mitigation measure would minimize impacts to special status wildlife habitat.

Potential direct and indirect effects of construction, operation, and decommissioning on special status wildlife species and their associated habitats are discussed below. After impacts are identified, relevant BMPs and TransWest's design features are discussed in terms of reducing impacts. If impacts remain after application of BMPs and TransWest's design features, additional mitigation is recommended to reduce impacts. As required under Section 7 of the ESA, a BA would be prepared for the TransWest Express Transmission Project to determine whether the proposed Project is likely to affect any federally listed, candidate, or proposed species. TransWest has committed to the Project's adherence to mitigation measures developed with the BLM and USFWS under the Section 7 consultation and those developed in consultation with other applicable federal and state agencies (TWE-31).

The impacts analysis for special status wildlife species assumes that the BLM and USFS would continue to manage special status wildlife species habitats in coordination with CPW, NDOW, UDWR, and WGFD and that the USFWS has jurisdiction over the management of federally endangered, threatened, and proposed species populations. It also assumes that the BLM would continue to manage BLM sensitive species in accordance with BLM Manual 6840 and the USFS would continue to manage MIS and their habitats in accordance with NFMA and Forest Plan requirements and USFS sensitive species in accordance with FSM 2670. Further assumptions are that the design features committed to by TransWest and the BMPs would be implemented under all alternatives.

3.8.6.1 Impacts to Special Status Wildlife Species from Terminal Construction and Operation

Section 2.4, Elements Common to All Action Alternatives, describes the Northern Terminal, the Southern Terminal, the Southern Terminal Alternate, the Southern Terminal located near IPP (Design Option 2), and the Southern Substation located near IPP (Design Option 3). Vegetative communities potentially impacted at terminal siting areas are presented below. No national forests would be impacted by terminals.

Potential impacts to special status wildlife species at terminal sites can be grouped into two main categories: construction and operation. Construction impacts account for all disturbance during construction of the Project (e.g., vegetation clearing for construction of tower footings, upgrading access roads, etc.). Construction-related impacts are primarily habitat loss, fragmentation and wildlife mortalities as a result of vehicle collisions and crushing of nests/burrows.

Operation impacts are defined as impacts that remain after reclamation of temporary construction use areas is complete. Operation-related impacts will last at least as long as the Project is in operation and maintenance activities are conducted. Construction-related impacts are typically short-term, whereas operation impacts are typically long-term. Examples of potential operation impacts include habitat disturbance in areas where facilities would be sited, periodic vegetation management activities, wildlife mortalities that occur as a result of collisions with Project facilities and habitat degradation resulting from increased noise and human activity at the terminal site. During operation of the Project, a portion of habitat disturbed during construction would not be reclaimed until after the end of the Project's design life (decommissioning).

Habitat impacts can be further categorized as direct and indirect. Direct habitat impact results when habitat is destroyed or converted to a form that is unsuitable for use by wildlife. The primary potential indirect impact is wildlife avoidance (displacement) of otherwise suitable habitat in and around terminal locations during construction and operation. The primary operation-related impact associated with the terminal is likely to be wildlife mortality as a consequence of electrocution or collision with electrical components. Other potential impacts include habitat avoidance of otherwise suitable habitat due to the presence of the terminal facility and transmission line, increased predation from perching raptors and the increased noise and human presence that are the result of regular maintenance activities. The methodology for calculating indirect impacts to habitat is described in Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components.

Northern Terminal Siting Area Habitat Disturbance and Fragmentation

A description of existing conditions at the proposed Northern Terminal siting area can be found in Section 3.7.6.1, Impacts to Wildlife from Terminal Construction and Operation.

Construction Impacts

Construction of the Northern Terminal would result in the disturbance of 502 acres of potential special status wildlife habitat. Approximately 261 acres of temporary use areas would be reclaimed following construction and 241 acres of habitat would remain disturbed during long-term operation of the facility. These areas of impact represent <0.01 percent of shrubland habitat within the Region I wildlife analysis area. The remaining area of disturbance would be reclaimed at the end of Project life (estimated at 50 years).

Impacts to wildlife from surface disturbance would include the loss and fragmentation of wildlife habitat. Habitat loss or alteration would result in direct losses of smaller, less mobile wildlife species, such as small mammals and reptiles, and the displacement of more mobile species into adjacent habitats.

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted by construction and operation of the Northern Terminal include one federal candidate and 42 BLM sensitive, USFS sensitive, and state sensitive species. Suitable habitat for the western yellow-billed cuckoo and Canada lynx does not occur at the Northern Terminal; therefore, impacts to those species are not anticipated. Impacts to special status wildlife species that may occur at the Northern Terminal siting area are presented below.

Indirect Impacts

Indirect impacts are discussed in Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components.

Operation Impacts

Impacts from operations are similar to those presented in construction; however, they are less intensive and longer in duration. The additional operation-related impact discussion below describes specific potential for avian mortality during operation of the Project.

The primary operation-related impact to wildlife, particularly birds, is mortality as a result of electrocution or collision. Information regarding proposed Northern Terminal components is described in Section 2.4.3.1. Depending on the design of the facility, transmission lines entering and exiting the facility, along with other components, pose electrocution hazards for bird species, especially raptors, which may attempt to perch on these structures. Avian electrocutions at substations are uncommon (APLIC 2006). Nevertheless, the potential for electrocution of special status raptors at the Northern Terminal would be minimized through the use of engineering designs that isolate or insulate electrified components in accordance with APLIC raptor-safe design standards to which TransWest has committed via TWE-30. The transmission lines entering and exiting the terminal would incrementally increase the collision potential for migrating and foraging bird species. However, collision potential typically is dependent on variables such as the location of the facility in relation to high-use habitat areas (e.g., nesting, foraging, and roosting); line orientation to flight patterns and movement corridors; species composition, visibility; and line design (APLIC 2006). Other types of disturbance exist within several miles of the facility, including a railroad, I-80, and the Town of Sinclair. Avian use of the Northern Terminal siting area could be increased due to the presence of a wetland approximately 1.5 miles from the site and a water treatment plant within 2 miles of the site, both of which could be high use habitats for waterbirds.

Species Potentially Occurring at the Northern Terminal Siting Area

Whooping Crane (Endangered), Interior Least Tern (Endangered), Piping Plover (Threatened)

These species occur downstream of the Region I special status wildlife analysis area, along the Platte River in Nebraska. This area is located a considerable distance downstream of any construction or operation disturbance areas in Wyoming; thus, these activities would not directly affect the whooping crane, interior least tern, or piping plover. However, water depletion also must be evaluated for these species based on the PRRIP, which was implemented in 2006.

The goal of the PRRIP is to assist in the conservation and recovery of the target species and their associated habitats along the central and lower Platte River in Nebraska. Platte River water depletions include evaporative losses and consumptive use which is characterized as diversions from the Platte River or its tributaries, less return flows. Under the PRRIP, any actions that may result in depletions to the Platte River system should be identified and the amount and timing of the depletions should be calculated and provided to the USFWS. Since 1978, USFWS has concluded in all of its ESA Section 7 consultations on water projects in the Platte River basin in Nebraska that the Platte River ecosystem is in a state of jeopardy. As such, any federal action resulting in additional water depletion to the Platte River system will further the deterioration of these already stressed habitats, which are considered to be resources of national and international importance (U.S. Department of State 2008).

Compliance with the PRRIP would require that water use in the Platte River Basin be evaluated to determine the potential effects of water depletions on Platte River federally listed species and their critical habitats. If the proposed water-related activity will deplete more than 0.1 acre-feet in the Platte River system and will rely on surface water or hydrologically connected groundwater, an evaluation is required by the Wyoming State Engineer to determine whether the water use is a new or existing activity. If the activity is considered an existing water-related activity, the State Coordinator will determine whether any further action is required to be covered by the PRRIP. If further actions are required, a Wyoming Platte River Recovery Agreement will be executed between the water user and the Wyoming State Engineer.

TransWest has indicated that all water requirements for the Project would be met using existing water rights. Required water would be procured from municipal sources, commercial sources, or under a temporary water use agreement with landowners holding existing water rights. The effect determination of new and existing water depletions in Wyoming would be made by the Wyoming State Engineer. Consultation with the USFWS would be completed to determine if construction water use could affect surface flows for species using the Platte River system.

Greater Sage-grouse (Candidate)

The Northern Terminal is not located within a sage-grouse core area. A total of two occupied leks occur within 4 miles of the Northern Terminal siting area. Approximately 230 acres of construction impacts and 150 acres of operation impacts would occur to potential sage-grouse habitat as a result of the construction and operation of the Northern Terminal. However, due to the proposed location of the Northern Terminal within 2 miles of a heavily developed area, it is unlikely that greater sage-construction of the Northern Terminal may occur if sage-grouse are present. The risk of direct mortality to sage-grouse from construction is most likely limited to nesting hens or young chicks that have limited mobility.

Several factors would minimize potential impacts to sage-grouse resulting from construction of the Northern Terminal. The Northern Terminal is located in an area that already has a high level of human activity and noise (e.g., I-80, Town of Sinclair). Impacts to the sage-grouse and its habitat at the Northern Terminal siting area would be minimized with implementation of the following design features and mitigation measures:

- Applicable design features: TWE-26 and TWE-32; and
- Applicable mitigation measures: **VEG-1**, **NX-1**, **NX-2**, **SSWS-5**, **SSWS-15**, **WLF-3**, **WLF-5**, **WLF-7**, **WLF-8**, and **WLF-10**.

Design features, proposed mitigation measures, and effectiveness statements are presented in Section 3.8.6, Impacts to Wildlife Species. Implementation of TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.) and implement seasonal timing restrictions and protection buffers in accordance with BLM IM 2010-012, EO 2011-5, and the BLM Rawlins FO RMP. Adherence to these regulations and guidelines would reduce impacts for sage-grouse during construction. In addition, implementation of TWE-26 and **VEG-1** would aid in reclamation activities to restore communities (e.g., sagebrush shrubland) to native ecosystems, especially in areas where reclamation is difficult. Implementation of **NX-1** and **NX-2** would minimize and mitigate impacts associated with the potential introduction or spread of noxious weeds and invasive plant species. Therefore, impacts to sage-grouse from the construction and operation of the Northern Terminal would be limited primarily to habitat loss and fragmentation.

Black-footed Ferret (EXP/NE)

The black-footed ferret is an obligate prairie dog predator. No white-tailed prairie dog colonies occur at the Northern Terminal siting area. In addition, the USFWS has block-cleared all white-tailed prairie dog colonies in and around the Northern Terminal siting area (USFWS 2004) and the entire State of Wyoming was recently designated as cleared for black-footed ferrets (USFWS 2013b). The nearest re-introduced population of black-footed ferrets is approximately 65 miles northeast of the Northern Terminal siting area in the Shirley Basin. Due to the distance from the Northern Terminal siting area to the nearest known black-footed ferret population, there is an extremely low likelihood of black-footed ferrets occurring at the Northern Terminal siting area. Consequently, no impacts to black-footed ferrets are anticipated from construction and operation of the Northern Terminal.

BLM Sensitive and State Sensitive Species

BLM sensitive and state sensitive species that may occur at the Northern Terminal siting area are presented in **Table 3.8-17**. The types of direct and indirect impacts from construction and operation of the Northern Terminal to BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife from Terminal Construction and Operation. Impacts to habitat types are presented in **Table 3.5-7**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facilities acreages to determine construction disturbance. Impact acreages remaining as a result of operations are presented for each vegetation community/habitat type.

One golden eagle and three raptor nests for unknown species have been documented within 1 mile of the Northern Terminal siting area.

Impacts to BLM sensitive and state sensitive species and their habitats at the Northern Terminal siting area would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-2**, **WLF-3**, **WLF-4**, **WLF-6**, **SSWS-1**, **SSWS-2**, **SSWS-3**, **SSWS-5**, **SSWS-13**, and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to special status species would be limited to habitat loss, fragmentation, potential mortality from collisions, and disturbance during routine maintenance activities.

Table 3.8-17 BLM and State Sensitive Species Potentially Occurring at the Northern Terminal Siting Area

BLM and State Sensitive Species with Potential to Occur at the Northern Terminal Siting Area	Associated Vegetation Communities/Habitat Types[1]
Mammals - Bats	
California myotis	Greasewood flat, herbaceous wetland, open water, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Long-eared myotis	Cliff and canyon, greasewood flat, herbaceous wetland, open water, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Pallid bat	Barren/sparsely vegetated, grassland, greasewood flat, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Spotted bat	Greasewood flat, herbaceous wetland, open water, sagebrush shrubland
Townsend's (Western) big-eared bat	Open water, saltbush shrubland, sagebrush shrubland, woody riparian and wetlands
Yuma myotis	Barren/sparsely vegetated, cliff and canyon, greasewood flat, herbaceous wetland, open water, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Fringed myotis	Grassland, greasewood flat, herbaceous wetland, open water, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Mammals - Other	
Pygmy rabbit	Sagebrush shrubland
River otter	Open water, woody riparian and wetlands
Swift fox	Grassland, sagebrush shrubland
White-tailed prairie dog	Grassland, greasewood flat, sagebrush shrubland, saltbush shrubland
Wyoming pocket gopher	Greasewood flat, sagebrush shrubland, saltbush shrubland
Birds	
White-faced ibis	Herbaceous wetland, open water
Trumpeter swan	Herbaceous wetland, open water
Swainson's hawk	Barren/sparsely vegetated, grassland, saltbush shrubland, sagebrush shrubland
Ferruginous hawk	Cliff and canyon, grassland, sagebrush shrubland, saltbush shrubland
Golden eagle	Cliff and canyon, grassland, sagebrush shrubland, saltbush shrubland
Mountain plover	Grassland
Long-billed curlew	Grassland, herbaceous wetland
Burrowing owl	Barren/sparsely vegetated, grassland, sagebrush shrubland, saltbush shrubland
Long-eared owl	Woody riparian and wetlands, sagebrush shrubland, saltbush shrubland
Short-eared owl	Grassland, greasewood flat, herbaceous wetland, sagebrush shrubland

Table 3.8-17 BLM and State Sensitive Species Potentially Occurring at the Northern Terminal Siting Area

BLM and State Sensitive Species with Potential to Occur at the Northern Terminal Siting Area	Associated Vegetation Communities/Habitat Types[1]
Loggerhead shrike	Grassland, greasewood flat, saltbush shrubland, sagebrush shrubland
Sage thrasher	Sagebrush shrubland
Brewer's sparrow	Sagebrush shrubland
Sage sparrow[2]	Sagebrush shrubland
Grasshopper sparrow	Grassland, sagebrush shrubland
Bobolink	Grassland, herbaceous wetland
Reptiles	
Corn snake	Grassland, greasewood flat, herbaceous wetland, woody riparian and wetlands
Smooth greensnake	Grassland, greasewood flat, herbaceous wetland, woody riparian and wetlands

[1] Habitat types are limited to those present at the Northern Terminal siting area. Species could occur in other habitat types.

[2] The sage sparrow species (*Amphispiza belli*) has recently been has been split into sagebrush sparrow (*Artemisiospiza nevadensis*) and Bell's sparrow (Artemisiospiza belli). The sagebrush sparrow is the species that could occur in the special status wildlife analysis area in all four regions.

Southern Terminal and Southern Terminal Alternate Habitat Disturbance and Fragmentation

A description of existing conditions at the proposed Southern Terminal and Southern Terminal Alternate siting area can be found in Section 3.7.6.1, Impacts to Wildlife from Terminal Construction and Operation.

Construction Impacts

Potential direct impacts to special status species at the Southern Terminal would include the construction and operation disturbance of 557 acres and 226 acres, respectively, of potential habitat. These areas represent 0.06 percent and 0.03 percent of potential habitat within the Region IV special status wildlife analysis area. Construction of the Southern Terminal Alternate would result in the construction and operation disturbance of 755 acres and 260 acres, respectively, of potential habitat. These areas represent 0.08 percent and 0.03 percent of potential habitat within the Region IV special status wildlife analysis area. At the end of the Project's life (estimated at 50 years), this terminal would be decommissioned and the area of operation disturbance would be reclaimed.

Impacts to wildlife from surface disturbance would include the loss and fragmentation of wildlife habitat. Habitat loss or alteration would result in direct losses of smaller, less mobile wildlife species, such as small mammals and reptiles, and the displacement of more mobile species into adjacent habitats.

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted by construction and operation of the Southern Terminal and Southern Terminal Alternate include 1 federally threatened and 38 BLM sensitive, USFS sensitive, and state sensitive species. Suitable habitat for the southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma clapper rail does not occur at the Southern Terminal siting area; therefore, impacts to these species are not anticipated. Impacts to special status wildlife species that may occur at the Southern Terminal and Southern Terminal Alternate siting area are presented below.

Indirect Impacts

Indirect impacts are discussed in Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components.

Operation Impacts

Impacts from operations are similar to those presented in construction; however, they are less intensive and longer in duration. The additional operation-related impact discussion below describes specific potential for avian mortality during operation of the Project.

The primary operation-related impact to wildlife, particularly birds, is mortality as a result of electrocution or collision. Information regarding proposed Southern Terminal components is described in Section 2.4.3.1. Depending on the design of the facility, transmission lines entering and exiting the facility, along with other components, pose electrocution hazards for bird species, especially raptors, which may attempt to perch on these structures. Avian electrocutions at substations are uncommon (APLIC 2006). Nevertheless, the potential for electrocution of special status raptors at the Southern Terminal would be minimized through the use of engineering designs that isolate or insulate electrified components in accordance with APLIC raptor-safe design standards to which TransWest has committed via TWE-30. The transmission lines entering and exiting the terminal would incrementally increase the collision potential for migrating and foraging bird species. However, collision potential typically is dependent on variables such as the location of the facility in relation to high-use habitat areas (e.g., nesting, foraging, and roosting), line orientation to flight patterns and movement corridors, species composition, visibility, and line design (APLIC 2006).

To minimize potential operation-related impacts to raptors and other migratory birds, TransWest's design feature (TWE-30) requires that the Project meet or exceed the raptor safe design standards described in the Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006). Therefore, impacts to wildlife species, particularly raptors, from operation of the Southern Terminal or Southern Terminal Alternate would be limited to habitat loss, fragmentation, and potential collision, as well as disturbance during normal maintenance activities.

TransWest has committed to developing an operational policy and a comprehensive strategy for avoiding and minimizing impacts to birds during construction and operation of the proposed Project. This plan, termed an APP, would be an over-arching document containing a full listing of all avoidance and minimization measures included in this EIS, avian-safe construction design standards, nest management procedures, monitoring and reporting requirements, and other components described in the APP Guidelines developed by the USFWS and APLIC in 2005 (APLIC 2012). APPs are typically living documents that are modified over time to improve their effectiveness at reducing avian mortality associated with powerlines.

<u>Species Potentially Occurring at the Southern Terminal and Southern Terminal Alternate Siting Area</u>

Desert Tortoise (Threatened)

Desert tortoise potential habitat occurs within the Southern Terminal and Southern Terminal Alternate Siting Area in Clark County, Nevada. This species occurs exclusively within the Mojave Desert shrub community.

Potential impacts to the desert tortoise would include the disturbance of potentially suitable habitat and the incremental increase of habitat fragmentation from vegetation removal and other surface-disturbing activities. Construction of the Southern Terminal would result in the construction and operation disturbance of 557 acres and 226 acres, respectively, of potentially suitable habitat. These areas represent 0.07 percent and 0.03 percent, respectively, of suitable habitat within the Region IV desert tortoise analysis area. Construction of the Alternative Southern Terminal would result in the construction and operation disturbance of 755 acres and 260 acres, respectively, of potentially suitable habitat. These acres represent 0.09 percent and 0.03 percent, respectively, of suitable habitat within the Region IV desert tortoise analysis area.

Additional loss of habitat, especially undisturbed occupied habitat and USFWS-designated critical habitat would result in an incremental reduction in the amount of available habitat in the Region IV desert

tortoise analysis area. Mortality as a result of crushing and burying also may result from construction activities. In most instances, suitable habitat adjacent to disturbed areas would continue to be available for use by this species. However, displacement would increase competition and could result in some local reductions in desert tortoise populations if adjacent habitats are at carrying capacity. Potential impacts also could include burrow abandonment or loss of eggs or young.

Operation-related impacts to desert tortoises would include increased human presence and noise during maintenance activities which may result in displacement. Increased vehicle traffic within occupied desert tortoise habitat may lead to mortalities as a result of crushing. Direct mortality could result from construction personnel or members of the public handling tortoises. Desert tortoises expel their water reserve as a defense mechanism and can die if they are not able to access water and rehydrate quickly. Also, there is potential for increased public access along Project roads to contribute to the problem of members of the public bringing desert tortoises home as pets. Increased abundance of common ravens at the Southern Terminal and Alternate Terminal location could result in increased predation pressure on desert tortoise.

Impacts to the desert tortoise and its habitat at the Southern Terminal siting area would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-4**, **SSWS-15,** and **WLF -10**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the desert tortoise would be limited to habitat loss, fragmentation, potential mortality from collisions, increased predation, and disturbance during routine maintenance activities.

BLM Sensitive and State Sensitive Species

BLM sensitive and state sensitive species that may occur at the Southern Terminal and Southern Terminal Alternate siting area are presented in **Table 3.8-18**. The types of direct and indirect impacts of construction and operation of the Southern Terminal and Southern Terminal Alternate to the 38 BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife from Terminal Construction and Operation. Estimates of impacts to habitat types utilized by these species as a result of the construction and operation of the Southern Terminal and Southern Terminal Alternate are presented in **Table 3.5-7**. No special status raptor nests are documented within the Southern Terminal and Southern Terminal Alternate siting area. Species-specific mitigation measures are discussed below. Section 3.7.6.1 presents a description of existing disturbance at the Southern Terminal and Southern Terminal Alternate siting area.

Table 3.8-18 BLM and State-Sensitive Species Potentially Occurring at the Southern Terminal and Alternate Southern Terminal Siting Areas

BLM and State-Sensitive Species with Potential to Occur in the Southern Terminal and Alternate Southern Terminal Siting Areas	Associated Vegetation Communities/Habitat Types[1]
Mammals - Bats	
Allen's big-eared bat	Desert shrubland
Big free-tailed bat	Desert shrubland
Brazilian free-tailed bat	Desert shrubland
California leaf-nosed bat	Desert shrubland
California myotis	Desert shrubland
Cave myotis	Desert shrubland

Table 3.8-18 BLM and State-Sensitive Species Potentially Occurring at the Southern Terminal and Alternate Southern Terminal Siting Areas

BLM and State-Sensitive Species with Potential to Occur in the Southern Terminal and Alternate Southern Terminal Siting Areas	Associated Vegetation Communities/Habitat Types[1]
Fringed myotis	Desert shrubland
Greater western mastiff bat	Desert shrubland
Long-eared myotis	Desert shrubland
Pallid bat	Desert shrubland
Spotted bat	Desert shrubland
Townsend's (Western) big-eared bat	Desert shrubland
Western red bat	Desert shrubland
Yuma myotis	Desert shrubland
Mammals - Other	
Desert bighorn sheep	Desert shrubland
Birds	
Swainson's hawks	Desert shrubland
Ferruginous hawk	Desert shrubland
Golden eagle	Desert shrubland
Peregrine falcon	Desert shrubland
Burrowing owl	Desert shrubland
Long-eared owl	Desert shrubland
Le Conte's thrasher	Desert shrubland
Reptiles	
Banded Gila monster	Desert shrubland
Chuckwalla	Desert shrubland
Desert glossy snake	Desert shrubland
Mojave shovel-nosed snake	Desert shrubland
Sidewinder	Desert shrubland
Mojave desert sidewinder	Desert shrubland
Nevada shovel-nosed snake	Desert shrubland
Terrestrial Invertebrates	
Mojave gypsum bee	Desert shrubland
Mojave poppy bee	Desert shrubland
Mono Basin skipper (Railroad Valley skipper) butterfly	Desert shrubland
Northern Mojave blue (Mojave blue) butterfly	Desert shrubland

[1] Habitat types are limited to those present at the Southern Terminal siting area. Species could occur in other habitat types.

Design Option 2 - DC from Wyoming to IPP; AC from IPP to Marketplace Hub

Because the implementation of Design Option 2 would utilize the same alternative routes and construction techniques as the proposed Project, impacts to special status wildlife from construction and operation of Design Option 2 would be similar to those discussed under the alternative routes. Differences between Design Option 2 and the proposed Project include the location of the Southern Terminal and ground electrode system as well as the addition of a series compensation station midway

between IPP and Marketplace. The Southern Terminal would be located near IPP in Utah instead of near Marketplace in Nevada and the ground electrode system would be within 50 miles of IPP.

Table 3.8-19 provides a summary of impacts associated with Design Option 2. Impacts from Design Option 2 facilities would be similar to impacts described in Section 3.8.6.1, Impacts from Terminal Construction and Operation, and Section 3.8.6.2, Impacts Common to all Alternative Routes and Associated Components. Greater sage-grouse and Utah prairie dogs do not occur in the area proposed for these facilities. The same design features, BMPs, and mitigation measures listed for the Southern Terminal would be implemented to minimize impacts resulting from Design Option 2.

Table 3.8-19 Summary of Design Option 2 Impact Parameters for Special Status Wildlife Species

Design Option 2 Converter/Substation
• Approximately 156 acres of construction and 93 acres of operation impacts to vegetation communities/habitats associated with special status species would occur. • Approximately 6 acres of construction and 3 acres of operation impacts to grassland habitat would occur. • Approximately 80 acres of construction and 47 acres of operation impacts to greasewood flats habitat would occur. • Approximately 1 acre of construction and 1 acre of operation impacts to herbaceous wetlands habitat would occur. • Approximately 69 acres of construction and 41 acres of operation impacts to saltbush shrublands habitat would occur. • Approximately <1 acre of construction and <1 acre of operation impacts to sagebrush shrublands habitat would occur. • Sixteen known nests for special status raptor species and nests for which the species is not known.

Design Option 3 Phased Build Out

Because the implementation of Design Option 3 would utilize the same alternative routes, facilities, and construction techniques as the proposed Project, but be constructed in a phased approach, impacts to special status wildlife from construction and operation of Design Option 3 would be the same as those discussed under the alternative routes (**Table 3.8-20**).

Table 3.8-20 Summary of Design Option 3 Impact Parameters for Special Status Wildlife Species

Design Option 3 Converter/Substation
• Approximately 138 acres construction and 75 acres of operation impacts to vegetation communities/habitats associated with special status species would occur. • Approximately 5 acres of construction and 3 acres of operation impacts to grassland habitat would occur. • Approximately 71 acres of construction and 38 acres of operation impacts to greasewood flats habitat would occur. • Approximately 1 acre of construction and 1acre of operation impacts to herbaceous wetlands habitat would occur. • Approximately 61 acres of construction and 33 acres of operation impacts to saltbush shrublands habitat would occur. • Approximately <1 acre of construction and <1 acre of operation impacts to sagebrush shrublands habitat would occur. • Sixteen known nests for special status raptor species and nests for which the species is not known.

BLM and state sensitive species that may occur at the proposed Southern Terminal located near IPP (Design Option 2) are presented in **Table 3.8-21**. The types of direct and indirect impacts of construction and operation of the Southern Terminal located near IPP (Design Option 2) to the 44 BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife from Terminal Construction and Operation. Estimates of impacts to habitat types utilized by these species as a result of the construction and operation of the Southern Terminal located near IPP (Design Option 2) are presented in **Table 3.5-8**.

Substation located near IPP (Design Option 3)

The Southern Substation located near IPP (Design Option 3) is sited entirely within the Southern Terminal located near IPP (Design Option 2) area. BLM sensitive and state sensitive species that may occur at the Substation located near IPP (Design Option 3) are presented in **Table 3.8-21**. The types of direct and indirect impacts of construction and operation of the Substation located near IPP (Design Option 3) to the 42 BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife from Terminal Construction and Operation. Estimates of impacts to habitat types utilized by these species as a result of the construction and operation of the Substation located near IPP (Design Option 3) are presented in **Table 3.5-8**. Sixteen special status raptor nests are documented within the Substation located near IPP (Design Option 3) siting area.

Table 3.8-21 BLM and State Sensitive Species with Potential to Occur at the Southern Terminal Located near IPP (Design Option 2) and the Substation Located near IPP (Design Option 3)

BLM Sensitive and State-Sensitive Species with Potential to Occur at the Southern Terminal located near IPP (Design Option 2) and the Substation located near IPP (Design Option 3)	Associated Vegetation Communities/Habitat Types[1]
Mammals - Bats	
Big free-tailed bat	Grassland, herbaceous wetland, saltbush shrubland, sagebrush shrubland
Brazilian free-tailed bat	Herbaceous wetland, saltbush shrubland, sagebrush shrubland
California myotis	Greasewood flat, herbaceous wetland, saltbush shrubland, sagebrush shrubland
Fringed myotis	Grassland, greasewood flat, herbaceous wetland, saltbush shrubland, sagebrush shrubland
Long-eared myotis	Greasewood flat, herbaceous wetland, saltbush shrubland, sagebrush shrubland
Pallid bat	Grassland, greasewood flat, saltbush shrubland, sagebrush shrubland
Spotted bat	Grassland, greasewood flat, herbaceous wetland, saltbush shrubland, sagebrush shrubland
Townsend's (Western) big-eared bat	Greasewood flat, herbaceous wetland, saltbush shrubland, sagebrush shrubland
Western red bat	Herbaceous wetland
Yuma myotis	Grassland, greasewood flat, herbaceous wetland, saltbush shrubland, sagebrush shrubland
Mammals - Other	
Dark kangaroo mouse	Grassland, saltbush shrubland, sagebrush shrubland
Kit fox	Grassland, saltbush shrubland, sagebrush shrubland
Birds	
White-faced ibis	Herbaceous wetland
Swainson's hawk	Grassland, saltbush shrubland, sagebrush shrubland
Ferruginous hawk	Grassland, saltbush shrubland, sagebrush shrubland
Golden eagle	Grassland, saltbush shrubland, sagebrush shrubland
Peregrine falcon	Grassland, herbaceous wetland, saltbush shrubland, sagebrush shrubland
Long-billed curlew	Grassland, herbaceous wetland
Burrowing owl	Grassland, saltbush shrubland, sagebrush shrubland
Long-eared owl	Grassland, saltbush shrubland, sagebrush shrubland
Short-eared owl	Grassland, greasewood flat, herbaceous wetland, sagebrush shrubland

Table 3.8-21 BLM and State Sensitive Species with Potential to Occur at the Southern Terminal Located near IPP (Design Option 2) and the Substation Located near IPP (Design Option 3)

BLM Sensitive and State-Sensitive Species with Potential to Occur at the Southern Terminal located near IPP (Design Option 2) and the Substation located near IPP (Design Option 3)	Associated Vegetation Communities/Habitat Types[1]
Loggerhead shrike	Grassland, greasewood flat, saltbush shrubland, sagebrush shrubland
Black tern	Herbaceous wetland
Reptiles	
Long-nosed leopard lizard	Greasewood flat, saltbush shrubland
Smooth greensnake	Grassland, greasewood flat, herbaceous wetland
Utah milk snake	Grassland, greasewood flat, herbaceous wetland, saltbush shrubland
Corn snake	Grassland, greasewood flat, herbaceous wetland
Midget faded rattlesnake	Greasewood, saltbush shrubland
Terrestrial Invertebrates	
Eureka mountainsnail	Grassland, sagebrush shrubland, saltbush shrubland
Great Basin silverspot (Nokomis fritillary) butterfly	Herbaceous wetland
Mono Basin skipper (Railroad Valley skipper) butterfly	Grassland
MacNeill sooty wing skipper (MacNeill saltbush sooty wing butterfly)	Grassland, herbaceous wetland, saltbush shrubland

[1] Habitat types are limited to those present at the Southern Terminal located near IPP (Design Option 2) and the substation located near IPP (Design Option 3). Species could occur in other habitat types.

3.8.6.2 Impacts Common to All Alternative Routes and Associated Components

Potential impacts to special status wildlife species from the alternative transmission line routes can be grouped into two main categories, construction and operation. Construction-related impacts are primarily those associated with habitat loss, conversion, degradation, and fragmentation; and potential wildlife mortalities resulting from vehicle and facility collisions and crushing of nests/burrows. Construction impacts account for all disturbances caused during construction of the proposed Project, including vegetation treatment and removal, increased human activity, and increased noise levels. Operation impacts are defined as those impacts that remain after reclamation of temporary construction use facilities is complete. Operation-related impacts will last at least as long as the Project is in operation and maintenance activities are conducted. Construction-related impacts are typically short-term, whereas operation impacts are typically long-term. Examples of potential operation impacts include habitat disturbance resulting from periodic vegetation management activities; application of herbicides; increased risk of wildland fire; wildlife mortalities that occur as a result of maintenance activities; increased predation of local prey populations by terrestrial predators, perching raptors, and corvids; habitat degradation resulting from increased noise and human activity in and along the Project disturbance areas; and habitat fragmentation.

Construction and operation of transmission lines and associated access roads (e.g., two-tracks, mowed or cleared access ways) would increase the availability of travel corridors for terrestrial mammalian predators (Gelbard and Belknap 2003; SAIC 2001). During operation of the Project, a portion of habitat disturbed during construction would not be reclaimed until after the end of the Project's design life (decommissioning). Timeframes for successful reclamation can vary dependent on multiple factors including soil types and conditions, climate (e.g., drought persistence), noxious weed invasions, and effective monitoring and adaptive management in problem areas. Mitigation measure **VG-1** (**Table C.5-1**) would require TransWest to develop site-specific reclamation strategies and seed mixes in areas of soils determined by the BLM or appropriate land management agency to have soils with low

reclamation potential. Reclaimed areas would be monitored annually by the applicant to ensure successful reclamation is occurring. The length of time for the annual monitoring and the definition of successful reclamation would be determined by the appropriate land management agency. Subsequent actions in areas without successful reclamation would be determined in consultation with the appropriate land management agency.

Impacts to habitat can be further categorized as direct and indirect. Direct impacts to habitat result when habitat is destroyed or converted to a form that is unsuitable for the native species known or with potential to occur there. The primary potential indirect impact to habitat is wildlife avoidance (displacement) of otherwise suitable habitat in and around the Project disturbance areas during construction and operation.

The primary direct impacts associated with operation of transmission lines and associated facilities are wildlife mortalities as a consequence of electrocution or collision with Project components. Electrocution is primarily associated with smaller (i.e., 69-kV or less) transmission lines, due to the size of towers and spacing of the wires (APLIC 2006). For the proposed Project, the 69-kV lines associated with the ground electrode beds are the only components with electrocution potential. Implementaion of proposed mitigation measure **WLF-8** in addition to applicant committed design feature TWE-30 would require these components be constructed and operated consistent with APLIC guidelines for reducing electrocution risk (APLIC 2012).

The potential for collision impacts is influenced by species characteristics and environmental factors. The manner in which birds utilize habitats near transmission lines affects the probability of collisions (APLIC 1994). Collision risk is greater for birds that make regular and repeated flights between nesting, foraging, and roosting areas in proximity to transmission lines (APLIC 2012). Other potential impacts include avoidance of otherwise suitable habitat due to the presence of a transmission line and the increased noise and human presence that are the result of regular maintenance activities.

In addition, raptors commonly perch on transmission structures to hunt. Increased predation on special status species, such as greater sage-grouse, Wyoming pocket gopher, white-tailed prairie dog, and pygmy rabbit, could occur during Project operation.

Research has documented that reproductive success rates and fledging survival of common ravens are enhanced by the presence of anthropogenic structures in habitats otherwise devoid of tall structure or vegetation (Kristan and Boarman 2001; Webb 2001). Raven nests have been documented on several types of anthropogenic structures, including transmission line towers (Webb 2001). Common raven abundance has been documented to increase in response to newly constructed transmission lines (Coates et al 2014; Howe et al 2014). Recent research has documented increased raven abundance along transmission lines constructed of self-supporting tubular structures (Gibson et al. 2013). Increased predation by corvids and other predatory and scavenging species, which tend to accompany human presence, also may increase during construction and operation of the Project.

Construction Impacts

The types of direct and indirect impacts of construction activities to special status wildlife species are generally the same as discussed in Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components.

Operation Impacts

The types of direct and indirect impacts of operation activities to special status wildlife species are generally the same as discussed in Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components.

Indirect Impacts

The types of indirect impacts from construction and operation activities to special status wildlife species are generally the same as discussed in Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components.

3.8.6.3 Region I

Federally listed, candidate, and proposed species potentially occurring in Region I include sage-grouse, black-footed ferret, western yellow-billed cuckoo, and gray wolf. Whooping crane, piping plover, and interior least tern do not have potential to occur in Region I; however, they are considered in this analysis due to the potential for these species to be indirectly affected by construction-related water depletions in the Platte River system. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Numbers of known special status raptor nests within 1 mile of proposed facilities are presented by Project alternative and associated components. Species-specific impact discussions are presented below. Key impact parameters that relate to the impact discussion in Section 3.8.6.2, Impacts to Special Status Species Common to All Alternative Routes and Associated Components and specific differences by Project alternative are discussed below. No national forests are crossed by the Project in Region I.

Greater Sage-grouse (Candidate)

Table 3.8-22 provides a summary of the types of potential impacts to greater sage-grouse resulting from construction and operation of the Project .**Table 3.8-23** presents a summary of Region I alternative route impact parameters for sage-grouse leks. **Table 3.8-24** presents a summary of Region I alternative route impact parameters for sage-grouse habitats. **Table 3.8-25** presents a summary of Region I sage-grouse attendance at leks within 4 miles of the alignment. **Table 3.8-26** presents a summary of Region I sage-grouse lek visibility by alternative route.

The greatest number of occupied leks visible from the alignment (57) would occur under Alternative I-C.

Explanation of Visibility Impact Analysis for Occupied Greater Sage-grouse Leks

The numbers of occupied sage-grouse leks visible from the alignments, as presented in **Table 3.8-26**, were based on line of sight calculations, which accounted for a number of variables. The vertical distance above the alignment by which raptors and corvids may perch on transmission tower structures was based on the assumption that raptors and corvids would perch an average of 150 vertical feet above ground surface on tower structures as well as an assumed raptor height of 2 feet. Thus, visibility of occupied sage-grouse leks was based on line of sight from 152 vertical feet above the alignment. Visibility calculations also were based on topographical variation within 4 miles of the alignment that would affect visibility of sage-grouse leks from potential perches 152 vertical feet above the alignment. For example, a sage-grouse lek in an area with flat terrain might be visible from 1 mile away, whereas a lek in an area with hilly or mountainous terrain may not be visible from 1 mile away due to an obstruction to line of sight. Due to a lack of data on vegetative structure and height within 4 miles of the alignment, vegetative height was not figured into line-of-sight calculations. Occupied leks visible from the alignment would potentially be at greater risk of predation by perching raptors. However, implementation of **SSWS-5** would limit raptor and corvid predation and impacts to sage-grouse visible from the alignment. Thus, impacts associated with these occupied leks are expected to be low magnitude.

Table 3.8-27 identifies potential direct impacts by Project phase to sage-grouse based upon the TransWest Sage-grouse Analysis Framework and the five-factor analysis of potential threats to the species and its habitat contained in the USFWS's 12-month finding on petitions to list the species under the ESA. Evaluation of each potential direct impact upon local sage-grouse populations is based upon current scientific literature, professional agency biologist judgment, and information regarding Project development provided by the applicant.

Table 3.8-22 Summary of the Types of Potential Impact to Greater Sage-grouse by Project Activity

Activity	Potential Stressor	Potential Impact
Geotechnical Investigation		
Soil investigations • Limited vegetation clearing • Temporary access (drive and crush by rubber tired vehicles) • Sample boring • Pedestrian survey	• Moving equipment • Moving vehicles • Minor removal of vegetation • Human presence • Vehicle/equipment noise	• Mortalities due to collisions with moving equipment/vehicles • Destruction of active nests by construction equipment/vehicles • Degradation of habitat quality and function
Construction		
Access road improvement and construction • Vegetation clearing • Road building (grading, cut, and fill) • Temporary access (drive and crush)	• Moving equipment • Moving vehicles • Removal of vegetation (sage-steppe habitat) • Human presence • Vehicle/equipment noise	• Mortalities due to collisions with moving equipment/vehicles • Destruction of active nests by construction equipment/vehicles • Loss of sage-grouse habitat • Degradation of habitat quality and function • Fragmentation/reduction in connectivity among sage-grouse habitats • Interruption of sage-grouse movement among populations (restricting gene-flow) • Decreased nest initiation/success and lower population survival and growth rates resulting from disruption of seasonal movement, brooding, wintering, or breeding (lekking) activities • Increased susceptibility of sage-grouse to disease and predation resulting from physiological stress induced by noise and human presence
Construction site preparation • Work site vegetation clearing and grading • Multi-purpose yards/staging areas vegetation clearing • Equipment mobilization and material staging	• Moving equipment • Moving vehicles • Removal of vegetation (sage-steppe habitat) • Human presence • Vehicle/equipment noise	• Mortalities due to collisions with moving equipment/vehicles • Destruction of active nests by construction equipment/vehicles • Loss of sage-grouse habitat • Degradation of habitat quality and function • Fragmentation of habitat • Interruption of sage-grouse movement among populations (restricting gene-flow) • Alteration of seasonal movements and breeding, brooding, or wintering bird behavior • Increased susceptibility of sage-grouse to disease and predation resulting from physiological stress induced by noise and human presence

Table 3.8-22 Summary of the Types of Potential Impact to Greater Sage-grouse by Project Activity

Activity	Potential Stressor	Potential Impact
Construction of Project facilities • Foundation excavation • Tower assembly and erection • Conductor, shield wire, and fiber optic ground wire stringing • Series compensation station equipment installation • Substation equipment installation	• Moving equipment • Moving vehicles • Human presence • Vehicle/equipment noise	• Mortalities due to collisions with moving equipment/vehicles • Destruction of active nests by construction equipment/vehicles • Loss of sage-grouse habitat • Degradation of habitat quality and function • Fragmentation of habitat • Interruption of sage-grouse movement among populations (restricting gene-flow) • Alteration of seasonal movements and breeding, brooding, or wintering bird behavior • Increased susceptibility of sage-grouse to disease and predation resulting from physiological stress induced by noise and human presence
Cleanup and site reclamation • Equipment, material, and trash removal • Soil re-contouring • Site reclamation (topsoil spreading and seeding)	• Moving equipment • Moving vehicles • Vehicle/equipment noise • Human presence • Application of herbicides	• Mortalities due to collisions with moving equipment/vehicles • Destruction of active nests by construction equipment/vehicles • Interruption of sage-grouse movement among populations (restricting gene-flow) • Decreased nest initiation/success and lower population survival and growth rates from disruption of seasonal movement, brooding, wintering, or breeding (lekking) activities • Increased susceptibility of sage-grouse to disease and predation from physiological stress induced by noise and human presence
Operation		
Routine inspections • Aerial inspections (helicopter) • Ground inspections (vehicle and pedestrian)	• Moving vehicles • Human presence and noise • Vehicle noise	• Mortalities due to collisions with moving equipment/vehicles • Interruption of sage-grouse movement among populations (restricting gene-flow) • Alteration of seasonal movement, breeding, brooding, or wintering bird behavior
Operation of transmission line, substations, and series compensation stations	• Introduction/presence of tall structures on the landscape • introduction/presence of electromagnetic fields	• Mortalities due to collision with transmission lines, fences, guy wires, and conductors • Avoidance of occupied habitat by sage-grouse due to presence of tall structures • Avoidance of occupied habitats by sage-grouse due to electromagnetic fields

Table 3.8-22 Summary of the Types of Potential Impact to Greater Sage-grouse by Project Activity

Activity	Potential Stressor	Potential Impact
Maintenance		
Access road maintenance	Same as access road improvement and construction and cleanup/site reclamation	Same as access road improvement, construction, and cleanup/site reclamation
Transmission line maintenance/equipment replacement	Same as construction of Project facilities and cleanup/site reclamation	Same as construction of Project facilities and cleanup/site reclamation
ROW vegetation maintenance • Herbicide use • Temporary access (drive and crush) • Vegetation removal (mechanical and pedestrian)	Same as access road improvement, construction, and cleanup/site reclamation	Same as access road improvement, construction, and cleanup/site reclamation

Table 3.8-23 Summary of Region I Alternative Route Impact Parameters for Greater Sage-grouse Leks

Parameter	Alternative			
	I-A	I-B	I-C	I-D
Wyoming				
Number of occupied leks within 0.5 mile of alignments in Wyoming	1	1	0	4
Number of occupied leks within 1 mile of alignments in Wyoming	3	3	6	9
Number of occupied leks within 2 miles of alignments in Wyoming	9	8	17	16
Number of occupied leks within 3 miles of alignments in Wyoming	18	17	25	25
Number of occupied leks within 4 miles of alignments in Wyoming	22	23	35	30
Average distance of leks within 4 miles of alignments in Wyoming (miles)	1.86	2.05	1.75	1.77
Number of occupied leks within 11 miles of alignments in Wyoming	97	97	118	112
Colorado				
Number of occupied leks within 0.5 mile of alignments in Colorado	1	1	2	1
Number of occupied leks within 1 mile of alignments in Colorado	5	5	3	5
Number of occupied leks within 2 miles of alignments in Colorado	7	7	9	7
Number of occupied leks within 3 miles of alignments in Colorado	8	8	17	8
Number of occupied leks within 4 miles of alignments in Colorado	11	11	24	11
Average distance of leks within 4 miles of alignment in Colorado (miles)	1.84	1.84	2.33	1.71
Number of occupied leks within 11 miles of alignments in Colorado	41	43	68	46
Region I Total				
Total number of occupied leks within 0.5 mile of alignments in Region I	2	2	2	5
Total number of occupied leks within 1 mile of alignments in Region I	8	8	9	14
Total number of occupied leks within 2 miles of alignments in Region I	16	15	26	23
Total number of occupied leks within 3 miles of alignments in Region I	26	25	42	33
Total number of occupied leks within 4 miles of alignments in Region I	33	34	59	41
Average distance of leks within 4 miles of alignments in in Region I (miles)	1.85	1.97	2.11	1.75
Number of occupied leks within 11 miles of alignments in in Region I	138	140	186	158
Length of transmission line in miles (habitat fragmentation and collision potential)[1]	156	158	186	168

[1] Length refers to length of 600-kV transmission line and serves as a proxy metric for avian collision potential.

Table 3.8-24 Summary of Region I Alternative Route Impact Parameters for Greater Sage-grouse Habitats

Parameter	Alternative I-A			Alternative I-B			Alternative I-C			Alternative I-D		
Habitat Disturbance	**Construction Impact**	**Operation Impact**	**Indirect Impact**	**Construction Impact**	**Operation Impact**	**Indirect Impact**	**Construction Impact**	**Operation Impact**	**Indirect Impact**	**Construction Impact**	**Operation Impact**	**Indirect Impact**
Impacts to Wyoming core population areas (acres)	204	34	19,223	204	34	19,223	240	45	25,765	204	34	19,223
Percentage of existing habitat impacted within the Region I sage-grouse analysis area	0.03	<0.01	2.84	0.03	<0.01	2.84	0.04	0.01	3.80	0.03	<0.01	2.84
Impacts to Colorado Preliminary Priority Habitat (acres)	419	108	42,836	419	108	42,836	921	204	89,900	419	108	42,836
Percentage of existing habitat impacted within the Region I sage-grouse analysis area	0.03	<0.01	3.57	0.03	<0.01	3.57	0.08	0.02	7.48	0.03	<0.01	3.57
Impacts to Colorado General Habitat (acres)	457	114	51,237	457	114	51,237	630	136	57,162	457	114	51,237
Percentage of existing habitat impacted within the Region I sage-grouse analysis area	0.06	0.02	6.80	0.06	0.02	6.80	0.08	0.02	7.59	0.06	0.02	6.80

Table 3.8-25 Summary of Region I Greater Sage-grouse Attendance at Leks within 4 miles of the Alignment

Parameter[1]	Alternative			
	I-A	I-B	I-C	I-D
Wyoming				
Number of active leks	22	23	35	30
Peak male attendance combined 2004 - 2013[2]	419	461	601	657
Minimum male attendance combined 2004 - 2013[3]	8	9	33	56
3-year average lek attendance[1]	6.94	6.85	8.57	7.32
Average attendance across all leks[4]	10.23	10.33	11.62	11.64
Total attendance 2004 - 2013[1]	1616	1736	2544	2561
Number of leks with no attendance 2009 - 2013[5]	7	7	15	6
Survey effort[6] (percent)	92.9	93.3	95.2	91.7
Colorado				
Number of active leks	11	11	24	11
Peak male attendance combined 2004 - 2013[2]	339	339	579	339
Minimum male attendance combined 2004 - 2013[3]	28	28	91	28
3-year average lek attendance[1]	9.60	9.60	12.33	9.60
Average attendance across all leks[4]	14.69	14.69	14.10	14.69
Total attendance 2004 - 2013[1]	1440	1440	2608	1440
Number of leks with no attendance 2009 - 2013[5]	1	1	3	1
Survey effort[6] (percent)	98.0	98.0	88.1	98.0

[1] Lek count numbers are male birds only, most recent data used.
[2] Sum of the 10-year peak annual counts from all leks within 4 miles combined (2004-2013).
[3] Sum of the 10-year minimum count from all leks within 4 miles combined (2004-2013).
[4] Total males observed/Number of surveys.
[5] Although leks are classified as active or occupied, surveys have not observed male attendance over previous 5 years.
[6] Number of surveys/Number of potential surveys (10 years x 28 leks = 280 potential surveys).

Table 3.8-26 Summary of Region I Greater Sage-grouse Lek Visibility by Alternative Route

Parameter	Alternative			
	I-A	I-B	I-C	I-D
Wyoming				
Number of visible occupied leks within 0.5 mile of alignments	–	–	–	4
Number of visible occupied leks within 1 mile of alignments	3	3	7	10
Number of visible occupied leks within 2 miles of alignments	11	11	18	20
Number of visible occupied leks within 3 miles of alignments	18	18	21	26
Number of visible occupied leks within 4 miles of alignments	21	21	25	31
Average distance of visible leks within 4 miles of alignments	1.96	1.96	1.71	1.68
Colorado				
Number of visible occupied leks within 0.5 mile of alignments	–	–	–	–
Number of visible occupied leks within 1 mile of alignments	6	6	6	6
Number of visible occupied leks within 2 miles of alignments	12	12	14	12
Number of visible occupied leks within 3 miles of alignments	13	13	26	13
Number of visible occupied leks within 4 miles of alignments	16	16	32	16

Table 3.8-26 Summary of Region I Greater Sage-grouse Lek Visibility by Alternative Route

Parameter	Alternative			
	I-A	I-B	I-C	I-D
Average distance of visible leks within 4 miles of alignments	1.63	1.63	2.20	1.63
Region I Total				
Total number of visible occupied leks within 0.5 mile of alignments in Region I	–	–	–	4
Total number of visible occupied leks within 1 mile of alignments in Region I	9	9	13	16
Total number of visible occupied leks within 2 miles of alignments in Region I	23	23	32	32
Total number of visible occupied leks within 3 miles of alignments in Region I	31	31	47	39
Total number of visible occupied leks within 4 miles of alignments in Region I	37	37	57	47
Average distance of visible leks within 4 miles of alignments in Region I	1.82	1.82	1.98	1.67
Length of transmission line in miles (habitat fragmentation and collision potential)[1]	156	158	186	168

[1] Length refers to length of 600-kV transmission line and serves as a proxy metric for avian collision potential.

Table 3.8-27 Factors for Evaluation of Potential Impacts to Greater Sage-grouse

Factor	Potential Direct Impact	Project Phase	
		Construction	Operation
Direct Loss of Birds	Mortalities resulting from electrocutions due to collisions with energized components		X
	Mortalities resulting from collisions with Project infrastructure including transmission towers, conductors, lines, guy wires, or fences	X	X
	Mortalities resulting from collisions with construction equipment and vehicles	X	X
	Mortalities resulting from destruction of nests	X	
	Mortalities resulting from nest abandonment due to disturbance	X	X
Present or threatened destruction, modification, or curtailment of habitat or range	Loss of habitat resulting from construction of tower sites, access roads, terminal locations, and other ancillary facilities	X	X
	Fragmentation of sage-grouse habitat due to the construction of new access roads, removal of vegetation at tower sites, increased EMF, or introduction of tall structures	X	X
	Degradation of sage-grouse habitat and function	X	X
	General disturbance to sage-grouse and disruption of breeding activities due to human presence and noise	X	X
	Decreased nest initiation, nest success, and recruitment resulting from disruption of foraging, seasonal migration, breeding (lekking), nesting, brood rearing, and wintering activities	X	X
	Interruption or adjustments to seasonal sage-grouse migrations and movements	X	X
	Reduction of sage-grouse habitat suitability resulting from the introduction and establishment of noxious weeds	X	X

Table 3.8-27 Factors for Evaluation of Potential Impacts to Greater Sage-grouse

Factor	Potential Direct Impact	Project Phase	
		Construction	Operation
Overutilization (harvest)	Increased un-authorized harvest resulting from increased access to sage-grouse habitat via construction of new access roads		X
Disease and predation	Potential for increased avian predation due to increased perching opportunity		X
	Potential for increased mammalian predation pressure resulting from habitat fragmentation and new predator movement corridors		X
Inadequacy of existing regulatory mechanisms	No direct impacts identified		
Other natural or man-made factors affecting the species continued existence	No direct impacts identified		
Direct Loss of Birds	No indirect impacts identified		
Present or threatened destruction, modification, or curtailment of habitat or range	Reduction of sage-grouse habitat suitability resulting from the introduction and establishment of noxious weeds		X
	Avoidance of habitat due to potential increase in avian predation pressure		X
Overutilization (harvest)	Increased un-authorized harvest resulting from increased access to sage-grouse habitat via construction of new access roads		X
Disease and predation	Increased physiological stress and susceptibility to disease and predation resulting from human noise and presence	X	X
Inadequacy of existing regulatory mechanisms	No indirect impacts identified		
Other natural or man-made factors affecting the species continued existence	Degradation of sage-grouse habitat suitability resulting from the application of herbicides	X	X

Direct Impacts and Loss of Greater Sage-grouse

Mortalities Resulting from Electrocutions due to Collisions with Energized Components

Wildlife mortalities as a result of electrocution can occur when the distance between phase conductors or the distance between grounded and energized hardware is less than the wrist to head span or head to foot distance of a bird (APLIC 2006). Under all Project alternatives, there would be no potential for electrocution of sage-grouse due to collisions with energized components of transmission lines because of the small wing span and height of sage-grouse relative to the proposed spacing of conductors and grounded elements. Although smaller capacity (<69-kV) distribution lines associated with the ground electrode bed systems do present some electrocution risk to greater sage-grouse, these components would be constructed and operated consistent with APLIC guidelines for reducing electrocution risk (APLIC 2012). Information regarding the proposed electrode bed locations is located in Section 2.4.3. Information regarding potential impacts to sage-grouse from construction of ground electrode beds is provided in **Table 3.8-34**.

Impacts to sage-grouse from electrocution would be minimized by the implementation of design feature TWE-30 (**Table C.2-1**, **Appendix C**), in which TransWest commits to the construction of the transmission line and associated infrastructure consistent with APLIC 2006 recommendations. Proposed

mitigation measure **WLF-8** (**Table C.5-1**, **Appendix C**) is consistent with commitments made by TranWest in the Project Avian Protection Plan and would further minimize the potential impact of electrocution by requiring Project conformance with conservation measures recommended in APLIC 2012.

Mortalities Resulting from Collisions with Project Infrastructure Including Transmission Towers, Conductors, Lines, Guy Wires, or Fences

Avian mortality from collisions with transmission lines is well documented (Brown and Drewien 1995). While sage-grouse are predominantly a ground-dwelling species, the risk for collision during flight is heavily dependent upon transmission line sizes (e.g., 345-kV versus 600-kV) and locations such as locations between loafing and feeding areas or along migration routes. Highest collision probabilities appear to occur where sage-grouse typically fly between foraging and loafing habitats that are bisected with lower voltage overhead lines (SAIC 2001).

The potential for mortalities of sage-grouse as a result of in-flight collisions with transmission lines and towers would increase under all Project alternatives within occupied sage-grouse habitats. While quantitative information regarding the rates of sage-grouse collisions with transmission towers and lines is generally lacking, factors influencing collision rates can include location, configuration, structure type, species specific behaviors, and environmental conditions (e.g., visibility, weather, topography) (APLIC 2006). Past research has shown that the static wire, also referred to as the shield or groundwire, has posed the greatest collision danger to birds (APLIC 1994; Faanes 1987). Most of the documented static-wire collisions occur when birds increase their altitude in apparent attempts to avoid conductor wires. Birds maneuvering to avoid the conductor wires actually increased collision risk and, in the absence of static wires, most collisions could have been avoided. Static wires on the larger (e.g., 500-kV and 600-kV) transmission lines, such as the proposed Project, are typically positioned at the top of the structures and therefore, pose less of a collision threat to low-flying sage-grouse. Although general scientific understanding of the risk posed to greater sage-grouse by transmission tower guy wires is not well understood, it is anticipated that the greatest collision risks to sage-grouse from the proposed Project are the guy wires associated with each tower. The guy wires support the towers and are typically angled to the anchor point. Therefore, bird species, such as sage-grouse, may have a greater potential for collision risk because of the smaller wing to body ratio (i.e., heavy wing-load), resulting in lower flight heights and a greater occurrence of takeoffs and landings crossing guy wire heights. Because of their lack of flying efficiency, species such as the sage-grouse may be more likely to collide with the guy wires unless the wires are properly marked or even eliminated in high use habitat areas (i.e., using self-supporting steel lattice structures or tubular steel monopoles instead of guyed lattice structures).

Documentation of direct mortality of sage-grouse resulting from collisions with transmission lines is limited. One study in Idaho showed that a substantial proportion of annual mortality can be caused by transmission line collisions. Beck et al. (2006) monitored survival of 15 radio-collared juvenile sage-grouse in the Medicine Lodge area of Clark County, Idaho and 43 juvenile sage-grouse in the Table Butte area of Clark and Jefferson counties, Idaho in 1997 and 1998. Although all mortality documented in the Medicine Lodge area was attributed to predation, 33 percent of the juvenile mortality (two of the six fatalities) in the Table Butte area was attributed to collisions with transmission lines. The frequency of sage-grouse collisions with transmission lines is difficult to evaluate and juvenile mortality in the Table Butte area may have been more of a function of available habitat and the specific location of the transmission line rather than the transmission line design itself (i.e., transmission line was not sited properly to avoid important habitats). In addition, a majority of transmission lines are located in remote areas with little human presence and dead birds are often picked up by scavengers before humans are able to find and report them; therefore, reported losses must be considered a superficial measure of actual collision mortality (Faanes 1987; Longridge 1986; Thompson 1978).

A majority of literature on transmission line impacts has been derived from studies that looked at several different facilities associated with energy development (e.g., oil and gas well pads, access roads,

compressor stations, transmission lines, etc.). Additionally, due to very limited data on collision mortality of sage-grouse from transmission lines, it cannot be determined if collision rates vary by capacity of transmission lines.

Impacts to sage-grouse resulting from electrocution would be avoided or minimized by the implementation of design feature TWE-30 (**Table C.2-1**, **Appendix C**), in which TransWest commits to the construction of the transmission line and associated infrastructure consistent with APLIC 2006 recommendations. Proposed mitigation measure **WLF-8** (**Table C.5-1**, **Appendix C**) would minimize the potential for collision impacts by requiring Project conformance with design features recommended in APLIC 2012. Implementation of proposed site-specific mitigation measures detailed under **SSWS-5** would minimize impacts to sage-grouse from collisions with guy wires by requiring the installation of non-guyed structures or installation of agency-approved bird flight diverters on all guy wires in certain areas of greater sage-grouse habitat identified by the appropriate agencies' authorized officers.

Marking guy wires would increase the visibility of these wires and would reduce the potential for collisions, especially in areas between important roosting and foraging habitat. A study in South Carolina involving two 115-kV transmission lines showed that the bird collision rate was 53 percent lower for marked transmission lines versus unmarked transmission lines (Savereno et al. 1996). The study concluded that aviation markers were effective at increasing the transmission line visibility and reducing bird collisions. Alternatively, constructing alternative self-supporting structures structures instead of guyed lattice structures would eliminate the collision potential from guy wires to sage-grouse.

The feasibility of using alternative transmission tower structure types within areas designated as high quality sage-grouse habitat depends on multiple factors. Engineering constraints that may limit the use of self-supporting structures can include, but are not limited to: extreme topography, unstable or erodible soils, local geology, and local hydrology. Other resource considerations that also may determine the applicability of alternative self-supporting structures can include but are not limited to: local recreation patterns (e.g., designated recreational OHV or snowmobile trails), sensitive vegetation communities, and sensitive visual resources. Determinations of appropriate structure types will be made in coordination with the appropriate land and resource management agencies during development of the Notice to Proceed POD as outlined in Section 2.3.1.

Mortalities Resulting from Collisions with Construction Equipment and Vehicles

Sage-grouse mortality resulting from collisions with construction equipment would likely be very low. Equipment used in transmission line construction generally moves at a slow rate or is stationary for long periods (e.g., cranes). The potential for sage-grouse mortalities resulting from collisions with vehicles traveling on project access roads is higher than the risk associated with construction equipment and increases proportionally with the speed of each individual vehicle. Road conditions also can affect the rate of collisions as vehicle speeds tend to be lower on unimproved and one-lane roads. The risk of direct mortality to sage-grouse from collisions with equipment and vehicles during construction and maintenance is most likely limited to nesting hens or young chicks that have limited mobility.

Impacts to sage-grouse from collisions with construction vehicles and equipment would be minimized by the implementation of design feature TWE-34 (**Table C.2-1**, **Appendix C**), in which TransWest commits to providing training to all Contractor and Subcontractor personnel and others involved in construction activities occurring within occupied sage-grouse habitat. Furthermore, the implementation of mitigation measure **SSWS-5** would require TransWest to restrict construction and maintenance vehicle speeds to 15 mph when traveling on unimproved Project roads within occupied sage-grouse habitat. This would reduce the potential for sage-grouse collisions with vehicles and equipment.

Mortalities Resulting from Destruction of Nests

All Project action alternatives would result in construction and operation of the Project within habitats suitable for sage-grouse nesting. The potential for mortalities of nesting sage-grouse resulting from the destruction of active nests exists due to the amount of habitat crossed by each alternative. This potential is limited by seasonal restrictions of construction and operation activities, which would be applied to sage-grouse habitat within 4 miles of active leks as listed in **Table C.3-1** through **Table C.3-29** (**Appendix C**). Research conducted in Colorado, Idaho, and Wyoming suggests that approximately 80 percent of sage-grouse nests are located within 4 miles of the lek where breeding occurs (Colorado Sage-grouse Steering Committee 2008). Proposed mitigation measures **SSWS-5.1** and **SSWS-5.2** (**Table C.5-1**, **Appendix C**) would further minimize the potential impact of nest destruction by requiring the siting of the transmission line away from breeding and nesting habitats to the extent practicable. If active nests located outside of the 4-mile lek buffer are encountered during construction or maintenance activities, TransWest has committed to implementing design feature TWE-34 (**Appendix C**), which would require immediate coordination with the appropriate land management agency's biologists to ensure adequate protection is afforded to the resource. Currently, state wildlife management agencies do not have a standard recommended buffer for active sage-grouse nests located outside of the 4 mile seasonal restrictions; therefore, any buffers applied would be on a case-by-case basis in coordination with the appropriate state agency biologists. Implementation of proposed mitigation measure **SSWS-5.4** would further reduce potential imapcts to breeding and nesting greater sage-grouse by prohibiting disruptive construction and maintenance activities within 4 miles of active leks during the breeding season. These design features and protection measures are anticipated to minimize direct impacts to nesting sage-grouse.

Mortalities Resulting from Nest Abandonment due to Disturbance

Sage-grouse display one of the lowest nest success rates of all upland game birds and hens have been observed abandoning active nests due to human disturbance and ground disturbing activities within a certain proximity (Schroeder 1997) and the presence of livestock (Crawford 2004). The potential for nest abandonment can be ameliorated by implementation of seasonal restrictions for construction and operation activities applied to sage-grouse habitat within 4 miles of active leks, as listed in **Table C.3-1** through **Table C.3-29** located in **Appendix C**. Proposed mitigation measures **SSWS-5.1** and **SSWS-5.2** (**Table C.5-1**, **Appendix C**) would further minimize the potential for nest destruction by requiring the siting of the transmission line away from breeding and nesting habitats to the extent practicable. If active nests located outside of the 4-mile timing restrictions are encountered during construction or maintenance activities, TransWest has committed to implementing design feature TWE-34 (**Appendix C**), which would require immediate coordination with the appropriate land management agency's biologists to ensure adequate protection is afforded to the resource. Implementation of proposed mitigation measure **SSWS-5.4** would further reduce potential impacts to breeding and nesting greater sage-grouse by prohibiting disruptive construction and maintenance activities within 4 miles of active leks during the breeding season. These design features and protection measures are anticipated to minimize direct impacts to nesting sage-grouse.

Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

Loss of Habitat Resulting from Construction of Tower Sites, Access Roads, Terminal Locations, and Other Ancillary Facilities

Under all Project action alternatives, construction activities may result in permanent habitat loss, fragmentation, and the temporary displacement of sage-grouse from construction areas due the removal of native sagebrush vegetation, noise, and increased human activity. Sage-grouse may avoid previously occupied areas due to noise and disturbance from vehicle traffic (Lyon and Anderson 2003). The disturbance and degradation of sagebrush can reduce habitat carrying capacity for local breeding populations of sage-grouse, especially in areas where high quality sagebrush habitat is limited (Braun

1998; Connelly et al. 2000). Alternatively, sage-grouse may simply avoid otherwise suitable habitat as the density of roads and transmission lines increases (Holloran 2005).

The potential for disturbance of suitable sage-grouse lekking and breeding habitat can be ameliorated by implementing seasonal restrictions of construction and operation activities applied to sage-grouse habitat within 4 miles of active leks as listed in **Table C.3-1** through **Table C.3-29** located in **Appendix C**. Proposed mitigation measures **SSWS-5.1** and **SSWS-5.2** (**Table C.5-1**, **Appendix C**) would further minimize the potential impact of breeding habitat by requiring the siting of the transmission line away from breeding and nesting habitats to the extent practicable. These design features and protection measures are anticipated to minimize direct impacts to nesting sage-grouse.

Fragmentation of Greater Sage-grouse Habitat due to the Construction of New Access Roads, Removal of Vegetation at Tower Sites, Increased EMF, Introduction of Tall Structures

Transmission lines may cause sage-grouse to abandon otherwise suitable habitat or disrupt movement patterns among seasonal habitats (SAIC 2001). Transmission lines might also serve as barriers to movement as a result of avoidance behavior (Desholm and Kahlert 2005; Robel et al. 2004). Production of EMF by transmission lines also has been associated with avoidance of otherwise suitable habitat by avian species (Fernie and Reynolds 2005). Sage-grouse and other prairie gallinaceous birds have evolved in habitat largely devoid of tall structures. It is unclear how these species react to structure heights. Recent research in southern Wyoming has reported sage-grouse avoidance of brood-rearing habitats within 2.9 miles of transmission lines (LeBeau et al. 2012). Knick et al. (2013) observed increased lek activity and persistence in areas of sage-grouse habitat characterized as having lower densities of transmission lines in comparison to sage-grouse habitats with increased densities of transmission lines and infrastructure. Studies completed on greater and lesser prairie-chickens have suggested avoidance behavior associated with the height of transmission lines. This avoidance may create an unintentional buffer along the transmission lines and roads of at least 328 feet in width (and probably more) for prairie-chickens. There also appears to be avoidance in the placement of nests and leks (Pruett et al. 2009a,b). These studies showed that greater and lesser prairie-chickens were not only more likely to avoid transmissions lines but also less likely to nest, cross, or maintain a home range near transmission lines (Pruett et al. 2009a,b). The movement of prairie-chickens was shown to be altered by the transmission lines, creating habitat fragmentation (Pruett et al. 2009a,b). These conclusions are derived from research on greater and lesser prairie chickens, a species that is similar in some aspects of life histories to sage-grouse and therefore may not be representative of potential sage-grouse behavioral responses to the introduction of tall structures.

Degradation of Greater Sage-grouse Habitat and Function

Construction of the Project under all action alternatives would result in the degradation of sage-grouse habitat function. Removal of vegetation at tower locations, new access roads, and other work areas and facilities would result in the loss of and/or degradation to suitable sage-grouse habitat. Areas of vegetation removal would be minimized through the use of existing access road networks and the restoration of areas temporarily disturbed during construction activities in accordance with land management agency or private landowner requirements. The long term loss of suitable sage-grouse habitat would be limited to those areas included in the operation and maintenance of the transmission line. However, as discussed in **Appendix D**, it is anticipated that, upon decommissioning of the Project, reclamation measures would result in the return of impacted areas to native habitats. Herbaceous (grass and forb-dominated) vegetation communities would be expected to return to a native state within a relatively short period of time (e.g., 5 years). Other more diverse and slow-growing habitats such as sagebrush shrublands may require up to 50 years or longer before returning to native conditions.

General Disturbance to Greater Sage-grouse and Disruption of Breeding Activities due to Human Presence and Noise

Construction activities may result in permanent habitat loss, degradation, fragmentation, and the temporary displacement of sage-grouse from construction areas due to noise and increased human activity. The disturbance and degradation of sagebrush habitat can reduce its carrying capacity and adversely affect local breeding populations of sage-grouse, especially in areas where high quality sagebrush habitat is limited (Braun 1998; Connelly et al. 2000). Alternatively, sage-grouse may simply avoid otherwise suitable habitat as the density of roads and transmission lines increases (Holloran 2005). Recent studies have observed impacts of increased noise levels on male greater sage-grouse activity at lekking sites during the breeding season (Blickley et al. 2012). The impacts of increased anthropogenic noise levels on nesting greater sage-grouse have not been determined through direct investigation. Although information on greater sage-grouse communication is lacking in the scientific literature, the species may be particularly vulnerable to masked communications during the breeding season because their low-frequency vocalizations are likely to be masked by most sources of anthropogenic noise (Blickely et al 2012).

This impact would be minimized by the application of species-specific agency conservation measures and timing limitations, as listed in **Appendix C** and proposed mitigation measure **SSWS-5.4**, which require the siting of the transmission line ROW to be coordinated with appropriate wildlife management agencies to avoid areas of sage-grouse nesting and brood-rearing habitat. Implementation of **SSWS-5.4** would further minimize impacts to breeding and nesting sage-grouse by restricting disruptive construction and maintenance activities within 4 miles of occupied/active leks between March 1 and June 30. Although the scientific understanding of noise impacts to greater sage-grouse is currently not well understood or documented, the BLM would update this threshold as new information becomes available. Implementation of **SSWS-15** would protect sage-grouse by requiring the Contractor to immediately notify the appropriate land management agencies and provide the location and nature of the finding. Construction in the vicinity of the bird(s) would be halted and would not resume until a biologist from the appropriate agency determines that the bird(s) would not be affected by continued construction.

Decreased Nest Initiation, Nest Success, and Recruitment Resulting from Disruption of Foraging, Seasonal Migration, Breeding (Lekking), Nesting, Brood Rearing, and Wintering Activities

Sage-grouse may avoid previously occupied areas due to noise and disturbance from vehicle traffic as evidenced by the observed rates of decline in male sage-grouse lek attendance, which have been reported to be correlated to traffic volumes on roads within proximity to active leks (Lyon and Anderson 2003). Depending on the season, displacement could impact lekking, nesting and brood-rearing hens, and birds on winter ranges. Sage-grouse that are displaced by construction activities might move to areas with lower quality habitat, resulting in an overall effect of reduced survival, nest initiation, and breeding success. Fragmentation of sagebrush habitats also may interrupt the gene flow between distinct isolated areas of suitable breeding habitat.

Implementation of **ECO-1**, **ECO-4**, and **TWE-32** would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.) and implement seasonal timing restrictions and protection buffers to avoid or minimize impacts to these areas. Proposed mitigation measures **SSWS-5.1** and **SSWS-5.2**, which require the siting of the transmission line ROW to be coordinated with appropriate wildlife management agencies to avoid areas of sage-grouse nesting and brood-rearing habitat, would minimize the potential for impacts to breeding sage-grouse. Implementation of **SSWS-5.8** would further minimize impacts to breeding and nesting sage-grouse by prohibiting disruptive construction and maintenance activities within 4 miles of active leks during the breeding season.

Interruption or Adjustments to Seasonal Greater Sage-grouse Migrations and Movements

Under all Project action alternatives, the potential for causing interruption of or adjustments to sage-grouse migrations between seasonally important habitats may occur as a result of construction and operation activities within occupied sage-grouse habitats. Depending on the season, displacement and avoidance of areas near the transmission line could impact birds on leks, nesting and brood-rearing hens, and birds on winter ranges. This potential shift in behavior would represent a functional fragmentation of otherwise suitable sage-grouse habitat and may result in reduced breeding activity, nest initiation, brood-rearing success, and recruitment. The effects of fragmentation of sage-grouse habitat could further result in reduced gene flow between populations within the Project vicinity as the majority of gene flow is likely the result of movement of individuals between neighboring leks and populations, not the long distance migrations of individuals across larger portions of the species range (Oyler-McCance et al. 2005). Connectivity amongst leks has been observed to be a significant contributor to population stability and persistence (Knick and Hanser 2011; Knick et al. 2013).

Project design feature TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.) and implement seasonal timing restrictions and protection buffers. Impacts to these areas would be minimized by applying the species-specific agency conservation measures and timing limitations listed in **Appendix C**. Proposed mitigation measures **SSWS-5.1** and **SSWS-5.2** which require the siting of the transmission line ROW to be coordinated with appropriate wildlife management agencies in order to avoid areas of sage-grouse nesting and brood-rearing habitat, minimize potential impacts to breeding sage-grouse. Implementation of **SSWS-5.8** would further minimize impacts to breeding and nesting sage-grouse by prohibiting disruptive construction and maintenance activities within 4 miles of active leks during the breeding season.

Reduction of Greater Sage-grouse Habitat Suitability Resulting from the Introduction and Establishment of Noxious Weeds

Additional impacts from transmission line construction and associated access roads (e.g., two-tracks, mowed or cleared access ways) may include the reduction of sage-grouse habitat quality resulting from the spread of invasive and noxious plant species (Gelbard and Belknap 2003; SAIC 2001). This potential impact can adversely affect sage-grouse recruitment as invasive and noxious plants may out-compete native forbs, which sage-grouse rely on for forage during brood-rearing.

Implementation of proposed mitigation measures **NX-1** and **NX-2** (**Table C.5-1**, **Appendix C**) would minimize impacts to sage-grouse habitat associated with the potential introduction or spread of noxious weeds and invasive plant species. These measures would be implemented in coordination with the development of a Noxious Weed Management Plan as described in Table 9 of **Appendix D**. This plan would be developed in accordance with appropriate land management agencies' standards and would be consistent with agency permitting stipulations for the control of noxious weeds and invasive species (EO 13112). Measures included in the plan could include, but would not be limited to, the washing of construction equipment and vehicles prior to arriving within the construction area and mechanical removal or herbicide treatments of existing weed populations. These measures would substantially reduce the potential for the establishment of new weed invasions and the further spread of existing weed populations within sage-grouse habitat located along the Project. However, the spread of noxious and invasive weeds may continue to occur even with the implementation of the Noxious Weed Management Plan.

Overutilization

Recreational hunting of sage-grouse populations within the analysis area occurs in Wyoming and Colorado. The hunting of four specific sage-grouse populations in Utah is currently legal, although none of these populations would be crossed by any of the Project alternatives. Recreational hunting is

not considered to be a principal cause of range-wide declines in sage-grouse populations and the USFWS did not determine state hunting regulations to be inadequate in the 12-month findings on petitions to list the species under the ESA (75 FR 13910). Both Colorado and Wyoming state wildlife agencies regulate hunting of sage-grouse with the primary goal of establishing hunting seasons and take limits that support the long term growth and sustainability of local populations (Northwest Colorado Greater Sage-grouse Working Group 2008; Christiansen 2010).

Implementation of Project design feature TWE-33 would reduce any potential impacts to sage-grouse from unauthorized harvest by Project construction and maintenance personnel by providing mandatory sensitive species awareness training which includes information regarding applicable hunting regulations and other wildlife conservation measures. Overutilization is not discussed further in this document.

Disease and Predation

Potential for Increased Avian Predation due to Increased Perching Opportunity

The level of perching opportunity for avian predators within the Project analysis area is anticipated to increase under all Project alternatives. Avian predators, particularly raptors and corvids, are attracted to overhead utility lines because they provide perches for various activities, including hunting (APLIC 2006). Studies have suggested increased avoidance of transmission lines and structures by greater sage-grouse as a result of increased abundance of avian predators, increased predator pressure, and nest predation by ravens (Coates et al. 2014; Howe et al. 2014; Lockyer et al. 2013). However, the scientific literature has documented varying relationships between increased predator pressures from transmission lines and increased mortality of sage-grouse (Gibson et al. 2013; Lammers and Collopy 2007; Steenhof et al. 1993, Coates and Delehanty 2010).

Transmission towers increase a raptor's range of vision, allow for greater speed during attacks on prey, and serve as territorial markers (APLIC 2006; Manville 2005; Steenhof et al. 1993). Most research on transmission lines and raptor and corvid populations has documented a positive relationship between transmission lines and increased perches and nest sites. Although a direct correlation between transmission lines and increased predation risks for sage-grouse has not been documented, sage-grouse may avoid transmission lines due to increased predation risk (Lammers and Collopy 2007). It also is important to note that in some regions of the U.S., sage-grouse are an important food item for raptor species (i.e., golden eagles). This is especially true when other prey populations are exhibiting down cycles (e.g., black-tailed jackrabbit, white-tailed prairie dog, etc.). Golden eagles follow sage-grouse during their seasonal migrations and numerous researchers have documented golden eagle predation on sage-grouse (Gibson and Bachman 1992; Schroeder et al. 1999). Altough the majority (80 to 90 percet) of golden eagle predation occurs on mamalian species (Kochert et al. 2002), predation of male birds at leks can be substantial in certain areas especially if other prey populations are currently low. Golden eagles have been obsereved to prey on sage-grouse oppottunistically, and typically hunt sage-grouse by swooping from a high soar (Kochert et al. 2002; Watson 1997). Consequently, power poles may not play an important role in eagle predation of sage-grouse. Golden eagles often fly over and attack birds on leks, disrupting lek behaviors and scattering birds (Hartzler 1974; Jenni and Hartzler 1978). Other documented avian predators of sage-grouse or their nests include black-billed magpie, common raven, ferruginous hawk, red-tailed hawk, rough-legged hawk, Swainson's hawk, gyrfalcon, and northern goshawk (Schroeder et al. 1999). Although the authors caution that results are preliminary and yet to be peer reviewed, recent research conducted for the Sierra Pacific Power Company's Falcon-Gondor transmission line suggests that sage-grouse nests with more total shrub cover had a greater probability of success than nests with less cover, regardless of distance from the transmission line (Blomberg et al. 2010; Nonne et al. 2013). Kolada et al. (2009) reported higher sage-grouse nest success in California as shrub cover increased. Therefore, this research suggests that the risk of increased raptor and corvid predation on sage-grouse may be mitigated by maintaining and restoring sagebrush canopy cover, particularly within important nesting and brood-rearing habitat.

Potential for Increased Predation Pressure Resulting from Habitat Fragmentation and New Predator Movement Corridors

Under all Project action alternatives, construction of transmission lines and associated access roads (e.g., two-tracks, mowed or cleared access ways) would increase the availability of travel corridors for terrestrial mammalian predators (Gelbard and Belknap 2003; SAIC 2001). This development could increase predation rates of individual sage-grouse, nesting hens, and juvenile sage-grouse during brood-rearing periods. This impact would be minimized by the application of proposed mitigation measuress **SSWS-5.1** and **SSWS-5.2**, which require the siting of the transmission line ROW to be coordinated with appropriate wildlife management agencies in order to avoid areas of sage-grouse nesting and brood-rearing habitat.

Inadequacy of Existing Regulatory Mechanisms

Under all Project action alternatives, existing regulatory mechanisms related to sage-grouse conservation and management would not be modified. All proposed Project activities are not anticipated to result in a reduction of adequacy of existing regulatory mechanisms. Furthermore, all Project activities would be consistent with all applicable existing statutory regulations and any future regulations currently under development by the BLM, USFS, and states in response to the USFWS 12-month findings on petitions to list the sage-grouse under the ESA. In the event that the sage-grouse is eventually listed under the ESA, the BLM would comply with its responsibilities as a federal agency by entering into formal Section 7 consultation with the USFWS for the species.

Other Natural or Man-made Factors Affecting the Species' Continued Existence

Secondary roads that are used more often to access construction areas also may result in traffic that can negatively impact sage-grouse through increased noise or vehicular and pedestrian harassment. New secondary access roads (i.e., two-tracks) that are not gated to restrict public access or reclaimed immediately following construction also may provide increased human access to previously inaccessible sage-grouse habitats, allowing for increased pedestrian harassment at lek sites and increased hunting pressure. Ground disturbance associated with secondary road construction and use also increases the potential for noxious weed invasion and vehicles driving these roads may increase the possibility of igniting fires (Leu et al. 2008).The potential impacts of wildland fire to vegetation communities is discussed in Section 3.21.5.

Indirect Impacts

Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

Reduction of Greater Sage-grouse Habitat Suitability Resulting from the Introduction and Establishment of Noxious Weeds

This potential impact is discussed above under Direct Impacts.

Avoidance of Habitat Due to Potential Increase in Avian Predation Pressure

As discussed above, the potential for avian predation could increase under all action alternatives for the Project. Evidence supporting the theory that sage-grouse will avoid areas near transmission lines due to increased avian predation pressure is currently inconclusive. Preliminary results of the Falcon to Gondor study on sage-grouse did not report a connection between sage-grouse demographics (i.e., male survival and movement, female survival, pre-fledging chick survival, and nest survival) and proximity to

the transmission line (Nonne et al. 2013). Although this study supports the idea that the impact of transmission lines upon sage-grouse demographics and breeding behavior may not strongly impacted by the presence of transmission lines, the authors caution that these results are preliminary and that confounding factors of climatic conditions and wildland fire may have affected observed results.

In northern California, transmission lines have had a negative impact on lek attendance and strutting activity has ceased on all leks within one mile of one particular transmission line, while other transmission lines located in sage-grouse habitat also are believed to be impacting populations (Bi-State Local Planning Group [Bi-State Plan] 2004). A study in Washington State found that 19 of 20 leks (95 percent) documented within 5 miles of 500-kV transmission lines are now vacant, while the vacancy rate for leks further than 5 miles is 59 percent (22 of 37 leks; Washington Department of Fish and Wildlife 2008). In Oregon, a 250-kV transmission line was constructed within 0.5 mile of a sage-grouse lek that had an average attendance of 41 males during the period 1949 to 1980. After the transmission line was constructed from 1981 to 1982, an average of only 5 males per lek was counted between 1982 and 2005, with no birds being counted on the lek since 2006 (Oregon Department of Fish and Wildlife 2009). The cause of this decline, or perhaps extirpation, cannot be directly linked to the transmission line but it is likely part of a cumulative effect from development in the area. It also was noted that the Oregon statewide sage-grouse population from 1980 to 1988 (the period when the lek declined) reached relatively high levels.

Based on the lack of specific research on transmission lines and ambiguity associated with results of many of these studies, it is not possible to ascertain the relative magnitude of indirect impacts based on capacity of the transmission line. To the extent that increased predation and harassment caused by raptors and corvids may influence sage-grouse use of adjacent habitats, there is probably little difference based on capacity of transmission lines, as all transmission lines provide opportunities for raptors and corvids to perch. It is likely that shorter towers used on 34.5-kV versus 500-kV lines would have less impact, but this cannot be confirmed based on available literature. It also is not known if smaller capacity lines result in less “behavioral” habitat fragmentation (i.e., fragmentation resulting from sage-grouse being more reluctant to cross 500-kV lines than 345-kV lines.

Implementation of proposed mitigation measure **SSWS-5.3** would help minimize the potential for increased nest predation on greater sage-grouse by limiting corvid abundance within the Project area through the development of a Raven Management Plan (**Table C.5-1**, **Appendix C**). Implementation of proposed site-specific mitigation measures would reduce perching and nesting opportunity for raptors and common ravens within the ROW. While transmission lines fitted with anti-perching devices do not necessarily eliminate perching entirely (Lammers and Collopy 2007) and there is no direct evidence that perch diverters successfully reduce avian predation of sage-grouse, they are designed to discourage use of the transmission line as a hunting perch which may in turn decrease the potential for predation by raptors and corvids on sage-grouse.

Disease and Predation

Increased Physiological Stress and Susceptibility to Disease and Predation Resulting from Human Noise and Presence

Under all Project action alternatives, the potential for an increase in the susceptibility of sage-grouse to disease and predation resulting from the stress induced by human presence and noise during construction and maintenance activities could occur. Research of avian physiological responses to disturbance has observed measured declines in individual body condition resulting from increases of blood corticosteroid levels (Siegel 1980). Reductions of sage-grouse populations studied in southwestern Wyoming have been attributed to influences of natural gas infrastructure on the survival levels of sage-grouse hens (Holloran 2005).

Most research on transmission lines and raptor and corvid populations has documented a positive relationship between transmission lines and increased perches and nest sites. Although a direct

correlation between transmission lines and increased predation risks for sage-grouse has not been documented, sage-grouse may avoid transmission lines due to increased predation risk (Lammers and Collopy 2007). The level of perching opportunity for avian predators within the Project analysis area is anticipated to increase under all Project alternatives. Avian predators, particularly raptors and corvids, are attracted to overhead utility lines because they provide perches for various activities, including hunting (APLIC 2006). Studies have suggested increased avoidance of transmission lines and structures by greater sage-grouse as a result of increased abundance of avian predators, increased predator pressure, and nest predation by ravens (Coates et al. 2014; Howe et al. 2014; Lockyer et al. 2013). However, the scientific literature has documented varying relationships between increased predator pressures from transmission lines and increased mortality of sage-grouse (Gibson et al. 2013; Lammers and Collopy 2007; Steenhof et al. 1993, Coates and Delehanty 2010).

Inadequacy of Existing Regulatory Mechanisms

No indirect impacts are identified.

Other Natural or Man-made Factors Affecting the Species' Continued Existence

Degradation of Greater Sage-grouse Habitat Suitability Resulting from the Application of Herbicides

Ground disturbance would occur under all Project action alternatives resulting in the potential increase for establishment of noxious weeds. Noxious weeds are discussed above under Direct Impacts. The potential application of herbicides to prevent, control, and remove noxious weeds would be coordinated through the development of the Project's Noxious Weed Management Plan (Design Feature TWE-26) as described in **Appendix D**, Table 9. This plan would be developed in accordance with appropriate land management agencies' standards and would be consistent with agency permitting stipulations for the control of noxious weeds and invasive species (EO 13112).

Implementation of proposed mitigation measure **SSWS-5.16** would require that TransWest coordinate the use of all herbicides in sage-grouse habitat under the Noxious Weed Management Plan with all applicable federal and state wildlife management agencies prior to application. This would ensure that no unanticipated impacts to sagebrush understory vegetation communities would occur as a result of construction, operation, and vegetation management actions. In addition, implementation of proposed mitigation measure **VEG-1** would aid in reclamation activities and restoring communities (i.e., sagebrush shrubland) to native ecosystems, especially in areas where reclamation is difficult.

Offsite Compensatory Mitigation

In an effort to comply with BLM IM 2012-043 guidance, the BLM has developed a framework for impact analysis that is focused on the listing factors considered by the USFWS for evaluating future listing and protection of sage-grouse under the ESA. As part of the framework, consideration of compensation for both short-term and long-term direct and indirect loss of sage-grouse and its habitat will be included in the TransWest Sage-grouse Mitigation and Habitat Equivalency Analysis Plan. This framework is included in **Appendix J**. This plan will be completed upon the final assessment of the full range of impacts resulting from the construction, operation, and maintenance of the Project. Furthermore, the framework specifies the use of HEA, conducted by TransWest, as a standardized basis for determining a 1-to-1 ratio for habitat services lost or mitigated. TransWest intends to continue compliance with BLM IM 2012-043 through considering the implementation of both on-site and off-site compensatory mitigation measures developed during the HEA process.

Overview of Habitat Equivalency Analysis

The HEA is a process of quantifying interim and permanent habitat disturbance, measured as a loss of habitat services from pre-disturbance conditions, and scaling compensatory habitat requirements to those disturbances (Dunford et al. 2004; King 1997; Kohler and Dodge 2006; NOAA 2009, 2006). Habitat services are generally quantified using a metric that is representative of the functionality or quality of habitat (i.e., the ability of that habitat to provide wildlife "services" such as nest sites, forage, cover from predators, etc.). When wildlife habitat is the primary service of interest, areas with the highest habitat service levels are those areas with highest habitat quality. Interim (or short-term) habitat disturbances are those services that are absent during certain phases of the Project that would have been available if that disturbance had not occurred (e.g., temporary vegetation losses, temporary soil partitioning, temporary displacement of wildlife populations). Permanent (or long-term) habitat disturbances are those that remain after Project construction and interim reclamation and recovery are complete (e.g., permanent vegetation loss, permanent loss of wildlife or fisheries populations, irrecoverable impacts to soils or water as a result of contamination). The benefits of applying HEA to the Project are that:

- The approach has been thoroughly evaluated and documented in scientific literature and has been tested in multiple court cases.
- It provides a quantitative analysis of direct and indirect impacts.
- It provides a standard framework for developing appropriate mitigation ratios.
- It is applicable to any ecosystem type where appropriate habitat service metrics can be defined.

Upon completion of the HEA, TransWest will work with cooperating agencies and stakeholders to develop mitigation measures that can be used to compensate for the interim and permanent losses of habitat services resulting from project construction, operation, and maintenance. Mitigation measures likely to be considered include, but are not limited to:

1. Fence marking, modification, or removal - Fences would be marked, modified, or removed to reduce or remove threats to sage-grouse. Marking would be prioritized in areas near leks, in winter concentration areas, in known migration corridors, or in areas between known roosting and foraging habitats.
2. Sagebrush restoration or enhancement projects - Sagebrush restoration or enhancement projects might include seeding sagebrush and associated understory vegetation into previously disturbed or burned areas or transplanting already established sagebrush stems and seedlings into areas where sagebrush has been removed or thinned. Appropriate land management agency or landowner coordination would be important to ensure sagebrush enhancement activities support ongoing and future land use objectives.
3. Understory improvement projects - Understory habitat conditions could be improved by over-seeding existing sage-grouse habitats with appropriate forbs, grasses, or other desirable plant species; seeding previously disturbed areas with forbs and grasses to create a suitable mosaic of habitat for various life stages of sage-grouse; removing undesirable non-native understory species; or improving residual cover of existing understory species to increase cover and improve nest success.
4. Conifer removal - In areas where conifers are encroaching into suitable sage-grouse habitat, conifer removal (specifically removal of pinyon pine and juniper) could be used to reduce habitat fragmentation and to restore previously unsuitable habitat.
5. Brood-rearing habitat improvement - During summer months, mesic habitats adjacent to appropriate cover are necessary for brood-rearing and summer use. In areas where these habitats have been removed, altered, or are not available for other reasons, habitat

enhancements focused on restoring or creating mesic habitats could be used to improve brood-rearing conditions.

6. Conservation easements - Where possible, conservation easements could be used to provide long-term contractual protection of high-quality sage-grouse habitat, conservation efforts, and improvement projects. TransWest's ability to acquire conservation easements would be dependent upon the willingness of private landowners to participate in a conservation program. Landowner coordination would be important to ensure that activities support ongoing and future land use objectives.

Alternative I-A (Applicant Proposed)

Alternative I-A habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, federally listed special status wildlife species that may be impacted in Region I include sage-grouse, western yellow-billed cuckoo, black-footed ferret, and gray wolf in addition to 62 BLM sensitive and state sensitive species. Species-specific impact discussions are presented below. The whooping crane, interior least tern, and piping plover do not occur in Region I; however, they are discussed in terms of potential water depletions in the Platte River basin. Section 3.7.6.3 presents a description of existing disturbance along Alternative I-A.

Greater Sage-grouse (Candidate)

Greater sage-grouse may be found along more than 95 percent of the Alternative I-A route in Carbon and Sweetwater counties, Wyoming and Moffat County, Colorado. Moffat County, Colorado contains the largest population of sage-grouse in Colorado (BLM 2013). The WGFD and the CPW have designated "core population areas" within their respective states. These areas contain a majority of the breeding population of sage-grouse in a specific area and are considered vital to maintaining sage-grouse populations. Although the refined transmission corridor under Alternative I-A would cross approximately 14 miles of designated core habitat in Wyoming, the entire length of the transmission line in this area would be located within a utility corridor designated under the Wyoming Governor EO 2011-5 and would be exempt from core are stipulations. In addition, this area of core habitat is considered highly fragmented and degraded by existing oil and gas drilling operations and is disturbed by I-80 located parallel to the transmission line approximately 3 miles to the north. A total of ten active leks are located within 4 miles of the refined transmission corridor within the designated corridor. The remaining 77 miles of Alternative I-A in Wyoming are located in suitable greater sage-grouse habitat designated as non-core habitat and would be located within 4 miles of 12 active leks. Surveys of lek attendance within 4 miles of Alternative I-A indicate that impacts to lekking and nesting greater sage-grouse would likely be reduced in comparison to other Region I alternatives in Wyoming.

In Colorado, the refined transmission corridor under Alternative I-A would cross approximately 27 miles of designated PPH habitat, of which approximately 12 miles (45 percent) would be located within a designated utility corridor. These areas of designated PPH habitat are also designated as PACs by the USFWS. The remaining 62 miles of refined transmission line corridor under Alternative I-A would be located within designated PGH habitat, of which approximately 24 miles (39 percent) would be located within a designated utility corridor. Surveys of lek attendance at the 11 leks within 4 miles of Alternative I-A indicate that impacts to lekking and nesting greater sage-grouse would likely be similar in comparison to Alternatives I-B and I-D, but would be substantially reduced in comparison to potential impacts to greater sage-grouse under Alternative I-C (**Table 3.8-25**).

As presented in **Table 3.8-23**, a total of 33 occupied/active leks occur within 4 miles of Alternative I-A (i.e., 22 occupied leks in Wyoming and 11 active leks in Colorado). Occupied/active leks are those observed to have documented activity in the past 10 years. In addition, Alternative I-A crosses a variety of sage-grouse habitats in Wyoming and Colorado (**Figure 3.8-1**).

Impacts to sage-grouse from the construction and operation of the proposed Project can be grouped into two main categories, direct and indirect. Direct impacts include habitat loss, disturbance from construction activities resulting in temporary displacement of individuals, and mortality when sage-grouse collide with transmission lines or their supporting infrastructure, such as guy wires. Indirect impacts may include avoidance as a result of increased predation from perching raptors and human activity during construction and operation.

Whooping Crane (Endangered), Interior Least Tern (Endangered), Piping Plover (Threatened)

Construction, operation, and decommissioning impacts to the whooping crane, interior least tern, and piping plover under Alternative I-A are anticipated to be the same as discussed in Section 3.8.6.1, Impacts from Terminal Construction and Operation.

The whooping crane, interior least tern, and piping plover utilize habitats in the lower Platte River system in Nebraska. This area is located a considerable distance downstream of any construction or operation disturbance areas in Wyoming, and so these activities would not affect these species. Water depletion also must be evaluated for these species. Compliance with the PRRIP would require that water use in the Platte River Basin be evaluated to determine the potential effects of water depletions on Platte River federally listed species and their critical habitats. If the proposed water-related activity will deplete more than 0.1 acre-feet in the Platte River system and will rely on surface water or hydrologically connected groundwater, an evaluation is required by the Wyoming State Engineer to determine whether the water use is a new or existing activity. If the activity is considered an existing water-related activity, the State Coordinator will determine whether any further action is required to be covered by the PRRIP. If further actions are required, a Wyoming Platte River Recovery Agreement will be executed between the water user and the Wyoming State Engineer.

Approximately 8 acre-feet of water from the Platte River Basin would be used for construction purposes. The source of water would include municipal supplies, commercial sources, or a temporary water use agreement with landowners holding existing water rights. Since specific water sources have not been identified at this time, the USFWS cannot determine if the water sources have been through Section 7 consultation. Therefore, the USFWS assumes that all of the construction water use would be new depletions. This action would represent a consumptive water use from the Platte River Basin of 8 acre-feet during a 3-year time frame when water would be used for construction purposes. This small depletion would represent an adverse effect on the whooping crane, interior least tern, and piping plover. The PRRIP would be used to mitigate for the effects of water depletions on federally listed species in the Platte River.

Western Yellow-billed Cuckoo (Threatened)

Western yellow-billed cuckoos are extremely rare summer residents in western Wyoming and Colorado. The majority of suitable habitat for this species occurs along Alternative I-A, along the Yampa River in Moffat County, Colorado.

Alternative I-A would result in the construction and operation disturbance of 36 acres and 7 acres, respectively, of potentially suitable woody riparian and wetlands, and herbaceous wetland habitat. These areas represent 0.05 percent and 0.01 percent, respectively, of available potential habitat within the Region I western yellow-billed cuckoo analysis area. Indirect impacts would occur to 3,412 acres, which represent 4.91 percent of western yellow-billed cuckoo potential habitat within the Region I western yellow-billed cuckoo analysis area. Habitat loss is the primary threat to the western yellow-billed cuckoo (Corman and Wise-Gervais 2005; Floyd et al. 2007). Western yellow-billed cuckoos appear to require large tracts of contiguous habitat (Sutter et al. 2005) and population declines across the western U.S. are primarily due to the loss of cottonwood riparian habitat. This loss is primarily a result of conversion to agriculture, dams and river flow management, bank protection, overgrazing, and competition from exotic

plants such as tamarisk (Bennett and Keinath 2001). Western yellow-billed cuckoos are further threatened by their low population size, extreme population fluctuations, and patchy distribution (Bennett and Keinath 2001). Therefore, impacts to occupied habitat may have population level impacts if not properly mitigated (e.g., avoiding construction during the breeding season, etc.). Additional indirect impacts, such as individual displacement and avoidance of preferred habitat, also would occur as a result of increased noise and human activity associated with construction during the breeding season (March 15 to October 15). Improved access as a result of Project roads may further fragment suitable habitat and result in increased disturbance to the western yellow-billed cuckoo. Operation of Alternative I-A would incrementally increase the collision potential for western yellow-billed cuckoos as they move to and from nesting and foraging areas. Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components, presents details regarding collision impacts to migratory birds.

Impacts to the western yellow-billed cuckoo and its habitat along Alternative I-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **WLF-10 SSWS-6**, and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, potential mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

<u>Black-footed Ferret (Endangered, EXP/NE)</u>

As discussed in Section 3.8.4.1, Federally Listed and Candidate Species, the black-footed ferret is directly associated with prairie dog colonies and requires active prairie dog colonies of suitable size and density to maintain viable population levels. Portions of Alternative I-A are located within a USFWS designated “non-essential experimental population area” (USFWS 1998). This NEP encompasses portions of Sweetwater County, Wyoming, all of Moffat County, Colorado and Uintah County, Utah. A NEP designation allows the USFWS considerable flexibility in managing reintroduced populations of endangered species. The ESA allows for treating a NEP as a “proposed species” under the Act (USFWS 1998). However, according to the ESA Consultation Handbook (USFWS and NMFS 1998), “*a “non-essential experimental population” is not essential to the continued existence of the species*.” Areas designated as NEP areas do not require black-footed ferret surveys although the USFWS encourages project applicants to protect all white-tailed prairie dog towns for their value to the prairie ecosystem and the myriad of species that rely on them.

Between 2001 and 2006, 217 black-footed ferrets were released within the Wolf Creek Management Area (WCMA) along Alternative I-A in Moffat and Rio Blanco counties, Colorado (Holmes 2008). This area encompasses approximately 52,000 acres at the lower reach of the Wolf Creek watershed and was chosen as a reintroduction site due to its sizeable white-tailed prairie dog population. In 2006, approximately 19,000 acres of active white-tailed prairie dog colonies were distributed throughout the WCMA. Survival rates of introduced black-footed ferrets within the WCMA have been observed to be lower than other reintroduction sites (Holmes 2008) and in 2008, a plague outbreak was detected. Results of spotlight surveys in 2010 were limited to the detection of one male black-footed ferret and no documented successful reproductive pairs within the WCMA. As a result of limited survival success and the occurrence of the 2008 plague outbreak, it generally is agreed that black-footed ferrets no longer inhabit the WCMA (CPW 2011).

The following analysis focused primarily on white-tailed prairie dog colonies and complexes that occur under Alternative I-A in areas that may require surveys for black-footed ferrets (i.e., areas outside the NEP area; **Figure 3.8-2**).

If black-footed ferrets are present within the Region I black-footed ferret analysis area, both direct and indirect impacts may occur as a result of surface-disturbing activities associated with construction of the proposed Project. Direct impacts to black-footed ferrets as a result of surface disturbance to white-tailed prairie dog colonies (**Table 3.8-29**) would include habitat loss, habitat fragmentation, animal displacement, and direct mortality associated with crushing of prairie dog burrows and vehicle collisions. Habitat fragmentation limits the dispersal of individual prairie dogs and increases the density of individuals within each smaller colony (Johnson and Collinge 2004). Higher densities within colonies may lead to increased incidence of sylvatic plague or canine distemper in black-footed ferret populations. Disease outbreaks may lead to the direct loss of individuals or entire populations. Indirect impacts would include increased noise and human activity associated with both construction and maintenance during operation. Increased human activity during construction and operation, as well as increased public access, may increase the prevalence of domestic dogs in construction areas. The presence of domestic dogs and raccoons could expose ferrets in the Region I black-footed ferret analysis area to diseases that could exterminate an entire population.

In contrast to the impacts mentioned above, certain surface-disturbing activities (e.g., blading/grading vegetation for pads, roads, ancillary facilities) may actually improve white-tailed prairie dog potential habitat and therefore possibly benefit black-footed ferrets. Decreasing vegetation cover creates open areas suitable for white-tailed prairie dog colonization, while subsequent re-vegetation increases forage for white-tailed prairie dogs. As prairie dogs increase the colony size, black-footed ferret potential habitat is increased. Potential direct impacts to black-footed ferrets, if present, would include the construction and operation disturbance of approximately 176 acres and 39 acres, respectively, of potentially suitable habitat. These areas represent 0.15 percent and 0.03 percent, respectively, of potentially suitable habitat within the Region I black-footed ferret analysis area. Indirect impacts would occur to 19,593 acres, which represent 16.50 percent of black-footed ferret potential habitat within the Region I black-footed ferret analysis area.

Impacts to black-footed ferrets, if present, from operation of Alternative I-A would include disturbance from increased noise and human activity associated with maintenance during operation. Further impacts to black-footed ferrets may include a reduction of prey populations resulting from increased perching opportunity for raptors and corvids. Increased human activity during operation may increase the prevalence of domestic dogs and raccoons in work areas. The presence of domestic dogs and raccoons could expose ferrets in the Region I black-footed ferret analysis area to canine distemper and sylvatic plague. Disease outbreaks may lead to the direct loss of individuals or entire populations.

Based on the USFWS Black-footed Ferret 1989 Survey Guidelines, habitat evaluation for black-footed ferrets would include all white-tailed prairie dog colonies or complexes that have a burrow density of eight burrows per acre or greater (USFWS 1989). In addition, pre-construction clearance surveys for black-footed ferrets may be required within white-tailed prairie dog colonies or complexes exceeding 200 acres in size that are located within 0.5 mile of Alternative I-A. If black-footed ferret surveys are required, consultation with the USFWS would be initiated prior to surveys being conducted. These surveys would take place no more than 1 year prior to construction activities. If black-footed ferrets are identified, no disturbance would occur within the white-tailed prairie dog complex and all Project-related activities in such colonies or complexes would be suspended immediately. The USFWS would be notified within 24 hours if a black-footed ferret or its sign was observed. If black-footed ferrets were detected, additional consultation with the USFWS would be required and the Project would be modified to avoid impacts to the species.

Impacts to the black-footed ferret along Alternative I-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, potential mortality from collisions, and disturbance during routine maintenance activities.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

The gray wolf is a habitat generalist and the species is rare throughout its range in the Rocky Mountain region. Occurences of the gray wolf within the analysis area would likely be limited to lone dispersing individuals as no evidence has been reported of persistent reproducing packs outside of the primary range of recovered populations. Habitat requirements primarily are related to the density of prey species in the area. The gray wolf potentially could utilize any habitat type present in Region I, except for heavily managed agricultural lands. If gray wolves are present within the Region I special status wildlife analysis area, both direct and indirect impacts may occur as a result of construction of the proposed Project. Although the poitetnial for wolves to occur near the Project is considered low, wolves that might be dispersing through the area during construction or maintenance activities could be impacted. However, such animals would likely avoid noise and human presence. Direct impacts to gray wolves would include loss of foraging or denning habitat, habitat fragmentation, animal displacement (both wolf and prey species), and direct mortality from vehicle collisions.

Alternative I-A would result in the construction and operation disturbance of 1,337 acres and 301 acres, respectively, of potential gray wolf foraging and denning habitat and the incremental increase of habitat fragmentation associated with vegetation removal. Gray wolf foraging and denning habitat is considered to include aspen forest and woodland, conifer forest, deciduous forest, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, tundra, and woody riparian and wetlands. These areas represent 0.04 percent and 0.01 percent, respectively, of potential habitat within the Region I gray wolf analysis area. Impacts would be more pronounced within occupied habitat. Habitat fragmentation disrupts the movements of large mammal prey species and foraging gray wolves.

Indirect impacts would include increased noise and human activity associated with both construction and maintenance activities during operation. Indirect impacts would occur to 140,764 acres, which represent 3.76 percent of gray wolf potential habitat within the Region I gray wolf analysis area. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations. Impacts to the gray wolf under Alternative I-A would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative I-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, potential mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

Table 3.8-28 provides a summary of habitat impacts to federally listed, candidate, and proposed species in Region I. Impact acreages for federally listed, candidate, and proposed species were derived utilizing the parameters presented in **Table 3.8-29**.

Table 3.8-28 Vegetation Categories/Habitat Types Associated with Federally Listed, Candidate, and Proposed Species

Species	Vegetation Category/Habitat Type	Region
Black-footed ferret	White-tailed prairie dog colonies	Regions I and II
Gray wolf	Aspen forest and woodland, conifer forest, deciduous forest, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, tundra, and woody riparian and wetlands	Regions I and II
Utah prairie dog	Utah prairie dog colonies in low and high intensity survey areas (based on 2013 and 2014 surveys)	Regions II and III
Canada lynx	Aspen forest and woodland, conifer forest, tundra, and woody riparian and wetlands	Region II
Greater sage-grouse	Colorado = PPH and PGH, Utah = nesting/brood-rearing, wintering habitat, and occupied habitat, Wyoming = Core Areas	Regions I, II, and III
Southwestern willow flycatcher	Woody riparian and wetlands	Regions III and IV
Western yellow-billed cuckoo	Herbaceous wetland, woody riparian and wetlands	Regions I, II, III, and IV
California condor	Cliff and canyon, conifer forest, pinyon-juniper	Region III
Yuma clapper rail	Herbaceous wetlands within the special status wildlife analysis area	Regions III and IV
Mexican spotted owl	Modeled Mexican spotted owl habitat in the Vernal FO	Regions II and III
Desert tortoise	USFWS critical habitat, potential habitat, and USGS habitat model 0.5 and higher	Regions III and IV

BLM Sensitive and State Sensitive Species

BLM sensitive and state sensitive species that may occur in Region I are presented in **Table 3.8-30**. The types of direct and indirect impacts from construction and operation of Alternative I-A to BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative I-A (e.g., sagebrush shrubland, grassland, and saltbush shrubland) are more likely to be impacted. Impacts to habitat types are presented in **Tables 3.5-9** through **3.5-11**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM and applicable state wildlife agencies.

Table 3.8-29 Summary of Region I Alternative Route Impact Parameters for Federally Listed and Candidate Species

Species	Alternative I-A			Alternative I-B			Alternative I-C			Alternative I-D		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Black-footed ferret potential habitat (acres)	176	39	19,593	182	40	19,930	114	23	11,880	197	42	19,123
Percentage of existing habitat within the Region I black-footed ferret analysis area	0.15	0.03	16.50	0.15	0.03	16.79	0.10	0.02	10.01	0.17	0.04	16.11
Greater sage-grouse potential habitat (acres)[1]	1,182	261	122,717	1,218	269	124,553	1,628	354	165,442	1,376	296	143,399
Percentage of existing habitat within the Region I analysis area	0.04	0.01	4.28	0.04	0.01	4.35	0.06	0.01	5.78	0.05	0.01	5.01
Western yellow-billed cuckoo potential habitat (acres)	36	7	3,412	37	7	3,475	30	7	4,722	44	8	4,331
Percentage of existing habitat within the Region I western yellow-billed cuckoo analysis area	0.05	0.01	4.91	0.05	0.01	5.00	0.04	0.01	6.79	0.06	0.01	6.23
Gray wolf potential habitat (acres)	1,337	301	140,764	1,376	310	143,495	1,856	409	193,773	1,532	336	162,397
Percentage of existing habitat within the Region I gray wolf analysis area.	0.04	0.01	3.76	0.04	0.01	3.83	0.05	0.01	5.17	0.04	0.01	4.33

[1] Impacts to sage-grouse potential habitat are based on acres of impact to the sagebrush shrubland vegetation community. Acres of impact to Wyoming core population areas, Colorado Preliminary Priority Habitat, and Colorado General Habitat are presented in **Table 3.8-24**.

Table 3.8-30 BLM Sensitive and State Sensitive Species Potentially Occurring in Region I

Region I BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Mammals - Bats	
California myotis	Conifer forest, deciduous forest, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Long-eared myotis	Agricultural land, cliff and canyon, conifer forest, deciduous forest, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Pallid bat	Agricultural land, barren/sparsely vegetated, conifer forest, deciduous forest, grassland, greasewood flat, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Spotted bat	Agricultural land, barren/sparsely vegetated, cliff and canyon, conifer forest, deciduous forest, grassland, greasewood flat, herbaceous wetland, montane grassland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Townsend's (Western) big-eared bat	Conifer forest, deciduous forest, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Western red bat	Agricultural land, deciduous forest, herbaceous wetland, open water, woody riparian and wetlands
Yuma myotis	Agricultural land, barren/sparsely vegetated, cliff and canyon, deciduous forest, grassland, greasewood flat, herbaceous wetland, montane shrubland, open water, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Fringed myotis	Agricultural land, grassland, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Mammals - Other	
Fisher	Conifer forest, deciduous forest
Idaho pocket gopher	Grassland, montane grassland, montane shrubland, sagebrush shrubland
Pygmy rabbit	Sagebrush shrubland
River otter	Open water, woody riparian and wetlands
Rocky Mountain bighorn sheep	Cliff and canyon, conifer forest, montane grassland, montane shrubland
Swift fox	Agricultural land, barren/sparsely vegetated, grassland, sagebrush shrubland
White-tailed prairie dog	Barren/sparsely vegetated, grassland, greasewood flat, montane grassland, montane shrubland, sagebrush shrubland, saltbush shrubland
Wyoming pocket gopher	Barren/sparsely vegetated, greasewood flat, saltbush shrubland
Birds	
American white pelican	Open water
White-faced ibis	Agricultural land, herbaceous wetland, open water
Trumpeter swan	Herbaceous wetland, open water
Barrow's goldeneye	Herbaceous wetland, open water, woody riparian and wetlands
Bald eagle	Open water, woody riparian and wetlands
Northern goshawk	Conifer forest, deciduous forest
Swainson's hawk	Agricultural land, barren/sparsely vegetated, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland
Ferruginous hawk	Cliff and canyon, grassland, montane grassland, montane shrubland, sagebrush shrubland, saltbush shrubland

Table 3.8-30 BLM Sensitive and State Sensitive Species Potentially Occurring in Region I

Region I BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Golden eagle	Agricultural land, cliff and canyon, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland
Peregrine falcon	Cliff and canyon, conifer forest, deciduous forest, grassland, herbaceous wetland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Columbian sharp-tailed grouse	Grassland, greasewood flat, herbaceous wetland, montane grassland, montane shrubland, sagebrush shrubland, woody riparian and wetlands
Mountain plover	Agricultural land, barren/sparsely vegetated, grassland, montane grassland
Long-billed curlew	Agricultural land, grassland, herbaceous wetland, open water, woody riparian and wetlands
Black tern	Open water, herbaceous wetland
Flammulated owl	Conifer forest
Burrowing owl	Agricultural land, barren/sparsely vegetated, grassland, montane grassland, montane shrubland, sagebrush shrubland, saltbush shrubland
Long-eared owl	Agricultural land, conifer forest, deciduous forest, grassland, montane grassland, pinyon-juniper, saltbush shrubland, woody riparian and wetlands
Short-eared owl	Agricultural land, grassland, greasewood flat, herbaceous wetland, montane grassland, sagebrush shrubland
Boreal owl	Conifer forest
Black swift	Cliff and canyon, herbaceous wetland, open water, woody riparian and wetlands
Lewis's woodpecker	Conifer forest, deciduous forest, pinyon-juniper, woody riparian and wetlands
Red-naped sapsucker	Conifer forest, deciduous forest, woody riparian and wetlands
American three-toed woodpecker	Conifer forest
Loggerhead shrike	Agricultural land, grassland, greasewood flat, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland
Sage thrasher	Sagebrush shrubland
Brewer's sparrow	Sagebrush shrubland
Sage sparrow[2]	Sagebrush shrubland
Grasshopper sparrow	Agricultural land, grassland, montane grassland, sagebrush shrubland
Bobolink	Agricultural land, grassland, herbaceous wetland
Reptiles	
Corn snake	Agricultural land, grassland, greasewood flat, herbaceous wetland, woody riparian and wetlands
Midget faded rattlesnake	Cliff and canyon, conifer forest, greasewood flat, pinyon-juniper, montane shrubland, sagebrush shrubland, saltbush shrubland
Smooth greensnake	Agricultural land, conifer forest, deciduous forest, grassland, greasewood flat, herbaceous wetland, montane grassland, woody riparian and wetlands
Terrestrial Invertebrates	
Great Basin silverspot (Nokomis fritillary) butterfly	Agricultural land, herbaceous wetland, woody riparian and wetlands

[1] Habitat types are limited to those present in Region I. Species could occur in other habitat types.

[2] The sage sparrow species (*Amphispiza belli*) has recently been has been split into sagebrush sparrow (*Artemisiospiza nevadensis*) and Bell's sparrow (*Artemisiospiza belli*). The sagebrush sparrow is the species that could occur in the special status wildlife analysis area in all four regions.

Table 3.8-31 provides a summary of special status raptor nests within 1 mile of potential disturbance areas in Region I.

Table 3.8-31 Special Status Raptor Nests Within 1 Mile of Potential Disturbance Areas in Region I[1]

Species	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D	Tuttle Ranch Micro-siting Option 3	Tuttle Ranch Micro-siting Option 3 Comparable Portion of Alternative I-D	Tuttle Ranch Micro-siting Option 4	Tuttle Ranch Micro-siting Option 4 Comparable Portion of Alternative I-D
Bald eagle	–	–	5	–	–	–	–	–
Ferruginous hawk	141	141	187	138	–	–	–	–
Golden eagle	34	33	76	40	–	–	–	–
Swainson's hawk	1	1	5	1	–	–	–	–
Northern goshawk	1	1	–	1	–	–	–	–
Burrowing owl	5	5	3	6	–	–	–	–
Unknown raptor species	66	80	118	83	–	–	–	–
Totals	247	261	384	269	–	–	–	–

[1] Nests of raptor species, which are not classified as special status, are tabulated in Section 3.7, Wildlife. Nests of unknown raptor species are tabulated in both Sections 3.7 and 3.8 because nests may have been utilized by either special status raptors or non-special status raptors.

Impacts to BLM and state sensitive species and their habitats along Alternative I-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-26, TWE-27, TWE-28, TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-1**, **SSWS-2**, **SSWS-3**, **SSWS-13**, **SSWS-14**, **SSWS-15**, **WLF-1**, **WLF-2**, **WLF-3**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative I-A, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative I-B (Agency Preferred)

Alternative I-B habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, federally listed special status wildlife species that may be impacted in Region I include sage-grouse, western yellow-billed cuckoo, black-footed ferret, and gray wolf in addition to 62 BLM sensitive and state sensitive species. Species-specific impact discussions are presented below. The whooping crane, interior least tern, and piping plover do not occur in Region I; however, they are discussed in terms of potential water depletions in the Platte River basin. Section 3.7.6.3 presents a description of existing disturbance along Alternative I-B.

Greater Sage-grouse (Candidate)

As presented in **Table 3.8-23**, a total of 34 occupied/active leks occur within 4 miles of Alternative I-B (i.e., 23 occupied leks in Wyoming and 11 active leks in Colorado). In addition, Alternative I-B crosses a variety of sage-grouse habitats in Wyoming and Colorado (**Figure 3.8-1**).

The types of impacts to sage-grouse under Alternative I-B generally would be the same as described for Alternative I-A, but would differ in the amount of habitat disturbed. The intensity of impacts to sage-grouse would differ in the number of leks crossed and the amount of habitat disturbed (**Table 3.8-23**). Analysis of lek attendance and productivity across alternatives is provided in **Table 3.8-25**. A summary of Wyoming and Colorado lek attendance data shows only minor differences in the average male sage-grouse lek attendance between Alternative I-A and I-B.

Although the refined transmission corridor under Alternative I-B would cross approximately 14 miles of designated core habitat in Wyoming, the entire length of the transmission line in this area would be located within a utility corridor designated under the Wyoming Governor EO 2011-5 and would be exempt from core area stipulations. In addition, this area of core habitat is considered highly fragmented and degraded by existing oil and gas drilling operations and is disturbed by I-80 located parallel to the transmission line approximately 3 miles to the north. A total of ten active leks are located within 4 miles of the refined transmission corridor within the designated corridor. The remaining 79 miles of Alternative I-B in Wyoming are located in suitable greater sage-grouse habitat designated as non-core habitat and would be located within 4 miles of 13 active leks. Surveys of lek attendance within 4 miles of Alternative I-B indicate that impacts to lekking and nesting greater sage-grouse would likely be similar to those under Alternative I-A and reduced in comparison to Alternatives I-C and I-D in Wyoming.

In Colorado, the refined transmission corridor and potential impacts to greater sage-grouse under Alternative I-B would be the same as those discussed under Alternative I-A.

Implementation of WWEC BMPs and design feature TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat. Nonetheless, given the amount of sage-grouse potential habitat crossed by the proposed Project under Alternative I-B (**Table 3.8-24**), operation would result in potential mortality of individuals and avoidance of sagebrush habitats along the alternative by local sage-grouse populations.

Whooping Crane (Endangered), Interior Least Tern (Endangered), Piping Plover (Threatened)

The types of impacts to the whooping crane, interior least tern, and piping plover under Alternative I-B would be the same as described for Alternative I-A.

The whooping crane, interior least tern, and piping plover utilize habitats in the lower Platte River system in Nebraska. This area is located a considerable distance downstream of any construction or operation disturbance areas in Wyoming, and so these activities would not affect these species. Water depletion also must be evaluated for these species.

Compliance with the PRRIP would require that water use in the Platte River Basin be evaluated to determine the potential effects of water depletions on Platte River federally listed species and their critical habitats. If the proposed water-related activity will deplete more than 0.1 acre-feet in the Platte River system and will rely on surface water or hydrologically connected groundwater, an evaluation is required by the Wyoming State Engineer to determine whether the water use is a new or existing activity. If the activity is considered an existing water-related activity, the State Coordinator will determine whether any further action is required to be covered by the PRRIP. If further actions are required, a Wyoming Platte River Recovery Agreement will be executed between the water user and the Wyoming State Engineer.

Approximately 8 acre-feet of water from the Platte River Basin would be used for construction purposes. The source of water would include municipal supplies, commercial sources, or a temporary water use agreement with landowners holding existing water rights. Since specific water sources have not been identified at this time, the USFWS cannot determine if the water sources have been through Section 7 consultation. Therefore, the USFWS assumes that all of the construction water use would be new depletions. This action would represent a consumptive water use from the Platte River Basin of 8 acre-feet during a 3-year time frame when water would be used for construction purposes. This small depletion would represent an adverse effect on the whooping crane, interior least tern, and piping plover. The PRRIP would be used to mitigate for the effects of water depletions on federally listed species in the Platte River.

Western Yellow-billed Cuckoo (Threatened)

The types of impacts to the western yellow-billed cuckoo under Alternative I-B generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-29**). Alternative I-B would result in the construction and operation disturbance of 37 acres and 7 acres, respectively, of potentially suitable woody riparian and wetlands, and herbaceous wetlands habitat. These areas represent 0.05 percent and 0.01 percent, respectively, of the available suitable habitat within the Region I western yellow-billed cuckoo analysis area. Indirect impacts would occur to 3,475 acres, which represent 5 percent of western yellow-billed cuckoo potential habitat within the Region I western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative I-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6**, and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative I-B would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, potential mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact to this species, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The types of impacts to black-footed ferrets under Alternative I-B generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-29**). Alternative I-B would result in the construction and operation disturbance of 182 acres and 40 acres, respectively, of white-tailed prairie dog colonies. These areas represent 0.15 percent and 0.03 percent,

respectively, of the available white-tailed prairie dog colonies within the Region I black-footed ferret analysis area. Indirect impacts would occur to 19,930 acres, which represent 16.79 percent of black-footed ferret potential habitat within the Region I black-footed ferret analysis area.

Between 2001 and 2006, 217 black-footed ferrets were released within the WCMA along Alternative I-B in Moffat and Rio Blanco counties, Colorado (Holmes 2008). This area encompasses approximately 52,000 acres at the lower reach of the Wolf Creek watershed and was chosen as a reintroduction site due to its sizeable white-tailed prairie dog population. In 2006, approximately 19,000 acres of active white-tailed prairie dog colonies were distributed throughout the WCMA. Survival rates of introduced black-footed ferrets within the WCMA have been observed to be lower than other reintroduction sites (Holmes 2008) and in 2008, a plague outbreak was detected. Results of spotlight surveys in 2010 were limited to the detection of one male black-footed ferret and no documented successful reproductive pairs within the WCMA. As a result of limited survival success and the occurrence of the 2008 plague outbreak, it generally is agreed that black-footed ferrets no longer inhabit the WCMA (BLM 2012).

Preconstruction clearance surveys for black-footed ferrets may be required within white-tailed prairie dog colonies or complexes exceeding 200 acres in size that are located within 0.5 mile of Alternative I-B. While habitat modifications may still occur, these surveys would be conducted to minimize direct impacts to black-footed ferrets.

Impacts to the black-footed ferret along Alternative I-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

<u>Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)</u>

The types of impacts to the gray wolf under Alternative I-B generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-29**). Alternative I-B would result in the construction and operation disturbance of 1,376 acres and 310 acres, respectively, of potential gray wolf foraging and denning habitat. Gray wolf foraging and denning habitat is considered to include aspen forest and woodland, conifer forest, deciduous forest, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, tundra, and woody riparian and wetlands. These areas represent 0.04 percent and 0.01 percent, respectively, of potential habitat within the Region I gray wolf analysis area. Indirect impacts would occur to 143,495 acres, which represent 3.83 percent of gray wolf potential habitat within the Region I gray wolf analysis area. Impacts to the gray wolf under Alternative I-B would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative I-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from

collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

BLM Sensitive and State Sensitive Species

BLM sensitive and state sensitive species that may occur along Alternative I-B in Region I are presented in **Table 3.8-30**. The types of impacts under Alternative I-B to BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative I-B (e.g., sagebrush shrubland, grassland, and saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-9** through **3.5-11.** Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM and state sensitive wildlife species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative I-B, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative I-C

Alternative I-C habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, federally listed special status wildlife species that may be impacted in Region I include sage-grouse, western yellow-billed cuckoo, black-footed ferret, and gray wolf. The types of impacts under Alternative I-C to the federally listed species and 62 BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative I-C (e.g., sagebrush shrubland, grassland, and saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-9** through **3.5-11**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies. The whooping crane, interior least tern, and piping plover do not occur in Region I; however, they are discussed in terms of potential water depletions in the Platte River basin. Section 3.7.6.3 presents a description of existing disturbance along Alternative I-C.

Greater Sage-grouse (Candidate)

As presented in **Table 3.8-23**, a total of 59 occupied/active leks occur within 4 miles of Alternative I-C (i.e., 35 occupied leks in Wyoming and 24 active leks in Colorado). In addition, Alternative I-C crosses a variety of sage-grouse habitats in Wyoming and Colorado (**Figure 3.8-1**).

Although the refined transmission corridor under Alternative I-C would cross approximately 19 miles of designated core habitat in Wyoming, approximately 16 miles of the transmission line in this area would be located within a utility corridor designated under the Wyoming Governor EO 2011-5 and would be exempt from core area stipulations. In addition, this area of core habitat is considered highly fragmented and degraded by existing oil and gas drilling operations and is disturbed by I-80 located parallel to the transmission line approximately 3 miles to the north. A total of ten active leks are located within 4 miles of the refined transmission corridor within the designated corridor. The remaining 63 miles of Alternative I-C in Wyoming are located in suitable greater sage-grouse habitat designated as non-core habitat and would be located within 4 miles of 25 active leks. Surveys of lek attendance within 4 miles of Alternative I-C indicate that impacts to lekking and nesting greater sage-grouse in Wyoming would likely be the greatest under Alternative I-C and similar to those under Alternative I-D in Wyoming.

In Colorado, the refined transmission corridor under Alternative I-C would cross approximately 62 miles of designated PPH habitat, of which approximately 46 miles (74 percent) would be located within a designated utility corridor. These areas of designated PPH habitat also are designated as PACs by the USFWS. Of the remaining 67 miles of refined transmission line corridor, approximately 53 miles (79 percent) of Alternative I-C would be located within designated PGH habitat. Surveys of lek attendance at the 24 leks within 4 miles of Alternative I-C indicate that impacts to lekking and nesting greater sage-grouse would likely be substantially increased in comparison to other Region I alternatives in Colorado (**Table 3.8-25**).

The types of impacts to sage-grouse from Alternative I-C generally would be the same as described for Alternative I-A but would differ in the number of leks crossed and amount of habitat disturbed (**Table 3.8-2** and **Table 3.8-23**). Potential impacts to sage-grouse under Alternative I-C would be greater in comparison to Alternative I-A due to the increased number of leks located within 4 miles of the Project alignment and the total number of individual sage-grouse observed attending these leks. A summary of Wyoming and Colorado lek attendance data shows that average lek attendance across Alternative I-C is greater in comparison to Alternative I-A (**Table 3.8-25**).

Implementation of WWEC BMPs, and design feature TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat.

Nonetheless, given the amount of sage-grouse habitat crossed by the proposed Project under Alternative I-C (**Table 3.8-24**), operation would result in potential mortality of individuals and avoidance of sagebrush habitats along the alternative by local sage-grouse populations.

Whooping Crane (Endangered), Interior Least Tern (Endangered), Piping Plover (Threatened)

The types of impacts to the whooping crane, interior least tern, and piping plover under Alternative I-C would be the same as described for Alternative I-A.

The whooping crane, interior least tern, and piping plover utilize habitats in the lower Platte River system in Nebraska. This area is located a considerable distance downstream of any construction or operation disturbance areas in Wyoming, and so these activities would not affect these species.

Compliance with the PRRIP would require that water use in the Platte River Basin be evaluated to determine the potential effects of water depletions on Platte River federally listed species and their critical habitats. If the proposed water-related activity will deplete more than 0.1 acre-feet in the Platte River system and will rely on surface water or hydrologically connected groundwater, an evaluation is required by the Wyoming State Engineer to determine whether the water use is a new or existing activity. If the activity is considered an existing water-related activity, the State Coordinator will determine whether any further action is required to be covered by the PRRIP. If further actions are required, a Wyoming Platte River Recovery Agreement will be executed between the water user and the Wyoming State Engineer.

Construction water use for Alternative I-C would be approximately 8 acre-feet, with sources that would include municipal supplies, commercial sources, or a temporary water use agreement with landowners holding existing water rights. Similar to Alternative I-A, this action would represent a consumptive water use from the Platte River Basin of 8 acre-feet during a 3-year construction time frame when water would be used for construction purposes. This small depletion would represent an adverse effect on the whooping crane, interior least tern, or piping plover. The PRRIP would be used to mitigate for the effects of water depletions on federally listed species in the Platte River.

Western Yellow-billed Cuckoo (Threatened)

The types of impacts to the western yellow-billed cuckoo under Alternative I-C generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-29**). Alternative I-C would result in the construction and operation disturbance of 30 acres and 7 acres, respectively, of potentially suitable woody and wetlands and herbaceous wetland habitat. These areas represent 0.04 percent and 0.01 percent, respectively, of the available suitable habitat within the Region I western yellow-billed cuckoo analysis area. Indirect impacts would occur to 4,722 acres, which represent 6.79 percent of western yellow-billed cuckoo potential habitat within the Region I western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative I-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6**, and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative I-C would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The types of impacts to the black-footed ferret under Alternative I-C generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-29**). Alternative I-C would result in the construction and operation disturbance of 114 acres and 23 acres, respectively, of white-tailed prairie dog colonies. These areas represent 0.10 percent and 0.02 percent, respectively, of the white-tailed prairie dog colonies within the Region I black-footed ferret analysis area. Indirect impacts would occur to 11,880 acres, which represent 10.01 percent black-footed ferret potential habitat within the Region I black-footed ferret analysis area.

Between 2001 and 2006, 217 black-footed ferrets were released within the WCMA along Alternative I-C in Moffat and Rio Blanco counties, Colorado (Holmes 2008). This area encompasses approximately 52,000 acres at the lower reach of the Wolf Creek watershed and was chosen as a reintroduction site due to its sizeable white-tailed prairie dog population. In 2006, approximately 19,000 acres of active white-tailed prairie dog colonies were distributed throughout the WCMA. Survival rates of introduced black-footed ferrets within the WCMA have been observed to be lower than other reintroduction sites (Holmes 2008) and in 2008, an outbreak of the plague was detected. Results of spotlight surveys in 2010 were limited to the detection of one male black-footed ferret and no documented successful reproductive pairs within the WCMA. As a result of limited survival success and the occurrence of the 2008 plague outbreak, it generally is agreed that black-footed ferrets no longer inhabit the WCMA (BLM 2012).

Preconstruction clearance surveys for black-footed ferrets may be required within white-tailed prairie dog colonies or complexes exceeding 200 acres in size that are located within 0.5 mile of Alternative I-C. While habitat modifications may still occur, these surveys would be conducted to minimize direct impacts to black-footed ferrets.

Impacts to the black-footed ferret along Alternative I-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

<u>Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)</u>

The types of impacts to the gray wolf under Alternative I-C generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-29**). Alternative I-C would result in the construction and operation disturbance of 1,856 acres and 409 acres, respectively, of potential gray wolf foraging and denning habitat. These areas represent 0.05 percent and 0.01 percent, respectively, of potential habitat within the Region I gray wolf analysis area. Gray wolf foraging and denning habitat is considered to include aspen forest and woodland, conifer forest, deciduous forest, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, tundra, and woody riparian and wetlands. Indirect impacts would occur to 193,773 acres, which represent 5.17 percent of gray wolf potential habitat within the Region I gray wolf analysis area. Impacts to the gray wolf under Alternative I-C would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative I-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-10**, and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

BLM Sensitive and State Sensitive Species

BLM sensitive and state sensitive species that may occur in Region I are presented in **Table 3.8-30**. The types of impacts under Alternative I-C to BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative I-C (e.g., sagebrush shrubland, grassland, and saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in Section 3.5.6, Impacts to Vegetation. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative I-C, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative I-D

Alternative I-D habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, federaly listed special status wildlife species that may be impacted in Region I include sage-grouse, western yellow-billed cuckoo, black-footed ferret, and gray wolf in addition to BLM and state sensitive species. No suitable habitat for the Canada lynx occurs along Alternative I-D; therefore, impacts are not expected to occur to this species. The whooping crane, interior least tern, and piping plover do not occur in Region I; however, they are discussed in terms of potential water depletions in the Platte River basin. Species-specific impact discussions are presented below. Section 3.7.6.3 presents a description of existing disturbance along Alternative I-D.

Greater sage-grouse (Candidate)

As presented in **Table 3.8-23**, a total of 41 occupied/active leks occur within 4 miles of Alternative I-D (i.e., 30 occupied leks in Wyoming and 11 active leks in Colorado). In addition, Alternative I-D crosses a variety of sage-grouse habitats in Wyoming and Colorado (**Figure 3.8-1**).

Although the refined transmission corridor under Alternative I-D would cross approximately 14 miles of designated core habitat in Wyoming, the entire length of the transmission line in this area would be located within a utility corridor designated under the Wyoming Governor EO 2011-5 and would be exempt from core area stipulations. In addition, this area of core habitat is considered highly fragmented and degraded by existing oil and gas drilling operations and is disturbed by I-80 located parallel to the transmission line approximately 3 miles to the north. A total of 10 active leks are located within 4 miles of the refined transmission corridor within the designated corridor. The remaining 75 miles of Alternative I-D in Wyoming are located in suitable greater sage-grouse habitat designated as non-core habitat and

would be located within 4 miles of 20 active leks. Surveys of lek attendance within 4 miles of Alternative I-D indicate that impacts to lekking and nesting greater sage-grouse would likely be similar to those under Alternative I-A and reduced in comparison to Alternatives I-B and I-C in Wyoming.

In Colorado, the refined transmission corridor and potential impacts to greater sage-grouse under Alternative I-B would be the same as those discussed under Alternative I-A.

The types of impacts to the sage-grouse under Alternative I-D generally would be the same as described for Alternative I-A but would differ in the number of leks crossed and amount of habitat disturbed (**Table 3.8-23** and **Table 3.8-24**). Potential impacts to sage-grouse from construction and operation of Alternative I-D may be higher in comparison to Alternative I-A, due to the greater number of leks located within 4 miles of the Project alignment. A summary of Wyoming and Colorado lek attendance data shows that average lek attendance across Alternative I-D is greater than that of Alternative I-A (**Table 3.8-24**).

Implementation of WWEC BMPs, and design feature TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat.

Nonetheless, given the amount of sage-grouse potential habitat crossed by the proposed Project under Alternative I-D (**Table 3.8-24**), operation would result in potential mortality of individuals and avoidance of sagebrush habitats along the alternative by local sage-grouse populations.

Whooping Crane (Endangered), Interior Least Tern (Endangered), Piping Plover (Threatened)

The types of impacts to the whooping crane, interior least tern, and piping plover under Alternative I-D would be the same as described for Alternative I-A.

The whooping crane, interior least tern, and piping plover utilize habitats in the lower Platte River system in Nebraska. This area is located a considerable distance downstream of any construction or operation disturbance areas in Wyoming, and so these activities would not affect these species. Water depletion also must be evaluated for these species. Applicant design feature TWE-2 would be followed to comply with the ESA and Section 7. The PRRIP was implemented in 2006 to assist in the conservation and recovery of the target species and their associated habitats along the central and lower Platte River in Nebraska. As part of the PRRIP, potential water depletions in the Platte River Basin are evaluated and assessed a fee to assist in the recovery of the Platte River listed species. The fee is applied as an annual payment during the 3-year construction time frame of the Project.

Construction water use for Alternative I-D would be approximately 8 acre-feet, with sources that would include municipal supplies, commercial sources, or a temporary water use agreement with landowners holding existing water rights. Similar to Alternative I-A, this action would represent a consumptive water use from the Platte River Basin of 8 acre-feet during a 3-year construction time frame when water would be used for construction purposes. This small depletion would represent an adverse effect on the whooping crane, interior least tern, or piping plover. The PRRIP would be used to mitigate for the effects of water depletions on federally listed species in the Platte River.

Western Yellow-billed Cuckoo (Threatened)

The types of impacts to the western yellow-billed cuckoo under Alternative I-D generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-29**). Alternative I-D would result in the construction and operation disturbance of 44 acres and 8 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitat. These

areas represent 0.06 percent and 0.01 percent, respectively, of the available suitable habitat within the Region I western yellow-billed cuckoo analysis area. Indirect impacts would occur to 4,331 acres, which represent 6.23 percent of western yellow-billed cuckoo potential habitat within the Region I western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative I-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6**, and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative I-D would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The types of impacts to the black-footed ferret under Alternative I-D generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-29**). Alternative I-D would result in the construction and operation disturbance of 197 acres and 42 acres, respectively, of white-tailed prairie dog colonies. These areas represent 0.17 percent and 0.04 percent, respectively, of the available white-tailed prairie dog colonies within the Region I black-footed ferret analysis area. Indirect impacts would occur to 19,123 acres, which represent 16.11 percent black-footed ferret potential habitat within the Region I black-footed ferret analysis area.

Between 2001 and 2006, 217 black-footed ferrets were released within the WCMA along Alternative I-D in Moffat and Rio Blanco counties, Colorado (Holmes 2008). This area encompasses approximately 52,000 acres at the lower reach of the Wolf Creek watershed and was chosen as a reintroduction site due to its sizeable white-tailed prairie dog population. In 2006, approximately 19,000 acres of active white-tailed prairie dog colonies were distributed throughout the WCMA. Survival rates of introduced black-footed ferrets within the WCMA have been observed to be lower than other reintroduction sites (Holmes 2008) and in 2008, an outbreak of the plague was detected. Results of spotlight surveys in 2010 were limited to the detection of one male black-footed ferret and no documented successful reproductive pairs within the WCMA. As a result of limited survival success and the occurrence of the 2008 plague outbreak, it generally is agreed that black-footed ferrets no longer inhabit the WCMA (BLM 2012).

Preconstruction clearance surveys for black-footed ferrets may be required within white-tailed prairie dog colonies or complexes exceeding 200 acres in size that are located within 0.5 mile of Alternative I-D. While habitat modifications may still occur, results of these surveys would be used to avoid and minimize direct impacts to black-footed ferrets.

Impacts to the black-footed ferret along Alternative I-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

The types of impacts to the gray wolf under Alternative I-D generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-29**). Alternative I-D would result in the construction and operation disturbance of 1,532 acres and 336 acres, respectively, of potential gray wolf foraging and denning habitat. Gray wolf foraging and denning habitat is considered to include aspen forest and woodland, conifer forest, deciduous forest, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, tundra, and woody riparian and wetlands. These areas represent 0.04 percent and 0.01 percent, respectively, of potential habitat within the Region I gray wolf analysis area. Indirect impacts would occur to 162,397 acres, which represents 4.33 percent of gray wolf potential habitat within the Region I gray wolf analysis area. Impacts to the gray wolf under Alternative I-D would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative I-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-10**, and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

BLM Sensitive and State Sensitive Species

BLM sensitive and state sensitive species that may occur in Region I are presented in **Table 3.8-30**. The types of impacts under Alternative I-D to BLM and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative I-D (e.g., sagebrush shrubland, grassland, and saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-9** through **3.5-11**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative I-D, remaining impacts to special status wildlife species, especially nesting

raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Tuttle Ranch Micro-siting Options 3 and 4

TransWest has developed two potential options to avoid or minimize the crossing of the Tuttle Ranch along Alternative I-D by re-routing the transmission lines across the NPS Deerlodge Road. These are referred to as Tuttle Ranch Micro-siting Options 3 and 4. Information regarding potential impacts to special status wildlife species resulting from the Tuttle Ranch Micro-siting options is provided in **Table 3.8-32**. CPW holds a conservation easement over portions of the Tuttle Ranch, located east of the Town of Elk Springs in Moffat County, Colorado. The Tuttle Ranch supports an important white-tailed prairie dog colony which is suitable habitat for the black-footed ferret. It is intended that future black-footed ferret reintroductions will occur within this conservation easement. The NPS is responsible for management of wildlife species on NPS-managed lands (NPS 2006).

Table 3.8-32 Comparison of Tuttle Ranch Micro-siting Option Impacts to Special Status Wildlife Species

Parameter	Tuttle Ranch Micro-siting Option 3			Tuttle Ranch Micro-siting Option 4			Comparable Portion of Alternative I-D		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Black-footed ferret potential habitat (acres)	–	–	208	–	–	128	5	2	–
Percentage of existing habitat within the Region I black-footed ferret analysis area	–	–	0.18	–	–	0.11	–	–	–
Greater sage-grouse potential habitat (acres)[1]	73	14	7,881	72	13	7,727	70	14	7,485
Percentage of existing habitat within the Region I sage-grouse analysis area	<0.01	<0.01	0.28	<0.01	<0.01	0.27	<0.01	<0.01	0.26
Western yellow-billed cuckoo potential habitat (acres)	–	–	–	–	–	–	–	–	–
Percentage of existing habitat within the Region I western yellow-billed cuckoo analysis area	–	–	–	–	–	–	–	–	–
Gray wolf potential habitat (acres)	95	19	11,844	106	20	12,954	89	20	11,086
Percentage of existing habitat within the Region I gray wolf	<0.01	<0.01	0.32	<0.01	<0.01	0.35	<0.01	<0.01	0.30

[1] Impacts to sage-grouse potential habitat are based on acres of sagebrush shrubland vegetation community.

In terms of potential impacts to suitable black-footed ferret habitat and active white-tailed prairie dog colonies, Micro-siting Options 3 and 4 would result in less potential impacts in comparison to Alternative I-D as both options avoid crossing these resources and the conservation easement altogether. The differences in potential impact acreages to sage-grouse habitat and active leks from the

two Micro-siting options are negligible as both options would impact a similar number of acres of sage-grouse habitat and are located similar distances from the nearest active lek.

Alternative Connectors in Region I

No alternative connectors occur in Region I.

Alternative Ground Electrode Systems in Region I

The northern ground electrode system would be necessary within 100 miles of the Northern Terminal as discussed in Section 2.5.1, Alternative Transmission Line Routes and Ancillary Facilities by Region. Although the location for this system has not been determined, conceptual locations and connections to the alternative routes have been provided by TransWest. The types of impacts associated with constructing and operating this system would be similar to those discussed under Alternative I-A, but would be significantly reduced in scope and intensity. The ground electrode systems are detailed in Section 2.4.3, Facilities Common to All Action Alternatives. Direct impacts to special status wildlife habitat would include those resulting from construction of the ground electrode site and access roads. Indirect impacts to special status wildlife would include disturbance from operation activities and habitat fragmentation resulting from access road construction and the operation of the low voltage overhead line.

The ground electrode overhead line would be similar to a modified 34.5-kV/69-kV distribution line as discussed in Section 2.4.3. This distribution line poses an electrocution hazard for bird species, especially raptors, which attempt to perch on the structures. The Project would meet or exceed the raptor safe design standards described in the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006). **Table 3.8-33** summarizes impacts associated with the four combinations of alternative route and location possibilities for the northern ground electrode system.

Table 3.8-33 Summary of Region I Alternative Ground Electrode System Location Impact Parameters for Special Status Wildlife Species[1]

Alternative Ground Electrode System Locations	Estimated Wildlife Habitat Disturbance (total acres)		Analysis
	Construction Impact	Operation Impact	
Separation Flat - All Alternative Routes	120	35	• Approximately 12 miles of 34.5-kV interconnection lines.[2] • Approximately 4 acres of construction and 1 acre of operation impacts to black-footed ferret potential habitat would occur. • Approximately 6 acres of construction and 2 acres of operation impacts to western yellow-billed cuckoo potential habitat would occur. • Approximately 9 acres of construction and 3 acres of operation impacts to gray wolf potential habitat would occur. • 4 occupied sage-grouse leks within 4 miles. • <1 acre of construction and operation to Wyoming sage-grouse core population areas. • 43 known nests for special status species or for which the species is unknown within 1 mile of potential disturbance areas.
Bolton Ranch - All Alternative Routes	150	52	• Approximately 15 miles of 34.5-kV interconnection lines.[2] • Approximately 3 acres of construction and 1 acre of operation impacts to black-footed ferret potential habitat would occur. • Approximately 1 acre of construction and <1 acre of operation impacts to western yellow-billed cuckoo potential habitat would occur. • Approximately 67 acres of construction and 23 acres of operation impacts to gray wolf potential habitat would occur. • 7 occupied sage-grouse leks within 4 miles.

Table 3.8-33 Summary of Region I Alternative Ground Electrode System Location Impact Parameters for Special Status Wildlife Species[1]

Alternative Ground Electrode System Locations	Estimated Wildlife Habitat Disturbance (total acres)		Analysis
	Construction Impact	Operation Impact	
			• <1 acre of construction and operation to Wyoming sage-grouse core population areas. • 26 known nests for special status species or for which the species is unknown within 1 mile of potential disturbance areas.
Eight Mile Basin - All Alternative Routes	86	17	• Approximately 5 miles of 34.5-kV interconnection lines.[2] • Approximately 3 acres of construction and 1 acre of operation impacts to western yellow-billed cuckoo potential habitat would occur. • Approximately 68 acres of construction and 14 acres of operation impacts to gray wolf potential habitat would occur. • Approximately <1 acre of construction and <1 acre of operation impacts to gray wolf potential habitat would occur. • 5 occupied sage-grouse leks within 4 miles. • <1 acre of construction and operation to sage-grouse: Wyoming core population areas. • 4 known nests for special status species within 1 mile of potential disturbance areas.
Separation Creek - All Alternative Routes	74	11	• Approximately 2 miles of 34.5-kV interconnection lines.[2] • Approximately 2 acres of construction and <1 acre of operation impacts to black-footed ferret potential habitat would occur. • Approximately <1 acre of construction and <1 acre of operation impacts to western yellow-billed cuckoo potential habitat would occur. • Approximately 72 acres of construction and 11 acres of operation impacts to gray wolf potential habitat would occur. • 7 occupied sage-grouse leks within 4 miles. • <1 acre of construction and operation to sage-grouse: Wyoming core population areas. • 69 known nests for special status species or for which the species is unknown within 1 mile of potential disturbance areas.

[1] Potential impacts to specific vegetation communities are provided in **Table 3.5.10**.

[2] Length refers to length of 34.5-kV interconnection lines and serves as a metric for avian collision potential.

Table 3.8-34 summarizes the potential impacts to sagebrush habitats associated with the four combinations of alternative route and location possibilities in Region I.

Table 3.8-34 Summary of Region I Alternative Ground Electrode System Location Impact Parameters for Greater Sage-grouse

Alternative Ground Electrode System Locations	Sagebrush Habitat Disturbance (acres)	
	Construction	Operation
Separation Flat - All Alternative Routes	8	2
Bolton Ranch - All Alternative Routes	65	22
Eight Mile Basin - All Alternative Routes	65	13
Separation Creek - All Alternative Routes	71	10

Table 3.8-35 presents special status raptor nests known to occur within 1 mile of the siting areas at alternative ground electrode system locations.

Table 3.8-35 Special Status Raptor Nests Within 1 mile of Siting Area at Alternative Ground Electrode System Locations[1]

Alternative Ground Electrode System Locations[2]	Special Status Raptor Nests[3]
Separation Flats - All Alternative Routes	32 ferruginous hawk, 1 burrowing owl, 5 golden eagle, and 3 unknown raptor species nests
Bolton Ranch - All Alternative Routes	2 ferruginous hawk, 14 golden eagle, and 2 unknown raptor species nests
Eight Mile Basin - All Alternative Routes	2 ferruginous hawk and 1 golden eagle nests
Separation Creek - All Alternative Routes	42 ferruginous hawk, 14 golden eagle, and 3 unknown raptor species nests

[1] Raptor nests are a total of those within 1 mile of the siting area. Some duplication exists due to the unknown exact locations of electrode sites and associated features.

[2] Ground electrode systems are described in detail in Section 2.5.1, Alternative Transmission Line Routes and Ancillary Facilities by Region.

[3] Nests of raptor species, which are not classified as special status, are tabulated in Section 3.7, Wildlife. Nests of unknown raptor species are tabulated in both Sections 3.7 and 3.8 because they may have been utilized by either special status raptors or non-special status raptors.

Region I Conclusion

A comparison of impact parameters for Region I alternatives indicates that potential construction and operation impacts to special status wildlife species would be varied across all alternatives as shown in **Table 3.8-29**. Alternative I-C would result in the greatest acreage of direct and indirect impacts to sage-grouse potential habitat in comparison to the other Region I alternatives (**Table 3.8-29**). Alternative I-B would result in the greatest acreage of direct and indirect impacts to western yellow-billed cuckoo potential habitat in comparison to the other Region I alternatives (**Table 3.8-29**). Alternative I-B would result in the greatest acreage of direct and indirect impacts to black-footed ferret potential habitat in comparison to the other Region I alternatives (**Table 3.8-29**). Alternative I-D would result in the greatest acreage of direct and indirect impacts to gray wolf potential habitat in comparison to the other Region I alternatives (**Table 3.8-29**). The greatest level of impacts to special status wildlife species among all Region I alternatives is associated with Alternative I-C due to greater impacts to sage-grouse leks and potential habitat. However, Project effects on special status wildlife species and their potential habitat would be avoided or considered to be low magnitude and short-term in duration after applying BMPs, design features, and additional mitigation.

3.8.6.4 Region II

Tables 3.8-36 through **3.8-38** provide a tabulation of impacts associated with the alternative routes in Region II to the sage-grouse. **Table 3.8-39** provides a tabulation of impacts associated with the alternative routes in Region II to the Utah prairie dog. Key impact parameters that relate to the impact discussion in Section 3.8.6.2, Impacts to Special Status Species Common to All Alternative Routes and Associated Components, and specific differences by alternative are discussed below. **Table 3.8-40** presents the number of special status raptors nests known to occur within one mile of the refined transmission corridor. **Table 3.8-41** presents impacts to USFS sensitive species habitat on USFS-administered lands that are crossed by route alternatives or other Project components in Region II. **Table 3.8-42** presents potential impacts to special status wildlife species habitat in Region II.

Alternative II-A (Applicant Proposed)

Alternative II-A habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region II include 5 federally listed and 1 candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Suitable habitat for the Mexican spotted owl does not occur along Alternative II-A therefore, impacts are not expected to occur to this species. Although there is suitable grassland habitat for Utah prairie dogs, there are no known colonies along Alternative II-A and therefore, impacts are not expected to occur to this species. Section 3.7.6.4 presents a description of existing disturbance along Alternative II-A.

Greater Sage-grouse (Candidate)

Sage-grouse in northeastern Utah along Alternative II-A are found primarily in Uintah, Duchesne, Wasatch, and Juab counties. These counties support several of the largest sage-grouse populations in Utah. Under Alternative II-A a total of five greater sage-grouse population areas would potentially be impacted; these include the Deadman's Bench, Halfway Hollow, South Slope Uinta, Strawberry/Fruitland, and Sheeprocks populations. As presented in **Table 3.8-36**, a total of 10 active leks occur within 4 miles of Alternative II-A (i.e., 10 active leks in Utah). In addition, Alternative II-A crosses a variety of sage-grouse habitats in Colorado and Utah (**Figure 3.8-3**).

The Alternative II-A refined transmission corridor would cross approximately 2.6 miles of the northern portion of the Deadman's Bench population area and comes within 2.4 miles of the North Deadman lek. Approximately 2.2 miles (85 percent) of the refined transmission corridor is located within a designated BLM utility corridor within the Deadman's Bench population area. A majority of the areas where the refined transmission corridor is sited within 5 miles of the North Deadman lek are not located within occupied greater sage-grouse habitat of the Deadman's Bench population. Therefore, direct impacts to this population from construction and operation would be limited.

Under Alternative II-A, the refined transmission corridor would cross approximately 13 miles of the southern portion the Halfway Hollow sage-grouse population area. The majority of this area is located on private lands and is designated as nesting, brood-rearing, and wintering habitat. The refined transmission corridor would be located within 2.3 miles of the East Pole Line lek. This lek is one of nine active leks within the Halfway Hollow population area although surveys have not observed greater sage-grouse attending this lek since 2008. Due to the amount of existing habitat fragmentation and proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, the impact to the Halfway Hollow population is anticipated to be minimal.

Under Alternative II-A, the refined transmission corridor would cross approximately 9.4 miles of the southern portion the South Slope Uintah sage-grouse population area. Impacts to this population would be similar to those described for the Halfway Hollow population area in that the refined transmission corridor crosses the southern portion of the population area on private lands where there are no longer active leks due to the level of existing fragmentation and disturbance from numerous roads, oil and gas development, agriculture, and the existing Mona to Bonanza 345-kV transmission line.

Under Alternative II-A, the refined transmission corridor would cross approximately 20 miles of occupied habitat within the southern portion the Strawberry/Fruitland sage-grouse population area and is located within 5 miles of seven of the nine active leks within this population area. Surveys indicate that over the past decade, an average of approximately 94 percent of male greater sage-grouse in the Fruitland/ Strawberry population have attended these seven leks located within 5 miles of the refined transmission corridor. Due to the proximity of the refined transmission corridor to a majority of the active leks within the Fruitland/Strawberry population, potential impacts from construction and operation could affect a substantial portion of breeding individuals.

Under Alternative II-A, the refined transmission corridor would cross approximately 22 miles of occupied habitat within the southern portion the Sheeprocks sage-grouse population area and is located within 4.4 miles of 1 of the 10 active leks within this population area. Approximately 1.5 miles of the refined transmission corridor is located within a designated BLM utility corridor in areas that cross the Sheeprocks population area. Surveys indicate that over the past decade, an average of approximately 4.9 percent of male greater sage-grouse in the Sheeprocks population have attended the single lek located within 5 miles of the refined transmission corridor. The remaining 9 active leks within the Sheeprocks sage-grouse population area are located greater than 7 miles from the refined transmission corridor. Potential impacts to the Sheeprocks greater sage-grouse population from construction and operation of the Project are anticipated to be minimal due to the low percentage of the population that has been observed to attend the Furner Valley lek. Due to the amount of existing habitat fragmentation from existing transmission lines in the Sheeprocks population area and proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, potential impacts to the Sheeprocks population are anticipated to be minimal.

The types of impacts to sage-grouse under Alternative II-A generally would be the same as discussed for Alternative I-A, but would differ in the amount of habitat disturbed. Alternative II-A crosses fewer leks but has higher observed attendance rates in comparison to Alternatives II-D, II-E, and II-F (**Table 3.8-36** and **Table 3.8-37**). Although potential impacts to the majority of greater sage-grouse populations crossed by Alternative II-A are anticipated to be minor, impacts to the Strawberry/Fruitland population may result in greater sage-grouse avoidance of multiple leks that have been recently active and avoidance of suitable nesting and brood rearing habitats within close proximity to the refined transmission corridor.

Implementation of WWEC BMPsand design feature TWE-32 would require TransWest to identify sensitive areas for greater sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). In addition, TransWest has taken into account sage-grouse habitat (e.g., lek locations, occupied habitat, etc.) during the design phase of the Project and routed the transmission line around sensitive habitat types, to the extent possible. These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat. These features would help reduce disturbance to sensitive habitat types, the potential for predation on sage-grouse by raptors and corvids, and the collision potential from guy wires. Nonetheless, given the amount of important greater sage-grouse habitat crossed by the proposed Project under Alternative II-A in northeastern Utah (**Table 3.8-36**), potential mortality from operation of the proposed Project is likely to be higher in comparison to Alternatives II-B and II-C. Potential impacts to greater sage-grouse resulting from operation of Alternative II-A are likely to be lower in comparison to Alternatives II-D and II-E and similar to those of Alternative II-G.

Western Yellow-billed Cuckoo (Threatened)

Along Alternative II-A, extensive riparian habitat occurs at the confluence of the Duchesne, White, and Green rivers on the Uintah and Ouray Reservation (Grand and Uintah counties, Utah) (Parrish et al. 2002; UNHP 2003) and sustains the largest breeding population of western yellow-billed cuckoos in Utah. This area is approximately 2 miles south of Alternative II-A. Additional habitat and documented occurrences of western yellow-billed cuckoos along Alternative II-A occur in Utah County, Utah.

The types of impacts to the western yellow-billed cuckoo under Alternative II-A generally would be the same as described for Alternative I-A, but would differ in the amount of habitat disturbed (**Table 3.8-41**). Alternative II-A would result in the construction and operation disturbance of 56 acres and 16 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitat. These areas represent 0.03 percent and 0.01 percent, respectively, of the available potential habitat within the Region II western yellow-billed cuckoo analysis area. Indirect impacts would occur to 7,255 acres, which represent 3.67 percent of western yellow-billed cuckoo potential habitat within the Region II western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative II-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6,** and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative II-A would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The USFWS has designated white-tailed prairie dog colonies in Rio Blanco County, Colorado and Duchesne and Uintah counties, Utah, as NEP areas for black-footed ferrets. Alternative II-A is adjacent to the northern boundary of the Coyote Basin Reintroduction Primary Management Zone (PMZ). The Coyote Basin population was reintroduced in eastern Utah and western Colorado (Wolf Creek) in 1999. These locations currently support a very small population of black-footed ferrets that primarily inhabit the core of the reintroduction areas (UDWR 2003).

The types of impacts to black-footed ferrets under Alternative II-A generally would be the same as described for Alternative I-A, but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-A would result in the construction and operation disturbance of 248 acres and 41 acres, respectively, of potentially suitable white-tailed prairie dog habitat in Uintah County, Utah. These areas represent 0.16 percent and 0.03 percent, respectively, of white-tailed prairie dog colony habitat within the Region II black-footed ferret analysis area. Indirect impacts would occur to 23,685 acres, which represent 15.61 percent of black-footed ferret potential habitat within the Region II black-footed ferret analysis area.

While impacts under Alternative II-A to white-tailed prairie dog colonies outside of the PMZ have a low potential to result in direct loss of ferrets due to the small scattered colonies, habitat disturbance would still occur. Black-footed ferrets are dependent upon white-tailed prairie dog colonies for their survival and loss of white-tailed prairie dog habitat under Alternative II-A may indirectly impact black-footed ferrets that occur outside of the PMZ.

Impacts to the black-footed ferret along Alternative II-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Table 3.8-36 Summary of Region II Alternative Route Impact Parameters for Greater Sage-grouse

Parameter	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Colorado							
Number of occupied leks within 0.5 mile of alignments	–	–	–	–	–	–	–
Number of occupied leks within 1 mile of alignments	–	–	–	–	–	–	–
Number of occupied leks within 2 miles of alignments	–	–	–	–	–	–	–
Number of occupied leks within 3 miles of alignments	–	–	–	–	–	–	–
Number of occupied leks within 4 miles of alignments	–	–	–	–	–	–	–
Number of occupied leks within 11 miles of alignments	6	1	–	2	2	2	6
Utah							
Number of occupied leks within 0.5 mile of alignments	3	–	–	–	1	–	3
Number of occupied leks within 1 mile of alignments	3	–	–	–	5	–	3
Number of occupied leks within 2 miles of alignments	6	–	–	5	7	1	6
Number of occupied leks within 3 miles of alignments	9	–	–	10	11	8	9
Number of occupied leks within 4 miles of alignments	10	–	–	11	12	9	10
Average distance of leks to alignment (miles)	1.78	–	–	2.20	1.69	2.52	1.77
Number of occupied leks within 11 miles of alignments	10	1	–	16	18	17	10
Length of transmission line in miles (habitat fragmentation and collision potential)[2]	258	346	365	259	268	270	252

Habitat Disturbance[3]	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Colorado PPH (acres)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Percentage of existing habitat within the Region II sage-grouse analysis area	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Colorado PGH (acres)	264	49	29,479	273	57	19,353	273	57	19,353	265	49	29,501	265	49	29,501	265	49	29,501	265	49	29,426
Percentage of existing habitat within the Region II sage-grouse analysis area	0.25	0.05	27.87	0.26	0.05	18.30	0.26	0.05	18.30	0.25	0.05	27.89	0.25	0.05	27.89	0.25	0.05	27.89	0.25	0.05	27.87
Utah nesting/brood-rearing habitat (acres)	883	211	97,629	203	52	16,238	–	–	–	647	159	66,356	895	207	98,441	582	139	63,458	861	185	101,186
Percentage of existing habitat within the Region II sage-grouse analysis area	0.06	<0.01	6.89	<0.01	<0.01	1.15	–	–	–	0.05	<0.01	4.69	0.06	<0.01	6.95	0.04	<0.01	4.48	0.06	<0.01	7.14
Utah wintering habitat (acres)	711	178	76,643	162	41	13,918	–	–	–	600	144	64,694	921	220	94,475	600	145	66,554	692	154	80,200
Percentage of existing habitat within the Region II sage-grouse analysis area	0.07	0.02	7.59	0.02	<0.01	1.38	–	–	–	0.06	<0.01	6.40	0.09	0.02	9.35	0.06	<0.01	6.59	0.06	<0.01	7.93
Utah occupied habitat[1]	912	222	101,830	265	79	23,199	19	4	1,440	878	232	92,837	1,062	254	115,006	629	157	71,252	890	197	105,380
Percentage of existing habitat within the Region II sage-grouse analysis area	0.05	<0.01	5.86	0.02	<0.01	1.34	<0.01	<0.01	0.08	0.05	<0.01	5.35	0.06	<0.01	6.62	0.04	<0.01	4.10	0.06	<0.01	6.06

[1] Occupied habitat includes brood-rearing habitat and wintering habitat.

[2] Length refers to length of 600-kV transmission line and serves as a proxy metric for avian collision potential.

[3] Sage-grouse habitat classifications are determined by the applicable state wildlife agency and vary between project Regions.

[4] Utah and Colorado combined, Leks within 4 miles only.

Table 3.8-37 Summary of Region II Greater Sage-grouse Attendance of Leks within 4 miles

Parameter[1]	Alternative						
	II-A	II-B	II-C	II-D	II-E	II-F	II-G
Colorado							
Number of active leks	–	–	–	–	–	–	–
Peak[2] male attendance combined 2004 - 2013	–	–	–	–	–	–	–
Minimum[3] male attendance combined 2004 - 2013	–	–	–	–	–	–	–
3-year average lek attendance[1]	–	–	–	–	–	–	–
Average attendance across all leks[4]	–	–	–	–	–	–	–
Total attendance 2004 - 2013	–	–	–	–	–	–	–
Number of leks with attendance 2009 - 2013	–	–	–	–	–	–	–
Survey effort[5,7]	–	–	–	–	–	–	–
Utah							
Number of active leks	10	–	–	11	12	9	10
Peak[2] male attendance combined 2004 - 2013	222	–	–	237	227	177	222
Minimum[3] male attendance combined 2004 - 2013	65	–	–	5	31	29	65
3-year average lek attendance[1]	9.83	–	–	5.62	8.89	8.96	9.83
Average attendance across all leks[4]	13.23	–	–	9.62	9.50	9.81	13.23
Total attendance 2004 - 2013	939	–	–	991	1054	765	939
Number of leks with no attendance 2009-2013[6]	1	–	–	1	1	1	1
Survey effort[5]	88.7	–	–	93.64	92.5	93.98	88.7

[1] Lek count numbers are male birds only, most recent data used.

[2] Sum of the 10-year peak annual counts from all leks within 4 miles combined (2004-2013).

[3] Sum of the 10-year minimum count from all leks within 4 miles combined (2004-2013).

[4] Total males observed/Number of surveys.

[5] Number of surveys/Number of potential surveys (10 years x 28 leks = 280 potential surveys).

[6] Although leks are classified as active or occupied, surveys have not observed male attendance over past 5 years.

[7] Leks occurring within 4 miles of the Project alignment are historic; annual surveys have not observed any breeding activity 2004-2013.

Table 3.8-38 Summary of Region II Alternate Route Impact Parameters (Visibility) for Greater Sage-grouse

Parameter	Alternative						
	II-A	II-B	II-C	II-D	II-E	II-F	II-G
Colorado							
Number of visible occupied leks within 0.5 mile of alignments[1]	–	–	–	–	–	–	–
Number of visible occupied leks within 1 mile of alignments[1]	–	–	–	–	–	–	–
Number of visible occupied leks within 2 miles of alignments[1]	–	–	–	–	–	–	–
Number of visible occupied leks within 3 miles of alignments[1]	–	–	–	–	–	–	–
Number of visible occupied leks within 4 miles of alignments[1]	–	–	–	–	–	–	–
Average distance of visible leks within 4 miles of alignments[1]	–	–	–	–	–	–	–
Utah							
Number of visible occupied leks within 0.5 mile of alignments	1	–	–	–	–	–	1
Number of visible occupied leks within 1 mile of alignments	2	–	–	–	2	–	1
Number of visible occupied leks within 2 miles of alignments	4	–	–	4	6	1	4
Number of visible occupied leks within 3 miles of alignments	8	–	–	7	9	6	8
Number of visible occupied leks within 4 miles of alignments	9	–	–	9	11	7	9
Average distance of visible leks within 4 miles of alignments	1.78	–	–	2.27	1.81	2.68	1.76
Region II Total							
Total number of visible occupied leks within 0.5 mile of alignments	1	–	–	–	–	–	1
Total number of visible occupied leks within 1 mile of alignments	2	–	–	–	2	–	1
Total number of visible occupied leks within 2 miles of alignments	4	–	–	4	6	1	4
Total number of visible occupied leks within 3 miles of alignments	8	–	–	7	9	6	8
Total number of visible occupied leks within 4 miles of alignments	9	–	–	9	11	7	9
Average distance of visible leks within 4 miles of alignments	1.78	–	–	2.27	1.81	2.68	1.76
Length of transmission line in miles (habitat fragmentation and collision potential)[2]	258	346	365	259	268	270	252

[1] Leks occurring within 4 miles of the Project alignment are historic; annual surveys have not observed any breeding activity 2004-2013.

[2] Length refers to length of 600-kV transmission line and serves as a proxy metric for avian collision potential.

Table 3.8-39 Summary of Region II Alternative Route Impact Parameters for Utah Prairie Dog

Parameter	Alternative II-A			Alternative II-B			Alternative II-C			Alternative II-D			Alternative II-E			Alternative II-F			Alternative II-G		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Utah prairie dog colonies in high intensity survey areas (acres)	–	–	–	–	–	–	172	45	18,263	–	–	–	–	–	–	–	–	–	–	–	–
Utah prairie dog colonies in low intensity survey areas (acres)	–	–	–	–	–	–	389	90	35,981	–	–	–	–	–	–	–	–	–	–	–	–

Table 3.8-40 Special Status Raptor Nests and Winter Roosts Within 1 mile of Potential Disturbance Areas in Region II

Species[2]	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G	Castle Dale Alternative Connector	Price Alternative Connector	Lynndyl Alternative Connector	IPP East Alternative Connector	Roan Cliffs Alternative Connector	Reservation Ridge Alternative Variation	Comparable Portion of Alternative II-F	Strawberry IRA Micro-siting Option 2	Strawberry IRA Micro-siting Option 3	Strawberry IRA Comparable Portion of Alternative II-A	Fruitland Micro-siting Option 1	Fruitland Micro-siting Option 1 Comparable Portion of Alternative II-A	Fruitland Micro-siting Option 2	Fruitland Micro-siting Option 2 Comparable Portion of Alternative II-A	Fruitland Micro-siting Option 3	Fruitland Micro-siting Option 3 Comparable Portion of Alternative II-A
Northern goshawk	9	7	–	22	10	1	11	–	3	–	–	–	–	–	2	2	2	–	–	–	–	–	–
Northern goshawk post-fledging area	1	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ferruginous hawk	23	–	15	–	72	67	23	–	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–
Golden eagle	33	46	15	74	21	43	33	–	37	–	–	1	–	–	–	–	–	6	6	6	6	6	6
Peregrine falcon	–	2	–	3	–	3	–	2	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Long-eared owl	–	2	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Short-eared owl	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Burrowing owl	–	5	5	21	–	21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Unknown raptor species[2]	–	121	117	96	81	91	84	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bald eagle winter roosts	7	–	–	4	7	4	7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	157	199	149	220	192	231	158	8	44	–	–	1	1	1	2	2	2	6	6	6	6	6	6

[1] Nests of raptor species, which are not classified as special status, are tabulated in Section 3.7, Wildlife. Nests of unknown raptor species are tabulated in both Sections 3.7 and 3.8 because they may have been utilized by either special status raptors or non-special status raptors.

[2] Nests of other special status raptor species such as bald eagle and Swainson's hawk are not included due to the lack of documented nest sites within 1 mile of potential disturbance areas.

Note: Bald eagle winter roosts and northern goshawk post-fledging areas are not considered in totals.

Table 3.8-41 Summary of Region II Alternative Route Impacts to Vegetation Communities on USFS-Administered Lands

Vegetation Community/Habitat Type	Alternative II-A			Alternative II-B			Alternative II-C			Alternative II-D			Alternative II-E			Alternative II-F			Alternative II-G			Lynndyl Alternative Connector			Total Acres of Vegetation Community/Habitat Type in Forest
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	
Ashley National Forest																									
1. Agricultural Land										–	–	7	–	–	–	–	–	–							2,691
2. Aspen Forest and Woodland										–	–	3	2	<1	378	–	–	3							102,261
3. Barren/Sparsely Vegetated										–	–	0	–	–	–	–	–	–							136,429
4. Cliff and Canyon										<1	<1	283	3	<1	2,650	<1	<1	–							39,266
5. Conifer Forest										–	–	–	9	1	2,459	–	–	–							543,194
6. Deciduous Forest										–	–	–	–	–	–	–	–	–							1,125
7. Desert Shrubland										–	–	–	–	–	–	–	–	–							-
8. Developed/Disturbed Land[1]										–	–	28	4	<1	195	–	–	28							-
9. Dunes										–	–	–	–	–	–	–	–	–							23
10 Grassland										–	–	–	2	<1	40	–	–	–							1,591
11. Greasewood Flat										–	–	–	–	–	–	–	–	–							1,891
12. Herbaceous Wetland										–	–	–	1	<1	70	–	–	–							28,424
13. Montane Grassland										<1	<1	133	8	1	942	<1	<1	133							25,557
14. Montane Shrubland										–	–	18	<1	<1	176	–	–	18							36,831
15. Open Water										–	–	–	–	–	–	–	–	–							21,383
16. Pinyon-juniper										<1	<1	798	22	2	6,976	<1	<1	798							104,031
17. Ephemeral Wash										–	–	–	–	–	–	–	–	–							119
18. Sagebrush Shrubland										<1	<1	1,557	19	2	3,833	<1	<1	1,557							200,159
19. Saltbush Shrubland										–	–	31	<1	<1	25	–	–	31							15,422
20. Tundra										–	–	–	–	–	–	–	–	–							17,639
21. Woody Riparian and Wetlands										–	–	–	<1	<1	1	–	–	–							15,120
Fishlake National Forest																									
1. Agricultural Land				–	–	–	1	<1	42													–	–	1	623
2. Aspen Forest and Woodland				–	–	2	22	5	2,365													–	–	2	196,958
3. Barren/Sparsely Vegetated				–	–	1	3	1	279													–	–	–	11,977
4. Cliff and Canyon				–	–	3	13	3	923													–	–	25	38,891
5. Conifer Forest				–	–	–	21	5	2,265													–	–	–	224,021
6. Deciduous Forest				–	–	–	–	–	–													–	–	–	1
7. Desert Shrubland				–	–	–	–	–	–													–	–	–	121
8. Developed/Disturbed Land[1]				1	<1	72	11	3	1,341													–	–	42	28,664
9. Dunes				–	–	–	–	–	–													–	–	0	0
10. Grassland				3	1	607	4	1	397													–	–	353	7,453
11. Greasewood Flat				–	–	–	–	–	–													–	–	7	306
12. Herbaceous Wetland				–	–	–	–	–	1													–	–	–	4,530
13. Montane Grassland				2	1	552	1	<1	52													–	–	199	9,129

Table 3.8-41 Summary of Region II Alternative Route Impacts to Vegetation Communities on USFS-Administered Lands

Vegetation Community/Habitat Type	Alternative II-A			Alternative II-B			Alternative II-C			Alternative II-D			Alternative II-E			Alternative II-F			Alternative II-G			Lynndyl Alternative Connector			Total Acres of Vegetation Community/Habitat Type in Forest
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	
14. Montane Shrubland				–	–	11	131	27	13,074													–	–	104	211,109
15. Open Water				–	–	–	–	–	10													–	–	–	4,334
16. Pinyon-juniper				5	2	2,559	217	50	24,738													1	<1	2,428	426,154
17. Ephemeral Wash				–	–	–	–	–	–													–	–	–	-
18. Sagebrush Shrubland				4	1	871	85	19	7,646													–	–	552	270,972
19. Saltbush Shrubland				<1	<1	7	1	<1	46													–	–	44	2,738
20. Tundra				–	–	–	–	–	–													–	–	–	7,664
21. Woody Riparian and Wetlands				–	–	–	9	2	537													–	–	4	8,234
Manti-La Sal National Forest																									
1. Agricultural Land	–	–	1	–	–	–				–	–	–	–	–	1	–	–	1	–	–	1				1,466
2. Aspen Forest and Woodland	–	–	242	109	31	8,829				68	22	6,416	–	–	316	–	–	316	–	–	242				234,483
3. Barren/Sparsely Vegetated	–	–	–	2	<1	80				–	–	–	–	–	–	–	–	–	–	–	–				16,519
4. Cliff and Canyon	–	–	12	3	1	165				<1	<1	9	<1	<1	12	–	–	12	–	–	12				43,352
5. Conifer Forest	–	–	661	95	27	8,863				42	13	3,502	–	–	694	–	–	694	–	–	661				289,618
6. Deciduous Forest	–	–	–	–	–	–				–	–	–	–	–	–	–	–	–	–	–	–				-
7. Desert Shrubland	–	–	–	–	–	–				–	–	–	–	–	–	–	–	–	–	–	–				1
8. Developed/Disturbed Land[1]	<1	<1	84	11	3	658				8	3	682	<1	<1	94	<1	<1	94	<1	<1	84				4,505
9. Dunes	–	–	–	–	–	–				–	–	–	–	–	–	–	–	–	–	–	–				-
10. Grassland	–	–	–	–	–	–				–	–	–	–	–	–	–	–	–	–	–	–				104
11. Greasewood Flat	–	–	4	–	–	1				–	–	–	–	–	4	–	–	4	–	–	4				80
12. Herbaceous Wetland	–	–	3	3	1	158				1	<1	99	–	–	3	–	–	3	–	–	3				2,789
13. Montane Grassland	–	–	–	19	6	1,555				2	1	237	–	–	–	–	–	–	–	–	–				26,225
14. Montane Shrubland	4	2	3,449	4	2	1,314				7	3	2,058	6	3	3,492	4	2	3,492	4	2	3,449				230,868
15. Open Water	–	–	–	–	–	19				–	–	50	–	–	–	–	–	–	–	–	–				2,282
16. Pinyon-juniper	9	5	2,071	18	6	1,805				1	<1	156	9	5	2,071	9	5	2,071	9	5	2,125				265,022
17. Ephemeral Wash	–	–	–	–	–	–				–	–	–	–	–	–	–	–	–	–	–	–				-
18. Sagebrush Shrubland	1	<1	103	80	23	5,818				34	10	2,566	1	<1	103	1	<1	103	1	<1	103				192,203
19. Saltbush Shrubland	–	–	–	1	<1	18				–	–	–	–	–	–	–	–	–	–	–	–				2,814
20. Tundra	–	–	–	8	2	414				<1	<1	2	–	–	–	–	–	–	–	–	–				18,793
21. Woody Riparian and Wetlands	–	–	8	–	–	4				–	–	23	–	–	8	–	–	8	–	–	8				6,028
Uinta-Wasatch-Cache National Forest																									
1. Agricultural Land	–	–	16	–	–	1				–	–	1	–	–	1	–	–	1	–	–	16				290
2. Aspen Forest and Woodland	79	28	9,129	–	–	5				–	–	59	2	1	816	2	1	937	79	28	9,129				231,663
3. Barren/Sparsely Vegetated	–	–	–	–	–	–				–	–	–	1	<1	104	1	<1	104	–	–	–				11,182
4. Cliff and Canyon	3	1	468	–	–	3				–	–	17	1	<1	96	1	<1	99	3	1	468				25,335
5. Conifer Forest	29	9	3,988	–	–	1				–	–	2	1	1	560	1	1	662	29	9	3,988				114,549

Table 3.8-41 Summary of Region II Alternative Route Impacts to Vegetation Communities on USFS-Administered Lands

Vegetation Community/Habitat Type	Alternative II-A			Alternative II-B			Alternative II-C			Alternative II-D			Alternative II-E			Alternative II-F			Alternative II-G			Lynndyl Alternative Connector			Total Acres of Vegetation Community/Habitat Type in Forest
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	
6. Deciduous Forest	10	3	1,319	–	–	7				–	–	38	<1	<1	85	<1	<1	92	10	3	1,319				28,171
7. Desert Shrubland	–	–	–	–	–	–				–	–	–	–	–	–	–	–	–	–	–	–				-
8. Developed/Disturbed Land[1]	10	4	1,047	–	–	25				–	–	28	5	2	474	5	2	478	10	4	1,047				497
9. Dunes	–	–	–	–	–	–				–	–	–	–	–	–	–	–	–	–	–	–				-
10. Grassland	<1	<1	149	–	–	4				–	–	4	<1	<1	64	<1	<1	64	<1	<1	149				3,211
11. Greasewood Flat	–	–	–	–	–	0				–	–	–	–	–	–	–	–	–	–	–	–				-
12. Herbaceous Wetland	1	<1	117	–	–	2				–	–	2	–	–	4	–	–	7	1	<1	117				15,225
13. Montane Grassland	5	2	465	–	–	38				–	–	41	<1	<1	104	<1	<1	104	5	2	465				26,455
14. Montane Shrubland	36	14	5,546	–	–	311				–	–	711	12	5	3,801	12	5	4,048	36	14	5,546				168,362
15. Open Water	–	–	679	–	–	0				–	–	–	–	–	–	–	–	–	–	–	679				16,673
16. Pinyon-juniper	47	22	4,149	–	–	287				–	–	401	68	24	7,265	68	24	7,267	47	22	4,149				50,613
17. Ephemeral Wash	–	–	–	–	–	–				–	–	–	–	–	–	–	–	–	–	–	–				-
18. Sagebrush Shrubland	93	36	12,230	–	–	266				–	–	464	22	8	4,426	22	8	4,581	93	36	12,230				187,523
19. Saltbush Shrubland	–	–	–	–	–	–				–	–	0	<1	<1	26	<1	<1	26	–	–	–				71
20. Tundra	–	–	–	–	–	–				–	–	–	–	–	–	–	–	–	–	–	–				57
21. Woody Riparian and Wetlands	1	1	221	–	–	1				–	–	42	<1	<1	90	<1	<1	94	1	1	221				15,377

[1] Although the developed/disturbed land cover type is not considered to be suitable wildlife habitat and is not included in analyses and reported disturbance acreages, some wildlife species may utilize these areas.

Table 3.8-42 Summary of Region II Alternative Route Impact Parameters for Federally Listed, Candidate, and Proposed Species

	Alternative II-A			Alternative II-B			Alternative II-C			Alternative II-D			Alternative II-E			Alternative II-F			Alternative II-G		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Greater sage-grouse potential habitat (acres)[1]	1,334	348	139,370	1,044	251	82,037	1,034	228	79,936	1,170	303	122,725	1,316	338	140,187	1,298	354	129,811	1,334	348	139,370
Percentage of existing habitat within the Region II sage-grouse analysis area	0.06	0.02	6.14	0.05	0.01	3.62	0.05	0.01	3.52	0.05	0.01	5.41	0.06	0.01	6.18	0.06	0.02	5.72	0.06	0.02	6.14
Western yellow-billed cuckoo potential habitat (acres)	56	16	7,255	39	9	5,036	41	10	4,974	31	8	4,076	63	16	7,020	31	9	4,228	56	16	7,255
Percentage of existing habitat within the Region II western yellow-billed cuckoo analysis area	0.03	0.01	3.67	0.02	<0.01	2.55	0.02	0.01	2.51	0.02	<0.01	2.06	0.03	0.01	3.55	0.02	<0.01	2.14	0.03	0.01	3.67
Black-footed ferret potential habitat (acres)	248	41	23,685	111	22	10,798	135	29	14,557	250	43	21,391	294	53	27,769	250	43	21,391	248	41	23,685
Percent of existing habitat within the Region II black-footed ferret analysis area	0.16	0.03	15.61	0.07	0.01	7.12	0.09	0.02	9.60	0.16	0.03	14.10	0.19	0.03	18.30	0.16	0.03	14.10	0.16	0.03	15.61
Canada lynx potential habitat (acres)	217	76	24,944	383	106	33,445	129	31	13,982	447	133	37,549	206	54	22,814	431	146	35,739	217	76	24,944
Percentage of existing habitat within the Region II Canada lynx analysis area	0.02	0.01	2.09	0.03	0.01	2.81	0.01	<0.01	1.17	0.04	0.01	3.15	0.02	<0.01	1.92	0.04	0.01	3.00	0.02	0.01	2.09
Gray wolf potential habitat (acres)	2,639	744	283,511	2,883	735	258,921	2,748	615	253,470	2,922	808	288,304	2,840	786	296,765	3,134	912	308,636	2,639	744	283,511
Percentage of existing habitat within the Region II gray wolf	0.04	0.01	4.00	0.04	0.01	3.65	0.04	0.01	3.57	0.04	0.01	4.06	0.04	0.01	4.18	0.04	0.01	4.35	0.04	0.01	4.00
Utah prairie dog potential habitat (acres)	244	51	27,483	191	41	24,992	279	61	30,294	290	66	29,710	240	54	27,066	319	71	30,097	244	51	27,483
Percentage of existing habitat within the Region II Utah prairie dog analysis area	0.05	0.01	5.34	0.04	0.01	4.86	0.05	0.01	5.89	0.06	0.01	5.78	0.05	0.01	5.26	0.06	0.01	5.85	0.05	0.01	5.34
Mexican spotted owl potential habitat (acres)	–	–	–	–	–	–	–	–	–	8	2	–	–	–	–	8	2	–	–	–	–
Percentage of existing habitat within the Region II Mexican spotted owl analysis area.	–	–	–	–	–	–	–	–	–	0.02	0.01	–	–	–	–	0.02	0.01	–	–	–	–

[1] Impacts to sage-grouse potential habitat are based on acres of impact to the sagebrush shrubland vegetation community. Impacts to Colorado PPH, Colorado PGH, Utah nesting/brood-rearing habitat, Utah wintering habitat, and Utah occupied habitat are presented in **Table 3.8-35**.

Canada Lynx (Threatened)

Along Alternative II-A, the Canada lynx has the potential to occur within higher elevation conifer forests, aspen woodlands, and tundra habitat in central Utah, primarily in the Uinta-Wasatch-Cache National Forest. This species is extremely rare in Utah, although transient Canada lynx from Colorado have been documented in Utah in the past 10 years. Disturbance is possible for lynx that might be dispersing through the area during construction or maintenance. However, such animals would likely avoid noise and human presence and would continue dispersing. Operation of the transmission line will not restrict movement, and would allow dispersal. Impacts to the Canada lynx under Alternative II-A would include the construction and operation disturbance of 217 acres and 76 acres, respectively, of potential foraging and denning habitat and the incremental increase of habitat fragmentation from vegetation removal. These areas represent 0.02 percent and 0.01 percent, respectively, of aspen forest and woodland, conifer forest, woody riparian, and tundra habitat within the Region II Canada lynx analysis area (**Table 3.8-42**). Impacts would be more pronounced within occupied habitat. Impacts to habitat would include the loss of potential cover and den locations consisting of primarily large evergreen trees and downed woody debris. Loss of available foraging habitat (e.g., early succession high tree density areas preferred by the snowshoe hare) would result in impacts to Canada lynx. Indirect impacts would include increased noise and human activity associated with Project construction and increased noise and human presence associated with maintenance activities. Indirect impacts would occur to 24,944 acres, which represent 2.09 percent of Canada lynx potential habitat within the Region II Canada lynx analysis area.

Canada lynx habitat along Alternative II-A is scarce and primarily occurs in the Uinta National Forest Planning Area in higher elevation north and west facing slopes with dense forest canopies. Alternative II-A does not cross any LAUs in Utah. Impacts to Canada lynx habitat along Alternative II-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Canada lynx would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Impacts would be more pronounced if habitat is occupied. This disturbance is anticipated to have little impact, given the low probability of a local breeding population and the extent of native habitats in the surrounding Project region.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

Impacts to the gray wolf under Alternative II-A generally would be the same as described for Alternative I-A, but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-A would result in the construction and operation disturbance of 2,639 acres and 744 acres, respectively, of potential gray wolf foraging and denning habitat. These areas represent 0.04 percent and 0.01 percent, respectively, of potential habitat within the Region II gray wolf analysis area. Indirect impacts would occur to 283,511 acres, which represent 4.00 percent of gray wolf potential habitat within the Region II gray wolf analysis area. Impacts to the gray wolf under Alternative II-A would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative II-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur in Region II and their associated habitat types are presented in **Table 3.8-43**. The types of impacts under Alternative II-A to BLM sensitive, USFS sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative II-A (e.g., sagebrush shrubland, pinyon-juniper, and montane shrubland) are more likely to be impacted under Alternative II-A. Impacts to these habitat types are presented in Section 3.5.6, Impacts to Vegetation. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Table 3.8-43 BLM Sensitive, USFS Sensitive, and State Sensitive Species Potentially Occurring in Region II

Region II BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Mammals - Bats	
Big free-tailed bat	Agricultural land, aspen forest and woodland, barren/sparsely vegetated, cliff and canyon, conifer forest, deciduous forest, desert shrubland, grassland, herbaceous wetland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Brazilian free-tailed bat	Aspen forest and woodland, conifer forest, desert shrubland, herbaceous wetland, montane shrubland, open water, sagebrush shrubland, saltbush shrubland
California myotis	Aspen forest and woodland, conifer forest, deciduous forest, desert shrubland, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Fringed myotis	Agricultural land, desert shrubland, grassland, greasewood flat, herbaceous wetland, montane grassland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Long-eared myotis	Agricultural land, aspen forest and woodland, cliff and canyon, conifer forest, deciduous forest, desert shrubland, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Pallid bat	Agricultural land, aspen forest and woodland, barren/sparsely vegetated, conifer forest, deciduous forest, desert shrubland, grassland, greasewood flat, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Spotted bat	Agricultural land, aspen forest and woodland, barren/sparsely vegetated, cliff and canyon, conifer forest, deciduous forest, desert shrubland, grassland, greasewood flat, herbaceous wetland, montane grassland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Townsend's (Western) big-eared bat	Aspen forest and woodland, conifer forest, deciduous forest, desert shrubland, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Western red bat	Agricultural land, deciduous forest, desert shrubland, herbaceous wetland, open water, woody riparian and wetlands

Table 3.8-43 BLM Sensitive, USFS Sensitive, and State Sensitive Species Potentially Occurring in Region II

Region II BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Yuma myotis	Agricultural land, aspen forest and woodland, barren/sparsely vegetated, cliff and canyon, deciduous forest, desert shrubland, grassland, greasewood flat, herbaceous wetland, montane shrubland, open water, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Mammals - Other	
Dark kangaroo mouse	Desert shrubland, grassland, sagebrush shrubland, saltbush shrubland
Desert bighorn sheep	Cliff and canyon, desert shrubland, montane grassland
Fisher	Aspen forest and woodland, conifer forest, deciduous forest
Kit fox	Agricultural land, barren/sparsely vegetated, desert shrubland, grassland, montane grassland, sagebrush shrubland, saltbush shrubland
North American Wolverine	Aspen forest and woodland, conifer forest, deciduous forest, montane grassland
Pygmy rabbit	Sagebrush shrubland
River otter	Open water, woody riparian and wetlands
Rocky Mountain bighorn sheep	Cliff and canyon, conifer forest, montane grassland, montane shrubland, tundra
White-tailed prairie dog	Barren/sparsely vegetated, desert shrubland, grassland, greasewood flat, montane grassland, montane shrubland, sagebrush shrubland, saltbush shrubland
Birds	
American white pelican	Open water
White-faced ibis	Agricultural land, herbaceous wetland, open water
Bald eagle	Open water, woody riparian and wetlands
Northern goshawk	Aspen forest and woodland, conifer forest, deciduous forest
Swainson's hawk	Agricultural land, barren/sparsely vegetated, desert shrubland, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland
Ferruginous hawk	Cliff and canyon, desert shrubland, grassland, montane grassland, montane shrubland, sagebrush shrubland, saltbush shrubland
Golden eagle	Agricultural land, cliff and canyon, desert shrubland, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland, tundra
Peregrine falcon	Aspen forest and woodland, cliff and canyon, conifer forest, deciduous forest, desert shrubland, grassland, herbaceous wetland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Columbian sharp-tailed grouse	Grassland, greasewood flat, herbaceous wetland, montane grassland, montane shrubland, sagebrush shrubland, woody riparian and wetlands
Mountain plover	Agricultural land, barren/sparsely vegetated, grassland, montane grassland
Long-billed curlew	Agricultural land, grassland, herbaceous wetland, open water, woody riparian and wetlands
Black tern	Open water, herbaceous wetland
Flammulated owl	Aspen forest and woodland, conifer forest
Burrowing owl	Agricultural land, barren/sparsely vegetated, desert shrubland, grassland, montane grassland, montane shrubland, sagebrush shrubland, saltbush shrubland
Great gray owl	Aspen forest and woodland, conifer forest
Long-eared owl	Agricultural land, aspen forest and woodland, conifer forest, deciduous forest, desert shrubland, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Short-eared owl	Agricultural land, grassland, greasewood flat, herbaceous wetland, montane grassland, sagebrush shrubland
Boreal owl	Aspen forest and woodland, conifer forest
Black swift	Cliff and canyon, herbaceous wetland, open water, woody riparian and wetlands

Table 3.8-43 BLM Sensitive, USFS Sensitive, and State Sensitive Species Potentially Occurring in Region II

Region II BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Lewis's woodpecker	Aspen forest and woodland, conifer forest, deciduous forest, pinyon-juniper, woody riparian and wetlands
Red-naped sapsucker	Aspen forest and woodland, conifer forest, deciduous forest, woody riparian and wetlands
American three-toed woodpecker	Conifer forest
Loggerhead shrike	Agricultural land, grassland, greasewood flat, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland
Sage thrasher	Sagebrush shrubland
Brewer's sparrow	Sagebrush shrubland
Sagebrush sparrow	Sagebrush shrubland
Bobolink	Agricultural land, grassland, herbaceous wetland
Reptiles	
Corn snake	Agricultural land, grassland, greasewood flat, herbaceous wetland, woody riparian and wetlands
Long-nosed leopard lizard	Barren/sparsely vegetated, desert shrubland, greasewood flat, sagebrush shrubland, saltbush shrubland
Midget faded rattlesnake	Cliff and canyon, conifer forest, desert shrubland, greasewood flat, pinyon-juniper, montane shrubland, sagebrush shrubland, saltbush shrubland
Smooth greensnake	Agricultural land, aspen forest and woodland, conifer forest, deciduous forest, grassland, greasewood flat, herbaceous wetland, montane grassland, woody riparian and wetlands
Utah milk snake	Agricultural land, aspen forest and woodland, conifer forest, deciduous forest, desert shrubland, grassland, greasewood flat, herbaceous wetland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Terrestrial Invertebrates	
Eureka mountainsnail	Barren/sparsely vegetated, cliff and canyon, desert shrubland, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland
Great Basin silverspot (Nokomis fritillary butterfly)	Agricultural land, herbaceous wetland, woody riparian and wetlands

[1] Habitat types are limited to those present in Region II. Species could occur in other habitat types.

Table 3.8-41 presents habitat acreage impacts by vegetation community/habitat type on USFS lands. Using **Table 3.8-4** in combination with the information presented in **Table 3.8-6**, habitat impacts for each USFS species can be determined. For other sensitive species (BLM and state), please refer to the corresponding vegetation community impacts in **Tables 3.5-12** through **3.5-14.** Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative II-A, remaining impacts to special status wildlife species, especially nesting

raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Strawberry IRA Micro-siting Options

TransWest has developed two potential options to avoid or minimize the crossing of national forest IRAs along Alternatives II-A and II-G. These are referred to as Strawberry Park Micro-siting Options 2 and 3. These two micro-siting options would result in similar direct impacts to special status wildlife species habitat in comparison to Alternative II-A/II-G as shown in **Table 3.8-41**. Micro-siting Options 2 and 3 would reduce the amount of habitat fragmentation in comparison to Alternative II-A as they would be co-located adjacent to an existing 345-kV transmission line for approximately 4 miles. Any other differences in impacts to special status wildlife habitat are anticipated to be negligible in comparison to Alternative II-A.

Fruitland Micro-siting Options

TransWest has developed three potential Fruitland Micro-siting Options to minimize concerns with siting through local farmlands, private residences, and greater sage-grouse habitat. These options are referred to as the Fruitland Micro-siting Options 1, 2, and 3.

Option 1 is approximately 16 miles in length and would cross the same types of vegetation communities as comparable segments of Alternatives II-A and II-G. Approximately 14 miles of Option 1 would be located within designated greater sage-grouse wintering habitat. The main difference in impacts to special status wildlife resulting from the selection of the Fruitland Micro-siting Option 1 comparison to Alternative II-A would be an increase of approximately 53 acres of impacts to sagebrush shrubland habitat. The main difference in impacts to special status wildlife resulting from the selection of the Fruitland Micro-siting Option 1 comparison to Alternative II-G would be a reduction of approximately 19 acres of impacts to sagebrush shrubland habitat. Fruitland Micro-siting Option 1 also would increase the distance of the transmission line from the Red Creek greater sage-grouse lek from 0.5 mile to approximately 1.5 miles. However, under Fruitland Micro-siting Option 1, just as under Alternative II-A, the transmission line would pass within less than 0.4 mile of the North Fruitland lek, which has had the highest use by male greater sage-grouse over the last 10 years of any of the leks in the Fruitland area. Other impacts to special status wildlife resulting from Option 1 are considered negligible.

Option 2 is approximately 13 miles in length and would cross the same types of vegetation communities as comparable segments of Alternatives II-A and II-G. Approximately 11 miles of Option 2 would be located within designated greater sage-grouse wintering habitat. The main difference in impacts to special status wildlife resulting from the selection of the Fruitland Micro-siting Option 2 would be a reduction of approximately 12 and 46 acres of impacts to sagebrush shrubland habitat in comparison to Alternative II-A and Alternative II-G, respectively. Fruitland Micro-siting Option 2 also would increase the distance of the transmission line from 0.5 mile to approximately 1 mile from the Red Creek greater sage-grouse lek. Other impacts to special status wildlife resulting from Option 2 are considered negligible.

Option 3 is approximately 13 miles in length and would cross the same types of vegetation communities as comparable segments of Alternatives II-A and II-G but would not be located within greater sage-grouse occupied or seasonal habitat. The main difference in impacts to special status wildlife resulting from the selection of the Fruitland Micro-siting Option 3 would be a reduction of approximately 36 and 60 acres of impacts to sagebrush shrubland habitat in comparison to Alternative II-A and Alternative II-G, respectively. Fruitland Micro-siting Option 3 also would increase the distance of the transmission line from 0.5 mile to approximately 3 miles from the Red Creek greater sage-grouse lek. Other impacts to special status wildlife resulting from Option 3 are considered negligible.

Table 3.8-44 presents impacts from micro-siting options to federally listed, candidate, and proposed species.

Alternative II-B

Alternative II-B habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region II include 5 federally listed and 1 candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Although there is suitable grassland habitat for Utah prairie dogs, there are no known colonies along Alternative II-B and therefore, impacts are not expected to occur to this species. Section 3.7.6.4 presents a description of existing disturbance along Alternative II-B.

Greater Sage-grouse (Candidate)

Sage-grouse distribution along Alternative II-B in Colorado is limited to a small area in Moffat County near Massadona and immediately south of US-40. Under Alternative II-B in Utah, sage-grouse are only found in very small areas of suitable habitat in western Emery County, western Sanpete County, and Juab County. Under Alternative II-B, a total of two greater sage-grouse population areas would potentially be impacted; these include the Emery and Sheeprocks populations.

As presented in **Table 3.8-36**, no active leks occur within 4 miles of Alternative II-B. However, Alternative II-B crosses a variety of sage-grouse habitats in Colorado and Utah (**Figure 3.8-3**).

The types of impacts to sage-grouse under Alternative II-B generally would be the same as described for Alternative I-A but would differ in the number of leks crossed and amount of habitat disturbed (**Table 3.8-36**). Under Alternative II-B, the refined transmission corridor would cross approximately 6 miles of suitable habitat within the Emery sage-grouse population area. The majority of this area is designated as nesting, brood-rearing, and wintering habitat. The refined transmission corridor would be located approximately 13 miles from the nearest active lek within the Emery population area. Under Alternative II-B, the refined transmission corridor also would cross approximately 6 miles of suitable habitat within the Emery sage-grouse population area near the Town of Fountain Green. Due to the current lack of greater sage-grouse activity and active leks observed within the Emery population area and the proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, potential impacts to the Emery greater sage-grouse population is anticipated to be negligible.

Under Alternative II-B, the refined transmission corridor would cross approximately 6 miles of designated winter habitat within the southern portion the Sheeprocks sage-grouse population area and is located within 6.5 miles of 1 of the 10 active leks within this population area. The entire 6 miles of the refined transmission corridor that crosses the Sheeprocks population area is located within a BLM designated utility corridor. Surveys indicate that over the past decade, an average of approximately 4.9 percent of male greater sage-grouse in the Sheeprocks population have attended the single lek located within 5 miles of the refined transmission corridor. The remaining nine active leks within the Sheeprocks sage-grouse population area are located greater than 9 miles from the refined transmission corridor. Potential impacts to the Sheeprocks greater sage-grouse population from construction and operation of the Project are anticipated to be minimal due to the low percentage of the population that has been observed to attend the Furner Valley lek. Due to the amount of existing habitat fragmentation from existing transmission lines in the Sheeprocks population area and proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, potential impacts to the Sheeprocks population are anticipated to be minimal.

Table 3.8-44 Potential Consrtuction, Operation, and Indirect Impacts to Federally Listed Species from Region II Micro-sitting Options

Species	Fruitland Micro-siting Option 1			Fruitland Micro-siting Option 2			Fruitland Micro-siting Option 3			Comparable -- Fruitland Micro-siting Options 1,2,3			Strawberry IRA Micro-siting Option 2			Strawberry IRA Micro-siting Option 3			Comparable - Strawberry IRA Micro-siting Options		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Black-footed ferret potential habitat (acres)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Percentage of existing habitat within the Region II black-footed ferret analysis area	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Greater Sage-grouse potential habitat (acres)[1]	149	30	25,800	84	12	24,680	60	16	26,763	96	18	26,763	30	11	3,195	36	12	3,195	27	11	3,195
Percentage of existing habitat within the Region II sage-grouse analysis area	0.01	<0.01	0.67							<0.01	<0.01	0.67	<0.01	<0.01	0.22	<0.01	<0.01	0.22	<0.01	<0.01	0.22
Western yellow-billed cuckoo potential habitat (acres)	–	–	–	–	–	–	–	–	–	–	–	–	<1	<1	113	1	<1	113	<1	<1	113
Percentage of existing habitat within the Region II western yellow-billed cuckoo analysis area	–	–	–	–	–	–	–	–	–	–	–	–	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Canada lynx potential habitat (acres)	–	–	–	–	–	–	–	–	–	–	–	–	48	18	6,430	58	18	6,430	44	18	6,430
Percentage of existing habitat within the Region II Canada lynx analysis area	–	–	–	–	–	–	–	–	–	–	–	–	0.01	0.01	1.85	0.02	0.01	1.85	0.01	0.01	1.85
Utah prairie dog potential habitat (acres)	–	–	–	–	–	–	–	–	–	–	–	–	–	<1	18	<1	<1	18	<1	<1	18
Percentage of existing habitat within the Region II Utah prairie dog analysis area	–	–	–	–	–	–	–	–	–	–	–	–	–	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Gray wolf potential habitat (acres)	4	1	1,387	6	1	1,387	6	2	1,387	6	1	1,387	84	32	10,879	101	32	10,879	77	31	10,879
Percentage of existing habitat within the Region II special status wildlife analysis area	<0.01	<0.01	0.28	<0.01	<0.01	0.28	<0.01	<0.01	0.28	<0.01	<0.01	0.28	<0.01	<0.01	0.20	<0.01	<0.01	0.20	<0.01	<0.01	0.20

Implementation of WWEC BMPs and design feature TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat. Given the minor amount of sage-grouse habitat crossed by the proposed Project under Alternative II-B (**Table 3.8-36**), potential impacts from operation of the proposed Project would be limited primarily to habitat loss and fragmentation.

Mexican Spotted Owl (Threatened)

Eastern Uintah County, Utah, along the Colorado/Utah border, is the primary area of potential Mexican spotted owl habitat along Alternative II-B. However, the USFWS recently downgraded the habitat quality within 0.5 mile of Alternative II-B to unsuitable. Due to the lack of suitable habitat along Alternative II-B, no impacts to this species are anticipated.

Western Yellow-billed Cuckoo (Threatened)

The primary areas of potential occurrence for the western yellow-billed cuckoo along Alternative II-B are in Rio Blanco and Mesa counties, Colorado, and Grand County, Utah (USFWS 2011d).

The types of impacts to western yellow-billed cuckoo under Alternative II-B generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-B would result in the construction and operation disturbance of 39 acres and 9 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitat. These areas represent 0.02 percent and <0.01 percent, respectively, of suitable habitat within the Region II western yellow-billed cuckoo analysis area. Indirect impacts would occur to 5,036 acres, which represent 2.55 percent of western yellow-billed cuckoo potential habitat within the Region II western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative II-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6**, and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative II-B would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The USFWS has designated white-tailed prairie dog colonies in Rio Blanco County, Colorado, as NEP areas for black-footed ferrets. Alternative II-B is adjacent to the eastern boundary of the Coyote Basin Reintroduction PMZ. The Coyote Basin population was reintroduced in eastern Utah and western Colorado (Wolf Creek) in 1999. These locations currently support a very small population of black-footed ferrets that inhabit primarily the core of the reintroduction areas (UDWR 2003).

The types of impacts to black-footed ferrets under Alternative II-B generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-B would result in the construction and operation disturbance of 111 acres and 22 acres, respectively, of potentially suitable white-tailed prairie dog habitat in Rio Blanco County, Colorado. These areas represent 0.07 percent and 0.01 percent, respectively, of white-tailed prairie dog colony habitat within the Region II black-footed ferret analysis area. Indirect impacts would occur to 10,798 acres, which represent 7.12 percent of black-footed ferret potential habitat within the Region II black-footed ferret analysis area.

While impacts under Alternative II-B to white-tailed prairie dog colonies outside of the PMZ have a low potential to result in direct loss of ferrets due to the small scattered colonies, habitat disturbance would still occur. Black-footed ferrets are dependent upon white-tailed prairie dog colonies for their survival and loss of white-tailed prairie dog habitat under Alternative II-B may indirectly impact black-footed ferrets that occur outside of the PMZ.

Impacts to the black-footed ferret along Alternative II-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Canada Lynx (Threatened)

Along Alternative II-B, the Canada lynx has the potential to occur within higher elevation conifer forest, aspen woodland, and tundra habitat in central Utah, primarily in the Manti-La Sal National Forest and Uinta National Forest Planning Area. This species is extremely rare in Utah although transient Canada lynx from Colorado have been documented in Utah in the past 10 years. Impacts to the Canada lynx under Alternative II-B would include the construction and operation disturbance of 383 acres and 106 acres, respectively, of potential foraging and denning habitat and the incremental increase of habitat fragmentation from vegetation removal. These areas represent 0.03 percent and 0.01 percent, respectively, of aspen forest and woodland, conifer forest, woody riparian, and tundra habitat within the Region II Canada lynx analysis area (**Table 3.8-42**). Impacts would be more pronounced within occupied habitat. Indirect impacts would occur to 33,445 acres, which represent 2.81 percent of Canada lynx potential habitat within the Region II Canada lynx analysis area.

Canada lynx habitat along Alternative II-B is scarce and primarily occurs in the Manti-La Sal National Forest and Uinta National Forest Planning Area. Habitat is limited to the higher elevation north and west facing slopes with dense forest canopies. Alternative II-B does not cross any LAUs in Utah. Impacts to Canada lynx habitat along Alternative II-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Canada lynx would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

Impacts to the gray wolf under Alternative II-B generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-B would result in the construction and operation disturbance of 2,883 acres and 735 acres, respectively, of potential gray wolf foraging and denning habitat. These areas represent 0.04 percent and 0.01 percent, respectively, of potential habitat within the Region II gray wolf analysis area. Indirect impacts would occur to 258,921 acres, which represent 3.65 percent of gray wolf potential habitat within the Region II gray wolf analysis area. Impacts to the gray wolf under Alternative II-B would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reducting or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative II-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur in Region II are presented in **Table 3.8-43**. The types of impacts under Alternative II-B to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative II-B (e.g., sagebrush shrubland, pinyon-juniper, and saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-12** through **3.5-14.** Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative II-B, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative II-C

Alternative II-C habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region II include 5 federally listed and 1 candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Section 3.7.6.4 presents a description of existing disturbance along Alternative II-C.

Greater Sage-grouse (Candidate)

As presented in **Table 3.8-36**, no active leks occur within 4 miles of Alternative II-C. However, Alternative II-C crosses a variety of sage-grouse habitats in Colorado and Utah (**Figure 3.8-3**). Under Alternative II-C, the Parker Mountain greater sage-grouse population area would potentially be impacted.

The types of impacts to sage-grouse under Alternative II-C generally would be the same as described for Alternative I-A but would differ in the number of leks crossed and the amount of habitat disturbed (**Table 3.8-36**). Under Alternative II-C, the refined transmission corridor would cross approximately 1 mile of suitable habitat within the Parker Mountain sage-grouse population area. The refined transmission corridor would be located approximately 16 miles from the nearest active lek within the Parker Mountain population area. Due to the current lack of greater sage-grouse active leks observed with proximity to the refined transmission corridor and limited area of suitable greater sage-grouse habitat crossed, potential impacts to the Parker Mountain greater sage-grouse population are anticipated to be negligible.

Implementation of WWEC BMPs and design feature TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). In addition, TransWest has taken into account sage-grouse habitat (e.g., lek locations, core areas, etc.) during the design phase of the Project and routed the transmission line around sensitive habitat types, to the extent possible. These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat.These features would help reduce disturbance to sensitive habitat types, the potential for predation on sage-grouse by raptors and corvids, and the collision potential from guy wires. However, given the minor amount of sage-grouse habitat crossed by the proposed Project under Alternative II-C (**Table 3.8-36**), potential impacts would primarily be the result of habitat loss and fragmentation.

Mexican Spotted Owl (Threatened)

Eastern Uintah County, Utah, along the Colorado/Utah border is the primary area of potential Mexican spotted owl habitat along Alternative II-C. However, the USFWS has recently downgraded the habitat quality within 0.5 mile of Alternative II-C to unsuitable. Due to the lack of suitable habitat along Alternative II-C, no impacts to this species are expected to occur.

Western Yellow-billed Cuckoo (Threatened)

The primary areas of potential occurrence for western yellow-billed cuckoo along Alternative II-C are in Rio Blanco and Mesa counties, Colorado, and Grand County, Utah (USFWS 2011d). The types of impacts to the western yellow-billed cuckoo under Alternative II-C generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-C would result in the construction and operation disturbance of 41 acres and 10 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitats. These areas represent 0.02 percent and 0.01 percent, respectively, of suitable habitat within the Region II western yellow-billed cuckoo analysis area. Indirect impacts would occur to 4,974 acres, which represent 2.51 percent of western yellow-billed cuckoo potential habitat within the Region II western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative II-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6,** and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative II-C would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The USFWS has designated white-tailed prairie dog colonies in Rio Blanco County, Colorado, as NEP areas for black-footed ferrets. Alternative II-C is located approximately 10 miles from the eastern boundary of the Coyote Basin Reintroduction PMZ. The Coyote Basin population was reintroduced in eastern Utah and western Colorado (Wolf Creek) in 1999. These locations currently support a very small population of black-footed ferrets that inhabit primarily the core of the reintroduction areas (UDWR 2003).

The types of impacts to black-footed ferrets under Alternative II-C generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-C would result in the construction and operation disturbance of 135 acres and 29 acres, respectively, of potentially suitable white-tailed prairie dog colony habitat in Rio Blanco County, Colorado. These areas represent 0.09 percent and 0.02 percent, respectively, of white-tailed prairie dog colony habitat within the Region II black-footed ferret analysis area. Indirect impacts would occur to 14,557 acres, which represent 9.60 percent of black-footed ferret potential habitat within the Region II black-footed ferret analysis area.

While impacts under Alternative II-C to white-tailed prairie dog colonies outside of the PMZ have a low potential to result in direct loss of ferrets due to the small scattered colonies, habitat disturbance would occur. Black-footed ferrets are dependent upon white-tailed prairie dog colonies for their survival and loss of white-tailed prairie dog habitat under Alternative II-C may indirectly impact black-footed ferrets that occur outside of the PMZ.

Impacts to the black-footed ferret along Alternative II-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Canada Lynx (Threatened)

Along Alternative II-C, the Canada lynx has the potential to occur within higher elevation conifer forests, aspen woodlands, and tundra habitat in central Utah, primarily in the Fishlake National Forest. This

species is extremely rare in Utah, although transient Canada lynx from Colorado have been documented in Utah in the past 10 years.

The types of impacts to the Canada lynx under Alternative II-C generally would be the same as described for Alternative II-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-C would result in the construction and operation disturbance of 129 acres and 31 acres, respectively, of potentially suitable habitat. These areas represent 0.01 percent and <0.01 percent, respectively, of suitable habitat within the Region II Canada lynx analysis area. Indirect impacts would occur to 13,982 acres, which represent 1.17 percent of Canada lynx potential habitat within the Region II Canada lynx analysis area.

Canada lynx habitat along Alternative II-C is scarce and primarily occurs in the Fishlake National Forest. Habitat is limited to the higher elevation north and west facing slopes with dense forest canopies. Alternative II-C does not cross any LAUs in Utah. Therefore, impacts to Canada lynx, as a result of construction and operation under Alternative II-C would be limited primarily to habitat loss and fragmentation.

Impacts to Canada lynx habitat along Alternative II-C, would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Canada lynx would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

Utah Prairie Dog (Threatened)

Along Alternative II-C, the Utah prairie dog occurs in northern Sevier County, Utah. Alternative II-C also crosses a USFWS designated Utah Prairie Dog Recovery Unit.

The transmission line and associated facilities would be sited 0.5 mile from occupied habitat (**SSWS-7**). Direct mortalities would not be expected as a direct result of the transmission line and associated facilities; however, access roads in proximity to occupied habitat could result in direct mortalities from vehicle collision. Transmission structures may increase perching and nesting opportunities for raptors, which may result in direct mortalities to the Utah prairie dog as a result of increased predation.

Alternative II-C would result in the disturbance of potentially suitable habitat (**Table 3.8-39**). Alternative II-C would result in the construction and operation disturbance of 279 acres and 61 acres, respectively, of potentially suitable habitat. These areas represent 0.05 percent and 0.01 percent, respectively, of suitable habitat within the Region II Utah prairie dog analysis area. Indirect impacts would occur to 30,294 acres, which represent 5.89 percent of Utah prairie dog potential habitat within the Region II Utah prairie dog analysis area. Additional impacts may result from increased habitat fragmentation, noxious weed invasion, and human activity and noise. Avoidance of occupied Utah prairie dog habitat would minimize the potential disturbance from increased human activity and noise associated with maintenance activities along the transmission line.

Impacts to the Utah prairie dog and its habitat along Alternative II-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-26, TWE-27, TWE-28, TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and

- Applicable mitigation measures: **SSWS-7**, **SSWS-15**, **NX-1**, and **NX-2**.

It is not anticipated that construction activities would permanently alter Utah prairie dog colonies that would be crossed by the Project and installation of the transmission line would not restrict the colonization of the 250-foot-wide transmission line ROW by Utah prairie dogs. In fact, habitat disturbance may encourage future colonization temporarily, based on the availability of soft, permeable soils that would occur along the ROW subsequent to the Project construction. Habitat surveys would be conducted to determine whether occupied habitat occurs within the Project disturbance footprint.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Utah prairie dog would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative II-C, remaining impacts to the Utah prairie dog would be limited to temporary habitat disturbance. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

The types of impacts to the gray wolf under Alternative II-C generally would be the same as described for Alternative I-A, but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-C would result in the construction and operation disturbance of 2,748 acres and 615 acres, respectively, of potential gray wolf foraging and denning habitat. These areas represent 0.04 percent and 0.01 percent, respectively, of potential habitat within the Region II gray wolf analysis area. Indirect impacts would occur to 253,470 acres, which represent 3.57 percent of gray wolf potential habitat within the Region II gray wolf analysis area. Impacts to the gray wolf under Alternative II-C would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative II-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur along Alternative II-C in Region II are presented in **Table 3.8-43**. The types of impacts under Alternative II-C to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative II-C (e.g., sagebrush shrubland, pinyon-juniper, and saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-12** through **3.5-14**.Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative II-C, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative II-D

Alternative II-D habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region II include 5 federally listed and 1 candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Although there is suitable grassland habitat for Utah prairie dogs, there are no known colonies along Alternative II-D and therefore, impacts are not expected to occur to this species Species-specific impact discussions are presented below. Section 3.7.6.4 presents a description of existing disturbance along Alternative II-D.

Greater Sage-grouse (Candidate)

As presented in **Table 3.8-36**, 11 active leks occur in Utah within 4 miles of Alternative II-D. Alternative II-D crosses a variety of sage-grouse habitats in Colorado and Utah (**Figure 3.8-3**). Under Alternative II-D, a total of four greater sage-grouse population areas would potentially be impacted; these include the Deadman's Bench, Anthro Mountain, Emma Park, and Sheeprocks populations.

The types of impacts to sage-grouse under Alternative II-D generally would be the same as described for Alternative I-A but would differ in the number of leks crossed and the amount of habitat disturbed (**Table 3.8-36**). The Alternative II-D refined transmission corridor would cross approximately 12 miles of designated wintering habitat within the Deadman's Bench population area and comes within 2.8 miles of the North Deadman lek. Within the Deadman's Bench population area, approximately 5.5 miles (61 percent) of the refined transmission corridor is located within a designated BLM utility corridor. Areas of suitable greater sage-grouse habitat crossed by the refined transmission corridor within the Deadman's Bench population area are considered to be degraded by fragmentation from existing oil and gas drilling operations.

The Alternative II-D refined transmission corridor would cross approximately 4 miles of designated wintering habitat within the Anthro Mountain population area and comes within 2.9 miles of the Alkali lek and within 5 miles of 2 other leks. This area is designated as greater sage-grouse wintering habitat that has been degraded by existing oil and gas drilling operations, therefore potential impacts in this area are anticipated to be minimal.

The Alternative II-D refined transmission corridor would cross approximately 14 miles of suitable, wintering, and brood-rearing habitat within the Emma Park population area and comes within 3 miles of seven active leks. Although the refined transmission corridor parallels the northern edge of suitable habitat in the Emma Park area for approximately 9 miles, the majority of the transmission line itself would not be visible from the seven active leks located within 3 miles of the ROW. Of the 14 miles of suitable habitat crossed by the refined transmission corridor within Emma Park, approximately 3 miles are

located in an area that is fragmented by oil and gas drilling operations and the US-191 corridor. This section of the refined transmission corridor bisects an area of designated wintering habitat where nine of the most active leks within the Emma Park population are located. Although this area is already fragmented by infrastructure, construction of the Project is likely to further fragment the landscape and result in barrier effects to greater sage-grouse that are attempting to move between leks. Due to the existing degraded habitat conditions where the refined transmission line corridor is located and the lack of visibility at lek locations, potential impacts are anticipated to be minimal.

Under Alternative II-D, the refined transmission corridor would cross approximately 22 miles of occupied habitat within the southern portion the Sheeprocks sage-grouse population area and is located within 4.4 miles of one of the ten active leks within this population area. Approximately 2.5 miles of the refined transmission corridor is located within a designated BLM utility corridor in areas that cross the Sheeprocks population area. Surveys indicate that over the past decade, an average of approximately 4.9 percent of male greater sage-grouse in the Sheeprocks population have attended the single lek located within 5 miles of the refined transmission corridor. The remaining nine active leks within the Sheeprocks sage-grouse population area are located greater than 7 miles from the refined transmission corridor. Potential impacts to the Sheeprocks greater sage-grouse population from construction and operation of the Project are anticipated to be minimal due to the low percentage of the population that has been observed to attend the Furner Valley lek. Due to the amount of existing habitat fragmentation from existing transmission lines in the Sheeprocks population area and proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, potential impacts to the Sheeprocks population are anticipated to be minimal.

In comparison to Alternative II-A, impacts to sage-grouse under Alternative II-D are likely to be greater because this alternative crosses one more lek within 4 miles that has demonstrated increased attendance rates between 2004 and 2013 (**Table 3.8-37**).

Implementation of WWEC BMPs and design feature TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). In addition, TransWest has taken into account sage-grouse habitat (e.g., lek locations, core areas, etc.) during the design phase of the Project and routed the transmission line around sensitive habitat types, to the extent possible. These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat. These features would help reduce disturbance to sensitive habitat types, the potential for predation on sage-grouse by raptors and corvids, and the collision potential from guy wires. However, given the minor amount of sage-grouse habitat crossed by the proposed Project under Alternative II-D (**Table 3.8-36**), impacts would primarily be the result of habitat loss and fragmentation.

Mexican Spotted Owl (Threatened)

Southern Duchesne County, Utah, along the southern border of the Ashley National Forest, is the primary area of potential Mexican spotted owl habitat along Alternative II-D. The types of impacts to the Mexican spotted owl under Alternative II-D generally would be the same as described for raptors and other migratory birds under Alternative II-A but would differ in the amount of habitat disturbed. Under Alternative II-D, impacts to the Mexican spotted owl may occur as a result of the construction and operation disturbance of 8 acres and 2 acres, respectively, of potentially suitable habitat. These areas represent 0.02 percent and 0.01 percent, respectively, of suitable habitat within the Region II Mexican spotted owl analysis area.

Impacts to the Mexican spotted owl and its habitat along Alternative II-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-2**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-10**, **SSWS-14**, and **SSWS-15**.

Remaining impacts to Mexican spotted owls would be limited to temporary disturbance of potential foraging habitat. This disturbance is anticipated to have little impact given the linear nature of the Project and the extent of foraging habitat in the surrounding Project region.

Western Yellow-billed Cuckoo (Threatened)

The primary areas of potential western yellow-billed cuckoo occurrence along Alternative II-D are in Rio Blanco and Mesa counties, Colorado, and Grand County, Utah (USFWS 2011d).

The types of impacts to western yellow-billed cuckoo under Alternative II-D generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Under Alternative II-D, impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 31 acres and 8 acres, respectively, of potentially suitable, woody riparian and wetlands and herbaceous wetland habitats. These areas represent 0.02 percent and <0.01 percent, respectively, of suitable habitat within the Region II western yellow-billed cuckoo analysis area. Indirect impacts would occur to 4,076 acres, which represent 2.06 percent of western yellow-billed cuckoo potential habitat within the Region II western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative II-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6**, and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative II-D would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The USFWS has designated white-tailed prairie dog colonies in Rio Blanco County, Colorado, as NEP areas for black-footed ferrets. Alternative II-D is located approximately 6 miles from the northern boundary of the Coyote Basin Reintroduction PMZ. The Coyote Basin population was reintroduced in eastern Utah and western Colorado (Wolf Creek) in 1999. These locations currently support a very small population of black-footed ferrets that inhabit primarily the core of the reintroduction areas (UDWR 2003).

The types of impacts to black-footed ferrets under Alternative II-D generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-D would result in the construction and operation disturbance of 250 acres and 43 acres, respectively, of potentially suitable white-tailed prairie dog colony habitat in Rio Blanco County, Colorado. These areas represent 0.16 percent and 0.03 percent, respectively, of white-tailed prairie dog colony habitat within the Region II black-footed ferret analysis area. Indirect impacts would occur to

21,391 acres, which represent 14.10 percent of black-footed ferret potential habitat within the Region II black-footed ferret analysis area.

While impacts under Alternative II-D to white-tailed prairie dog colonies outside of the PMZ have a low potential to result in direct loss of ferrets due to the small scattered colonies, habitat disturbance would still occur. Black-footed ferrets are dependent upon white-tailed prairie dog colonies for their survival and loss of white-tailed prairie dog habitat under Alternative II-D may indirectly impact black-footed ferrets that occur outside of the PMZ.

Impacts to the black-footed ferret along Alternative II-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Canada Lynx (Threatened)

Along Alternative II-D, the Canada lynx has the potential to occur within higher elevation conifer forests, aspen woodlands, and tundra habitat in central Utah, primarily in the Manti-La Sal National Forest. This species is extremely rare in Utah, although transient Canada lynx from Colorado have been documented in Utah in the past 10 years.

The types of impacts to the Canada lynx under Alternative II-D generally would be the same as described for Alternative II-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-D would result in the construction and operation disturbance of 447 acres and 133 acres, respectively, of potentially suitable habitat. These areas represent 0.04 percent and 0.01 percent, respectively, of suitable habitat within the Region II Canada lynx analysis area. Indirect impacts would occur to 37.549 acres, which represent 3.15 percent of Canada lynx potential habitat within the Region II Canada lynx analysis area.

Canada lynx habitat along Alternative II-D is scarce and primarily occurs in the Manti-La Sal National Forest. Habitat is limited to the higher elevation north and west facing slopes with dense forest canopies. Alternative II-D does not cross any LAUs in Utah. Therefore, impacts to Canada lynx as a result of Alternative II-D are limited primarily to habitat loss and fragmentation.

Impacts to Canada lynx habitat along Alternative II-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-14** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Canada lynx would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

The types of impacts to the gray wolf under Alternative II-D generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-D would result in the construction and operation disturbance of 2,922 acres and 808 acres, respectively, of potential gray wolf foraging and denning habitat. These areas represent 0.04 percent and 0.01 percent, respectively, of potential habitat within the Region II gray wolf analysis area. Indirect impacts would occur to 288,304 acres, which represent 4.06 percent of gray wolf potential habitat within the Region II gray wolf analysis area. Impacts to the gray wolf under Alternative II-D would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative II-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-14**, **SSWS-15,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur along Alternative II-D are presented in **Table 3.8-43**. The types of impacts under Alternative II-D to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative II-D (e.g., sagebrush shrubland, pinyon-juniper, and saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-12** and **3.5-14**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative II-D, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative II-E

Alternative II-E habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region II include 5 federally listed and 1 candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Although there is suitable grassland habitat for Utah prairie dogs, there are no known colonies along Alternative II-E and therefore, impacts are not expected to occur to this species Section 3.7.6.4 presents a description of existing disturbance along Alternative II-E.

Greater Sage-grouse (Candidate)

As presented in **Table 3.8-36**, 12 active leks occur in Utah within 4 miles of Alternative II-E. Alternative II-E crosses a variety of sage-grouse habitats in Colorado and Utah (**Figure 3.8-3**).

The types of impacts to sage-grouse under Alternative II-E generally would be the same as described for Alternative I-A, but would differ in the number of leks crossed and the amount of habitat disturbed (**Table 3.8-36**). Under Alternative II-E a total of five greater sage-grouse population areas would potentially be impacted; these include the Deadman's Bench, Halfway Hollow, South Slope Uinta, Emma Park, and Sheeprocks populations.

The Alternative II-E refined transmission corridor would cross approximately 10 miles of designated wintering habitat within the Deadman's Bench population area and comes within 2.8 miles of the North Deadman lek. Approximately 5 miles (50 percent) of the refined transmission corridor are located within a designated BLM utility corridor within the Deadman's Bench population area. Areas of suitable greater sage-grouse habitat crossed by the refined transmission corridor within the Deadman's Bench population area are considered to be degraded by fragmentation from existing oil and gas drilling operations.

Under Alternative II-E, the refined transmission corridor would cross approximately 13 miles of the southern portion the Halfway Hollow sage-grouse population area. The majority of this area is located on private lands and is designated as nesting, brood-rearing, and wintering habitat. The refined transmission corridor would be located within 2.3 miles of the East Pole Line lek. This lek is one of nine active leks within the Halfway Hollow population area although surveys have not observed greater sage-grouse attending this lek since 2008. Due to the amount of existing habitat fragmentation and proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, the impact to the Halfway Hollow population is anticipated to be minimal.

Under Alternative II-E, the refined transmission corridor would cross approximately 8.5 miles of designated wintering habitat within the southern portion the South Slope Uintah sage-grouse population area south of the Town of Bridgeland, Utah. Impacts to this population would be similar to those described for the Halfway Hollow population area in that the refined transmission corridor crosses the southern portion of the population area on tribal and private lands where there are no longer active leks due to the level of existing fragmentation and disturbance from existing roads, oil and gas development and agriculture. The refined transmission line continues south through areas of habitat that is unsuitable to greater sage-grouse but are located within 6 miles of five active leks within the Anthro Mountain population. In this area, the transmission line would not be visible to any of the active Anthro Mountain leks due to topography; therefore, potential impact to the Anthro Mountain population are anticipated to be negligible.

Under Alternative II-E, the refined transmission corridor would cross approximately 22 miles of the Emma Park greater sage-grouse population area and is located within 3 miles of seven leks. Of these seven leks, five are located within 1.3 miles of the proposed Project ROW. These leks have been observed to be attended by approximately 43 percent of the male greater sage-grouse within the Emma Park population area on average over the past 10 years. This area also is designated as wintering and brood-rearing habitat; therefore, potential impacts to the Emma Park population resulting from construction and operation of the Project could result in population level effects.

Under Alternative II-E, the refined transmission corridor would cross approximately 22 miles of occupied habitat within the southern portion the Sheeprocks sage-grouse population area and is located within 4.4 miles of 1 of the 10 active leks within this population area. Approximately 2.5 miles of the refined transmission corridor is located within a designated BLM utility corridor in areas that cross the Sheeprocks population area. Surveys indicate that over the past decade, an average of approximately 4.9 percent of male greater sage-grouse in the Sheeprocks population have attended the single lek located within 5 miles of the refined transmission corridor. The remaining nine active leks within the Sheeprocks sage-grouse population area are located greater than 7 miles from the refined transmission corridor. Potential impacts to the Sheeprocks greater sage-grouse population from construction and operation of the Project are anticipated to be minimal due to the low percentage of the population that has been observed to attend the Furner Valley lek. Due to the amount of existing habitat fragmentation from existing transmission lines in the Sheeprocks population area and proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, potential impacts to the Sheeprocks population are anticipated to be minimal.

In comparison to Alternative II-A, impacts to sage-grouse are likely to be higher because Alternative II-E crosses two more leks within 4 miles that have demonstrated increased attendance rates between 2004 and 2013 (**Table 3.8-37**) in addition to the potential for substantial impacts to the Emma Park population.

Implementation of WWEC BMPs, ECO-1, ECO-4, and design feature TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). In addition, TransWest has taken into account sage-grouse habitat (e.g., lek locations, core areas, etc.) during the design phase of the Project and routed the transmission line around sensitive habitat types, to the extent possible. **SSWS-5** would require TransWest to construct anti-perching devices and mark guy wires or to use alternative structures in high quality sage-grouse habitat. These features would help reduce disturbance to sensitive habitat types, reduce the potential for predation on sage-grouse by raptors and corvids, and reduce the collision potential from guy wires. However, given the minor amount of sage-grouse habitat crossed by the proposed Project under Alternative II-E (**Table 3.8-36**), impacts primarily would be the result of habitat loss and fragmentation.

Mexican Spotted Owl (Threatened)

No suitable habitat for this species is located within the refined transmissison corridor of Alternative II-E. The nearest suitable habitat is located approximately 7 miles to the southwest at the confluence of Dry and Argyle Canyons, 25 miles northeast of Price, Utah. The types of impacts to the Mexican spotted owl under Alternative II-E generally would be the same as described for raptors and other migratory birds under Alternative II-A but would differ in the amount of habitat disturbed (Section 3.7.6.3).

Due to the lack of suitable habitat along Alternative II-E, impacts to this species are expected to be negligible. Implementation of TransWest's design features for meeting or exceeding the raptor safe design standards described in the "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006) (TWE-30) would reduce operation-related impacts to Mexican spotted owls.

Impacts to the Mexican spotted owl and its habitat along Alternative II-E would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-2**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-10**, **SSWS-14**, and **SSWS-15**.

Remaining impacts to Mexican spotted owls would be limited to temporary disturbance of potential foraging habitat. This disturbance is anticipated to have little impact given the linear nature of the Project and the extent of foraging habitat in the surrounding Project region.

Western Yellow-billed Cuckoo (Threatened)

The primary areas of potential western yellow-billed cuckoo occurrence along Alternative II-E are in Rio Blanco County, Colorado (USFWS 2011d).

The types of impacts to the western yellow-billed cuckoo under Alternative II-E generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Under Alternative II-E, impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 63 acres and 16 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitats. These areas represent 0.03 percent and 0.01 percent, respectively, of suitable habitat within the Region II western yellow-billed cuckoo analysis area. Indirect impacts would occur to 7,020 acres, which represent 3.55 percent of western yellow-billed cuckoo potential habitat within the Region II western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative II-E would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6**, and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative II-E would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The USFWS has designated white-tailed prairie dog colonies in Rio Blanco County, Colorado as NEP areas for black-footed ferrets. Alternative II-E is located approximately 6 miles from the northern boundary of the Coyote Basin Reintroduction PMZ.

The types of impacts to black-footed ferrets under Alternative II-E generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed. Alternative II-E would result in the construction and operation disturbance of 294 acres and 53 acres, respectively, of potentially suitable white-tailed prairie dog colony habitat in Rio Blanco County, Colorado. These areas represent 0.19 percent and 0.03 percent, respectively, of white-tailed prairie dog colony habitat within the Region II black-footed ferret analysis area. Indirect impacts would occur to 27,769 acres, which represent 18.30 percent of black-footed ferret potential habitat within the Region II black-footed ferret analysis area.

While impacts under Alternative II-E to white-tailed prairie dog colonies outside of the PMZ have a low potential to result in direct loss of ferrets due to the small scattered colonies, habitat disturbance would still occur. Black-footed ferrets are dependent upon white-tailed prairie dog colonies for their survival and loss of white-tailed prairie dog habitat under Alternative II-E may indirectly impact black-footed ferrets that occur outside of the PMZ.

Impacts to the black-footed ferret along Alternative II-E would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Canada Lynx (Threatened)

Along Alternative II-E, the Canada lynx has the potential to occur within higher elevation conifer forests, aspen woodlands, and tundra habitat in central Utah, primarily in the Uinta-Wasatch-Cache and Ashley National Forests. This species is extremely rare in Utah, although transient Canada lynx from Colorado have been documented in Utah in the past 10 years.

The types of impacts to the Canada lynx under Alternative II-E generally would be the same as described for Alternative II-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-E would result in the construction and operation disturbance of 206 acres and 54 acres, respectively, of potentially suitable habitat. These areas represent 0.02 percent and <0.01 percent, respectively, of suitable habitat within the Region II Canada lynx analysis area. Indirect impacts would occur to 22,814 acres, which represent 1.92 percent of Canada lynx potential habitat within the Region II Canada lynx analysis area.

Canada lynx habitat along Alternative II-E is scarce and occurs primarily in the Fishlake National Forest. Habitat is limited to the higher elevation north and west facing slopes with dense forest canopies. Alternative II-E does not cross any LAUs in Utah. Therefore, impacts to Canada lynx as a result of Alternative II-E are limited primarily to habitat loss and fragmentation.

Impacts to Canada lynx habitat along Alternative II-E would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Canada lynx would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

The types of impacts to the gray wolf under Alternative II-E generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-E would result in the construction and operation disturbance of 2,840 acres and 786 acres, respectively, of potential gray wolf foraging and denning habitat. These areas represent 0.04 percent and 0.01 percent, respectively, of potential habitat within the Region II gray wolf analysis area. Indirect impacts would occur to 296,765 acres, which represent 4.18 percent of gray wolf potential habitat within the Region II gray wolf analysis area. Impacts to the gray wolf under Alternative II-E would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative II-E would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10**, and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur along Alternative II-E are presented in **Table 3.8-43**. The types of impacts under Alternative II-E to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative II-E (e.g., sagebrush shrubland, pinyon-juniper, and saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-12** through **3.5-14**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative II-E, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative II-F

Alternative II-F habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region II include 5 federally listed and 1 candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Although there is suitable grassland habitat for Utah prairie dogs, there are no known colonies along Alternative II-F and therefore, impacts are not expected to occur to this species. Section 3.7.6.4 presents a description of existing disturbance along Alternative II-F.

Greater Sage-grouse (Candidate)

As presented in **Table 3.8-36**, 9 active leks occur in Utah within 4 miles of Alternative II-F. Alternative II-F crosses a variety of sage-grouse habitats in Colorado and Utah (**Figure 3.8-3**).

The types of impacts to sage-grouse from Alternative II-F generally would be the same as described for Alternative I-A but would differ in the number of leks crossed and amount of habitat disturbed

(**Table 3.8-36**). Under Alternative II-F, a total of four greater sage-grouse population areas would potentially be impacted; these include the Deadman's Bench, Anthro Mountain, Emma Park, and Sheeprocks populations.

The Alternative II-F refined transmission corridor would cross approximately 12 miles of designated wintering habitat within the Deadman's Bench population area and comes within 2.8 miles of the North Deadman lek. Approximately 5 miles (42 percent) miles of the refined transmission corridor are located within a designated BLM utility corridor within the Deadman's Bench population area. Areas of suitable greater sage-grouse habitat crossed by the refined transmission corridor within the Deadman's Bench population area are considered to be degraded by fragmentation from existing oil and gas drilling operations.

The Alternative II-F refined transmission corridor would cross approximately 4 miles of designated wintering habitat within the Anthro Mountain population area and comes within 2.9 miles of the Alkali lek and within 5 miles of 2 other leks. This area is designated as greater sage-grouse wintering habitat that has been degraded by existing oil and gas drilling operations; therefore, potential impacts in this area are anticipated to be minimal.

The Alternative II-F refined transmission corridor would cross approximately 3.8 miles of suitable, wintering, and brood-rearing habitat within the Emma Park population area and comes within 3 miles of 7 active leks. Although the refined transmission corridor parallels the northern edge of suitable habitat in the Emma Park area for approximately 16 miles, the majority of the transmission line itself would not be visible from the 6 active leks located within 3 miles of the ROW. Due to the refined transmission line corridor location outside of suitable greater sage-grouse habitat and the lack of visibility at lek locations, potential impacts are anticipated to be minimal in comparison to other alternatives that would potentially impact the Emma Park population.

Under Alternative II-F, the refined transmission corridor would cross approximately 22 miles of occupied habitat within the southern portion the Sheeprocks sage-grouse population area and is located within 4.4 miles of 1 of the 10 active leks within this population area. Approximately 2.5 miles of the refined transmission corridor is located within a designated BLM utility corridor in areas that cross the Sheeprocks population area. Surveys indicate that over the past decade, an average of approximately 4.9 percent of male greater sage-grouse in the Sheeprocks population have attended the single lek located within 5 miles of the refined transmission corridor. The remaining nine active leks within the Sheeprocks sage-grouse population area are located greater than 7 miles from the refined transmission corridor. Potential impacts to the Sheeprocks greater sage-grouse population from construction and operation of the Project are anticipated to be minimal due to the low percentage of the population that has been observed to attend the Furner Valley lek. Due to the amount of existing habitat fragmentation from existing transmission lines in the Sheeprocks population area and proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, potential impacts to the Sheeprocks population are anticipated to be minimal.

In comparison to Alternative II-A, impacts to sage-grouse are likely to be reduced as Alternative II-F would cross within 4 miles of one less lek and fewer acres of important sage-grouse habitat would be impacted (**Table 3.8-36**).

Implementation of WWEC BMPs, ECO-1, ECO-4, and design feature TWE-32 would require TransWest to identify sensitive areas to sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). In addition, TransWest has taken into account sage-grouse habitat (e.g., lek locations, core areas, etc.) during the design phase of the Project and routed the transmission line around sensitive habitat types, to the extent possible. **SSWS-5** would require TransWest to construct anti-perching devices and mark guy wires or to use alternative structures in high quality sage-grouse habitat. These features would help reduce disturbance to sensitive habitat types, reduce the potential for predation on sage-grouse by raptors and corvids, and reduce the collision potential from guy wires. However, given the minor amount of sage-

grouse habitat crossed by the proposed Project under Alternative II-F (**Table 3.8-36**), potential mortality from operation of the proposed Project is expected to be limited primarily to habitat loss and fragmentation.

Mexican Spotted Owl (Threatened)

Southern Duchesne County, Utah, along the southern border of the Ashley National Forest, is the primary area of potential Mexican spotted owl habitat along Alternative II-F. The types of impacts to the Mexican spotted owl under Alternative II-F generally would be the same as described for raptors and other migratory birds under Alternative II-A but would differ in the amount of habitat disturbed. Under Alternative II-F, impacts to the Mexican spotted owl may occur as a result of the construction and operation disturbance of 8 acres and 2 acres, respectively, of potentially suitable habitat. These areas represent 0.02 percent and 0.01 percent, respectively, of suitable habitat within the Region II Mexican spotted owl analysis area.

Impacts to the Mexican spotted owl and its habitat along Alternative II-F would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-2**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-10**, **SSWS-14**, and **SSWS-15**.

Remaining impacts to Mexican spotted owls would be limited to temporary disturbance of potential foraging habitat. This disturbance is anticipated to have little impact given the linear nature of the Project and the extent of foraging habitat in the surrounding Project region.

Western Yellow-billed Cuckoo (Threatened)

The primary area of potential western yellow-billed cuckoo occurrence along Alternative II-F is in Rio Blanco County, Colorado (USFWS 2011d).

The types of impacts to the western yellow-billed cuckoo from Alternative II-F generally would be the same as described for Alternative I-A (**Table 3.8-42**). Under Alternative II-F, impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 31 acres and 9 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitats. These areas represent 0.02 percent and <0.01 percent, respectively, of suitable habitat within the Region II western yellow-billed cuckoo analysis area. Indirect impacts would occur to 4,228 acres, which represent 2.14 percent of western yellow-billed cuckoo potential habitat within the Region II western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative II-F would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6,** and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative II-F would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine

maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The USFWS has designated white-tailed prairie dog colonies in Rio Blanco County, Colorado, as NEP areas for black-footed ferrets. Alternative II-F is located approximately 6 miles from the northern boundary of the Coyote Basin Reintroduction PMZ. The types of impacts to black-footed ferrets from Alternative II-F generally would be the same as described for Alternative II-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-F would result in the construction and operation disturbance of 250 acres and 43 acres, respectively, of potentially suitable white-tailed prairie dog colony habitat in Rio Blanco County, Colorado. These areas represent 0.16 percent and 0.03 percent, respectively, of white-tailed prairie dog colony habitat within the Region II black-footed ferret analysis area. Indirect impacts would occur to 21,391 acres, which represent 14.10 percent of black-footed ferret potential habitat within the Region II black-footed ferret analysis area.

While impacts under Alternative II-F to white-tailed prairie dog colonies outside of the PMZ have a low potential to result in direct loss of ferrets due to the small scattered colonies, habitat disturbance would still occur. Black-footed ferrets are dependent upon white-tailed prairie dog colonies for their survival and loss of white-tailed prairie dog habitat under Alternative II-F may indirectly impact black-footed ferrets that occur outside of the PMZ.

Impacts to the black-footed ferret along Alternative II-F would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Canada Lynx (Threatened)

Along Alternative II-F, the Canada lynx has the potential to occur within higher elevation conifer forests, aspen woodlands, and tundra habitat in central Utah, primarily in the Uinta-Wasatch-Cache and Ashley National Forests. This species is extremely rare in Utah, although transient Canada lynx from Colorado have been documented in Utah in the past 10 years.

The types of impacts to the Canada lynx from Alternative II-F generally would be the same as described for Alternative II-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-F would result in the construction and operation disturbance of 431 acres and 146 acres, respectively, of potentially suitable habitat. These areas represent 0.04 percent and 0.01 percent, respectively, of suitable habitat within the Region II Canada lynx analysis area. Indirect impacts would occur to 35,739 acres, which represent 3.00 percent Canada lynx potential habitat within the Region II Canada lynx analysis area.

Canada lynx habitat under Alternative II-F is scarce and occurs primarily in the Fishlake National Forest. Habitat is limited to the higher elevation north and west facing slopes with dense forest canopies. Alternative II-F does not cross any LAUs in Utah. Impacts to Canada lynx habitat along Alternative II-F would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and

- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Canada lynx would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

The types of impacts to the gray wolf under Alternative II-F generally would be the same as described for Alternative II-A but would differ in the amount of habitat disturbed (**Table 3.8-42**). Impacts to gray wolves under Alternative II-F would occur as the result of the construction and operation disturbance of 3,134 acres and 912 acres, respectively, of potential denning and foraging habitat. These areas represent 0.04 percent and 0.01 percent, respectively, of potential habitat within the Region II gray wolf analysis area. Indirect impacts would occur to 308,636 acres, which represent 4.35 percent of gray wolf potential habitat within the Region II gray wolf analysis area. Impacts to the gray wolf as a result of Alternative II-F are limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative II-F would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur along Alternative II-F are presented in **Table 3.8-43**. The types of impacts under Alternative II-F to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative II-F (e.g., sagebrush shrubland, pinyon-juniper, and saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-12** through **3.5-14**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative II-F, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would

vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative II-G (Agency Preferred)

Alternative II-G habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region II include five federally listed and one candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Suitable habitat for the Mexican spotted owl does not occur along Alternative II-G; therefore, impacts are not expected to occur to this species. Although there is suitable grassland habitat for Utah prairie dogs, there are no known colonies along Alternative II-G and therefore, impacts are not expected to occur to this species. Section 3.7.6.4 presents a description of existing disturbance along Alternative II-G.

Greater Sage-grouse (Candidate)

Sage-grouse in northeastern Utah along Alternative II-G are found primarily in Uintah, Duchesne, Wasatch, and Juab counties. These counties support several of the largest sage-grouse populations in Utah. Under Alternative II-G, a total of five greater sage-grouse population areas would potentially be impacted; these include the Deadman's Bench, Halfway Hollow, South Slope Uinta, Strawberry/ Fruitland, and Sheeprocks populations. As presented in **Table 3.8-36**, a total of 10 active leks occur within 4 miles of Alternative II-G (i.e., 10 active leks in Utah). In addition, Alternative II-G crosses a variety of sage-grouse habitats in Colorado and Utah (**Figure 3.8-3**).

The Alternative II-G refined transmission corridor would cross approximately 2.6 miles of the northern portion of the Deadman's Bench population area and comes within 2.4 miles of the North Deadman lek. Approximately 2.2 miles (85 percent) of the refined transmission corridor are located within a designated BLM utility corridor within the Deadman's Bench population area. A majority of the areas where the refined transmission corridor is sited within 5 miles of the North Deadman lek are not located within occupied greater sage-grouse habitat of the Deadman's Bench population. Therefore, direct impacts to this population from construction and operation would be limited.

Under Alternative II-G, the refined transmission corridor would cross approximately 13 miles of the southern portion the Halfway Hollow sage-grouse population area. The majority of this area is located on private lands and is designated as nesting, brood-rearing, and wintering habitat. The refined transmission corridor would be located within 2.3 miles of the East Pole Line lek. This lek is one of nine active leks within the Halfway Hollow population area although surveys have not observed greater sage-grouse attending this lek since 2008. Due to the amount of existing habitat fragmentation and proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, the impact to the Halfway Hollow population is anticipated to be minimal.

Under Alternative II-G, the refined transmission corridor would cross approximately 9.4 miles of the southern portion the South Slope Uintah sage-grouse population area. Impacts to this population would be similar to those described for the Halfway Hollow population area in that the refined transmission corridor crosses the southern portion of the population area on private lands where there are no longer active leks due to the level of existing fragmentation and disturbance from numerous roads, oil and gas development, agriculture, and the existing Mona to Bonanza 345-kV transmission line.

Under Alternative II-G, the refined transmission corridor would cross approximately 20 miles of occupied habitat within the southern portion the Strawberry/Fruitland sage-grouse population area and is located within 4 miles of 6 of the 9 active leks within this population area. Surveys indicate that over the past

decade, an average of approximately 78 percent of male greater sage-grouse in the Fruitland/Strawberry population have attended these 6 leks located within 4 miles of the refined transmission corridor. Due to the proximity of the refined transmission corridor to a majority of the active leks within the Fruitland/Strawberry population, potential impacts from construction and operation could affect a substantial portion of breeding individuals.

Under Alternative II-G, the refined transmission corridor would cross approximately 22 miles of occupied habitat within the southern portion the Sheeprocks sage-grouse population area and is located within 4.4 miles of 1 of the 10 active leks within this population area. Surveys indicate that over the past decade, an average of approximately 4.9 percent of male greater sage-grouse in the Sheeprocks population have attended the single lek located within 5 miles of the refined transmission corridor. The remaining 9 active leks within the Sheeprocks sage-grouse population area are located greater than 7 miles from the refined transmission corridor. Potential impacts to the Sheeprocks greater sage-grouse population from construction and operation of the Project are anticipated to be minimal due to the low percentage of the population that has been observed to attend the Furner Valley lek. Due to the amount of existing habitat fragmentation from existing transmission lines in the Sheeprocks population area and proximity to human disturbance from agriculture activity, the habitat quality is considered degraded (BLM 2014). Therefore, potential impacts to the Sheeprocks population are anticipated to be minimal.

The types of impacts to sage-grouse under Alternative II-G generally would be the same as discussed for Alternative I-A, but would differ in the amount of habitat disturbed. Alternative II-G crosses fewer leks but has higher observed attendance rates in comparison to Alternatives II-D, II-E, and II-F (**Table 3.8-36** and **Table 3.8-37**). Although potential impacts to the majority of greater sage-grouse populations crossed by Alternative II-G are anticipated to be minor, impacts to the Strawberry/Fruitland population may result in greater sage-grouse avoidance of multiple leks that have been recently active and avoidance of suitable nesting and brood rearing habitats with close proximity to the refined transmission corridor.

Implementation of WWEC BMPs and design feature TWE-32 would require TransWest to identify sensitive areas for greater sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). In addition, TransWest has taken into account sage-grouse habitat (e.g., lek locations, occupied habitat, etc.) during the design phase of the Project and routed the transmission line around sensitive habitat types, to the extent possible. These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat.These features would help reduce disturbance to sensitive habitat types, the potential for predation on sage-grouse by raptors and corvids, and the collision potential from guy wires. Nonetheless, given the amount of important greater sage-grouse habitat crossed by the proposed Project under Alternative II-G in northeastern Utah (**Table 3.8-36**), potential mortality from operation of the proposed Project is likely to be higher in comparison to Alternatives II-B and II-C. Potential impacts to greater sage-grouse resulting from operation of Alternative II-G are likely to be lower in comparison to Alternatives II-D and II-E and similar to those of Alternative II-A.

Western Yellow-billed Cuckoo (Threatened)

Along Alternative II-G, extensive riparian habitat occurs at the confluence of the Duchesne, White, and Green rivers on the Uintah and Ouray Reservation (Grand and Uintah counties, Utah) (Parrish et al. 2002; Bosworth 2003) and sustains the largest breeding population of western yellow-billed cuckoos in Utah. This area is approximately 2 miles south of Alternative II-G. Additional habitat and documented occurrences of western yellow-billed cuckoos along Alternative II-G occur in Utah County, Utah.

The types of impacts to the western yellow-billed cuckoo under Alternative II-G generally would be the same as described for Alternative I-A, but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-G would result in the construction and operation disturbance of 56 acres and 16 acres,

respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitat. These areas represent 0.03 percent and 0.01 percent, respectively, of the available potential habitat within the Region II western yellow-billed cuckoo analysis area. Indirect impacts would occur to 7,255 acres, which represent 3.67 percent of western yellow-billed cuckoo potential habitat within the Region II western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative II-G would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, **WLF-8**, **SSWS-6,** and **SSWS-15**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative II-G would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Black-footed Ferret (Endangered; EXP/NE)

The USFWS has designated white-tailed prairie dog colonies in Rio Blanco County, Colorado and Duchesne and Uintah counties, Utah, as NEP areas for black-footed ferrets. Alternative II-G is adjacent to the northern boundary of the Coyote Basin Reintroduction PMZ. The Coyote Basin population was reintroduced in eastern Utah and western Colorado (Wolf Creek) in 1999. These locations currently support a very small population of black-footed ferrets that primarily inhabit the core of the reintroduction areas (UDWR 2003).

The types of impacts to black-footed ferrets under Alternative II-G generally would be the same as described for Alternative I-A, but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-G would result in the construction and operation disturbance of 248 acres and 41 acres, respectively, of potentially suitable white-tailed prairie dog habitat in Uintah County, Utah. These areas represent 0.16 percent and 0.03 percent, respectively, of white-tailed prairie dog colony habitat within the Region II black-footed ferret analysis area. Indirect impacts would occur to 23,661 acres, which represent 15.59 percent of black-footed ferret potential habitat within the Region II black-footed ferret analysis area.

While impacts under Alternative II-G to white-tailed prairie dog colonies outside of the PMZ have a low potential to result in direct loss of ferrets due to the small scattered colonies, habitat disturbance would still occur. Black-footed ferrets are dependent upon white-tailed prairie dog colonies for their survival and loss of white-tailed prairie dog habitat under Alternative II-G may indirectly impact black-footed ferrets that occur outside of the PMZ.

Impacts to the black-footed ferret along Alternative II-G would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-9** and **SSWS-15**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the black-footed ferret would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Canada Lynx (Threatened)

Along Alternative II-G, the Canada lynx has the potential to occur within higher elevation conifer forests, aspen woodlands, and tundra habitat in central Utah, primarily in the Uinta-Wasatch-Cache National Forest. This species is extremely rare in Utah, although transient Canada lynx from Colorado have been documented in Utah in the past 10 years. Disturbance is possible for lynx that might be dispersing through the area during construction or maintenance. However, such animals would likely avoid noise and human presence and would continue dispersing. Operation of the transmission line will not restrict movement and would allow dispersal. Impacts to the Canada lynx under Alternative II-G would include the construction and operation disturbance of 217 acres and 76 acres, respectively, of potential foraging and denning habitat and the incremental increase of habitat fragmentation from vegetation removal. These areas represent 0.02 percent and 0.01 percent, respectively, of aspen forest and woodland, conifer forest, woody riparian and wetland, and tundra habitat within the Region II Canada lynx analysis area (**Table 3.8-42**). Impacts would be more pronounced within occupied habitat. Impacts to habitat would include the loss of potential cover and den locations consisting of primarily large evergreen trees and downed woody debris. Loss of available foraging habitat (e.g., early succession high tree density areas preferred by the snowshoe hare) would result in impacts to Canada lynx. Indirect impacts would include increased noise and human activity associated with Project construction and increased noise and human presence associated with maintenance activities. Indirect impacts would occur to 24,944 acres, which represent 1.98 percent of Canada lynx potential habitat within the Region II Canada lynx analysis area.

Canada lynx habitat along Alternative II-G is scarce and primarily occurs in the Uinta National Forest Planning Area in higher elevation north and west facing slopes with dense forest canopies. Alternative II-G does not cross any LAUs in Utah. Impacts to Canada lynx habitat along Alternative II-G would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Canada lynx would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Impacts would be more pronounced if habitat is occupied. This disturbance is anticipated to have little impact, given the low probability of a local breeding population and the extent of native habitats in the surrounding Project region.

Gray Wolf (Endangered in Utah and Colorado, EXP/NE in Wyoming)

Impacts to the gray wolf under Alternative II-G generally would be the same as described for Alternative I-A, but would differ in the amount of habitat disturbed (**Table 3.8-42**). Alternative II-G would result in the construction and operation disturbance of 2,639 acres and 744 acres, respectively, of potential gray wolf foraging and denning habitat. These areas represent 0.04 percent and <0.01 percent, respectively, of potential habitat within the Region II gray wolf analysis area. Indirect impacts would occur to 283,511 acres, which represents 4 percent of gray wolf potential habitat within the Region II gray wolf analysis area. Impacts to the gray wolf under Alternative II-G would be limited primarily to habitat loss and fragmentation. Further indirect impacts to the gray wolf may include a reduction or change in distribution of large mammal populations.

Impacts to gray wolf habitat along Alternative II-G would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-31, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15, WLF-10,** and **WLF-6**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the gray wolf would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the extent of native habitats in the surrounding Project region.

Table 3.8-39 summarizes habitat impacts to federally listed species potentially occurring in Region II.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur in Region II are presented in **Table 3.8-43**. The types of impacts under Alternative II-G to BLM sensitive, USFS sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative II-G (e.g., sagebrush shrubland, pinyon-juniper, and montane shrubland) are more likely to be impacted under Alternative II-G. Impacts to these habitat types are presented in Section 3.5.6, Impacts to Vegetation. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Reservation Ridge Alternative Variation

Multiple routes have been developed in the Emma Park area north of Price, Utah, to avoid sage-grouse occupied habitat. The Reservation Ridge Alternative Variation is located to the north of comparable segments of Alternative II-F in occupied sage-grouse habitat in the Emma Park area. This variation and the comparable portion of Alternative II-F do not cross the Fishlake or Manti-La Sal National Forests. **Table 3.8-45** summarizes Region II alternative variation impact parameters for special status wildlife species. The Reservation Ridge Alternative Variation refined transmission corridor would cross approximately 1.5 miles of wintering greater sage-grouse habitat. This area is located near Soldier Summit and within the SH-6 corridor; therefore, the suitable greater sage-grouse habitat at this location is already fragmented and experiences increased disturbance due to the highway. The Reservation Ridge Alternative Variation would result in reduced direct impacts to approximately 154 acres of construction impacts and 51 acres of operation impacts to sage-grouse potential habitat where comparable segments of Alternative II-F would result in direct impacts to approximately 174 acres of construction impacts and 57 acres of operation impacts to sage-grouse potential habitat as shown in **Table 3.8-45**. A total of four occupied sage-grouse leks are located within 4 miles of the Reservation Ridge Alternative Variation with an average distance of 3.64 miles from the refined transmission corridor. Segments of Alternative II-F that are comparable to the Reservation Ridge Alternative Variation have a total of 6 occupied sage-grouse leks located within 4 miles of the refined transmission corridor, with an average distance of 2.08 miles.

Table 3.8-45 Summary of Region II Alternative Variation Impact Parameters for Federally Listed and Candidate Species

Species	Reservation Ridge Alternative Variation			Comparable - Reservation Ridge Variation		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Black-footed ferret potential habitat (acres)	-	-	-	-	-	-
Percentage of existing habitat within the Region II black-footed ferret analysis area	-	-	-	-	-	-

Table 3.8-45 Summary of Region II Alternative Variation Impact Parameters for Federally Listed and Candidate Species

Species	Reservation Ridge Alternative Variation			Comparable - Reservation Ridge Variation		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Greater Sage-grouse potential habitat (acres)	154	51	13,316	174	57	16,903
Percentage of existing habitat within the Region II sage-grouse analysis area	0.01	<0.01	0.92	0.01	<0.01	1.16
Western yellow-billed cuckoo potential habitat (acres)	<1	<1	103	<1	<1	241
Percentage of existing habitat within the Region II western yellow-billed cuckoo analysis area	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Canada lynx potential habitat (acres)	213	72	18,291	158	49	11,935
Percentage of existing habitat within the Region II Canada lynx analysis area	0.06	0.02	5.25	0.05	0.01	3.43
Utah prairie dog potential habitat (acres)	–	–	–	–	–	–
Percentage of existing habitat within the Region II Utah prairie dog analysis area	–	–	–	–	–	–
Gray wolf potential habitat (acres)	410	138	35,650	415	134	36,314
Percentage of existing habitat within the Region II gray wolf analysis area	0.01	<0.01	0.67	0.01	<0.01	0.68
	Reservation Ridge Alternative Variation			Comparable - Reservation Ridge Variation		
Occupied Sage-grouse Leks	4			6		
Average distance of leks to refined transmissison corridor (miles)	3.64			2.08		

Alternative Connectors in Region II

The Lynndyl, IPP East, and Castle Dale alternative connectors would increase the total special status wildlife species habitat disturbance, if they were to be utilized. These connectors do not cross sage-grouse habitat. The Price Alternative Connector does cross occupied sage-grouse habitat and would increase the total special status wildlife species habitat disturbance, if utilized. **Table 3.8-46** summarizes impacts associated with the alternative connectors in Region II.

Table 3.8-46 Summary of Region II Alternative Connector Impact Parameters for Special Status Wildlife Species

Alternative Connector	Analysis
Lynndyl Alternative Connector (Alternatives II-B and II-C)	• Approximately 24 miles in length.[1] • Approximately 297 acres of construction and 66 acres of operation impacts to special status wildlife species habitat would occur. • No occupied sage-grouse habitat crossed by alignment. • No special status raptor nests are within 1 mile of the alignment.
IPP East Alternative Connector (Alternatives II-A and II-B)	• Approximately 4 miles in length.[1] • Approximately 44 acres of construction and 7 acres of operation impacts to special status wildlife species habitat would occur. • No occupied sage-grouse habitat crossed by alignment. • No special status raptor nests are within 1 mile of the alignment.

Table 3.8-46 Summary of Region II Alternative Connector Impact Parameters for Special Status Wildlife Species

Alternative Connector	Analysis
Castle Dale Alternative Connector	• Approximately 11 miles in length.[1] • Approximately 136 acres of construction and 27 acres of operation impacts to special status wildlife species habitat would occur. • No occupied sage-grouse habitat crossed by alignment. • 6 special status raptor nests are within 1 mile of the alignment.
Price Alternative Connector	• Approximately 18 miles in length.[1] • Approximately 236 acres of construction and 60 acres of operation impacts to special status wildlife species habitat would occur. • Approximately 201 acres of construction and 44 acres of operation impacts to sage-grouse habitat would occur • Approximately 2 acres of construction, 1 acre of operation, and 829 acres of indirect impacts to black-footed ferret potential habitat would occur. • 29 special status raptor nests are within 1 mile of the alignment.

[1] Length refers to length of 600-kV transmission line and serves as a proxy metric for avian collision potential.

Region II Series Compensation Stations (Design Option 3)

If Design Option 3 were implemented, a series compensation station would be necessary along the alternative routes of Region II during the first-phase (AC operation). There are three potential sites, each corresponding to specific alternative routes. Upon completion of Phase 2 of Design Option 2, when there was no utility for the station, it would be deconstructed and reclaimed to the original condition. These series compensation station alternatives are depicted in **Figure 2-3**. Potential construction and operation impacts to general vegetation communities from these options are provided in Section 3.5.6.

Series Compensation Station 1 - Design Option 3 corresponds to Alternatives II-A and II-E. The approximate acreages of potential construction and operation impacts to special status wildlife habitats would include 5 and 4 acres of suitable gray wolf habitat, respectively. No greater sage-grouse habitat is located within the Series Compensation Station 1 siting area and the nearest active lek is located approximately 10 miles to the northeast. Although no raptor nests are located within the proposed series Compensation Station 1 site, one raptor nest is located within the siting area for this facility.

Series Compensation Station 2 - Design Option 3 corresponds to Alternatives II-B and II-C. The approximate acreages of potential construction and operation impacts to special status wildlife habitats would include 8 and 5 acres of suitable gray wolf habitat respectively. No greater sage-grouse habitat is located within the Series Compensation Station 2 siting area and the nearest active lek is located approximately 30 miles to the northeast. Although no raptor nests are located within the proposed series Compensation Station 2 site, three raptor nests are located within the siting area for this facility.

Series Compensation Station 3 - Design Option 3 corresponds to Alternatives II-D and II-F. The approximate acreages of potential construction and operation impacts to special status wildlife habitats would include 6 and 4 acres of suitable gray wolf habitat respectively. No greater sage-grouse habitat is located within the Series Compensation Station 3 siting area and the nearest active lek is located approximately 30 miles to the northwest. Although no raptor nests are located within the proposed series Compensation Station 3 site, six raptor nests are located within the siting area for this facility.

Region II Conclusion

A comparison of impact parameters for Region II alternatives indicates that potential construction and operation impacts to special status wildlife species would be varied across all alternatives as shown in **Table 3.8-42**. Alternative II-E would result in the greatest acreage of direct and indirect impacts to sage-grouse important habitat in comparison to the other Region II alternatives (**Table 3.8-36**). Alternative II-E also would result in the greatest acreage of direct and indirect impacts to western yellow-billed cuckoo

and black-footed ferret potential habitat in comparison to the other Region II alternatives (**Table 3.8-42**). Alternative II-D would result in the greatest acreage of direct and indirect impacts to Canada lynx potential habitat in comparison to the other Region II alternatives (**Table 3.8-42**). However, project effects on special status wildlife species and their potential habitat would be avoided or considered to be low magnitude and short-term after applying BMPs, design features, and additional mitigation.

3.8.6.5 Region III

Tables 3.8-47, **3.8-48**, **3.8-49**, **3.8-50**, and **3.8-51** provide a tabulation of impacts associated with the alternative routes in Region III. Key impact parameters that relate to the impact discussion in Section 3.8.6.2, Impacts to Special Status Species Common to All Alternative Routes and Associated Components, and specific differences by alternative are discussed below. The Dixie National Forest is crossed by the Project in Region III. **Table 3.8-52** presents impacts to USFS sensitive species habitat on Dixie National Forest lands which are crossed by alternative routes and other project components in Region III. **Table 3.8-53** provides a tabulation of impacts associated with the alternative routes in Region III to federally listed wildlife species.

Alternative III-A (Applicant Proposed)

Alternative III-A habitat disturbance and fragmentation are described in Section 3.7.6.5.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region III include 6 federally listed and 1 federal candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Suitable habitat for the Mexican spotted owl does not occur along Alternative III-A; therefore, impacts are not expected to occur to this species. Section 3.7.6.4 presents a description of existing disturbance along Alternative III-A.

Desert Tortoise (Threatened)

The desert tortoise occurs along Alternative III-A in southern Washington County, Utah, and Clark and Lincoln counties, Nevada. This species occurs exclusively within the Mojave Desert shrub community.

Potential impacts to the desert tortoise would include the disturbance of potentially suitable habitat and the incremental increase of habitat fragmentation from vegetation removal and other surface-disturbing activities (**Table 3.8-47**). Direct impacts to the desert tortoise may occur as a result of the construction and operation disturbance of 919 acres and 254 acres, respectively, of potentially suitable habitat. These areas represent 0.05 percent and 0.01 percent, respectively, of suitable habitat within the Region III desert tortoise analysis area. Indirect impacts would occur to 108,494 acres, which represent 5.44 percent of desert tortoise potential habitat within the Region III desert tortoise analysis area. Additional impacts resulting from the construction of new access roads could result from the increase of human disturbance to the species.

Table 3.8-47 Summary of Region III Alternative Route Impact Parameters for Desert Tortoise

Parameter	Alternative III-A			Alternative III-B/Alternative III-D			Alternative III-C		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
USFWS critical habitat (acres)	377	117	53,399	268	45	35,822	658	135	111,813
USFWS potential habitat[1] (acres)	919	254	108,494	926	175	119,026	1,108	224	104,844

[1] USGS Modeled Habitat values 0.5 -1.0.

Table 3.8-48 Summary of Region III Alternative Route Impact Parameters for Greater Sage-grouse

Parameter	Alternative III-A			Alternative III-B			Alternative III-C			Alternative III-D		
Number of active leks within 4 miles of alignments in Utah	1			-			-			-		
Length of transmission line in miles (habitat fragmentation and collision potential)	276			284			308			281		
Habitat Disturbance	**Construction Impact**	**Operation Impact**	**Indirect Impact**	**Construction Impact**	**Operation Impact**	**Indirect Impact**	**Construction Impact**	**Operation Impact**	**Indirect Impact**	**Construction Impact**	**Operation Impact**	**Indirect Impact**
Utah occupied habitat (acres)[1]	90	17	13,673	–	–	–	–	–	–	–	–	–
Utah brood-rearing areas (acres)	90	17	13,673	–	–	–	–	–	–	–	–	–
Utah wintering habitat (acres)	90	17	13,673	–	–	–	–	–	–	–	–	–

[1] Occupied habitat includes brood-rearing habitat and wintering habitat.

Table 3.8-49 Summary of Region III Alternate Route Impact Parameters (Visibility) for Greater Sage-grouse

Parameter	Alternative			
	III-A	III-B	III-C	III-D
Utah				
Number of visible occupied leks within 0.5 mile of alignments	–	–	–	–
Number of visible occupied leks within 1 mile of alignments	–	–	–	–
Number of visible occupied leks within 2 miles of alignments	–	–	–	–
Number of visible occupied leks within 3 miles of alignments	–	–	–	–
Number of visible occupied leks within 4 miles of alignments	1	–	–	–
Average distance of visible leks within 4 miles of alignments	3.22	–	–	–
Length of transmission line in miles (habitat fragmentation and collision potential)[1]	276	284	308	281

[1] Length refers to length of 600-kV transmission line and serves as a proxy metric for avian collision potential.

Table 3.8-50 Summary of Region III Alternative Route Impact Parameters for Utah Prairie Dog

Parameter	Alternative III-A			Alternative III-B			Alternative III-C			Alternative III-D		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Utah prairie dog potential habitat in high intensity survey areas (acres)	88	16	13,093	151	30	19,566	151	30	19,566	151	30	19,566
Utah prairie dog potential habitat in low intensity survey areas (acres)	658	104	68,850	699	125	73,617	649	114	73,189	699	125	73,617

Table 3.8-51 Special Status Raptor Nests Within 1 mile of Potential Disturbance Areas in Region III[1,2]

Species	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D	Ox Valley East Alternative Variation	Ox Valley West Alternative Variation	Ox Valley Alternative Variation Comparable Portion of Alternative III-A	Pinto Alternative Variation	Pinto Alternative Variation Comparable Portion of Alternative III-A	Avon Alternative Connector	Moapa Alternative Connector	Arrowhead Alternative Connector
Burrowing owl	7	7	7	7	–	–	–	–	–	–	–	–
Ferruginous hawk	32	16	16	16	–	–	–	–	2	2	–	–
Golden eagle	18	16	20	19	–	–	–	2	2	–	–	–
Long-eared owl	1	–	–	–	–	–	–	–	1	–	–	–
Unknown raptor species	143	75	79	79	1	1	11	5	48	1	–	–
Totals	201	114	122	121	1	1	11	7	53	3	–	–

[1] Nests of raptor species, which are not classified as special status, are tabulated in Section 3.7, Wildlife. Nests of unknown raptor species are tabulated in both Sections 3.7 and 3.8 because they may have been utilized by either special status raptors or non-special status raptors.

[2] Nests of other special status raptor species such as bald eagle and Swainson's hawk are not included due to the lack of documented nest sites within 1 mile of potential disturbance areas.

Table 3.8-52 Summary of Region III Alternative Route Impacts to Vegetation Communities on USFS-Administered Lands

Vegetation Community/ Habitat Type	Alternative III-A			Ox Valley East			Ox Valley East Comparison			Ox Valley West			Ox Valley West Comparison			Pinto Variation			Pinto Variation Comparison			Total Acres of Vegetation Community/ Habitat Type in Forest
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	
Dixie National Forest																						
1. Agricultural Land	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	<1	<1	5	–	–	–	629
2. Aspen Forest and Woodland	–	–	10	2	1	88	–	–	10	2	1	86	–	–	10	<1	<1	11	–	–	10	196,825
3. Barren/ Sparsely Vegetated	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	26,266
4. Cliff and Canyon	–	–	31	1	<1	40	–	–	30	1	<1	40	–	–	30	–	–	15	–	–	31	93,023
5. Conifer Forest	–	–	1	–	–	4	–	–	–	–	–	4	–	–	–	<1	<1	12	–	–	1	537,641
6. Deciduous Forest	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
7. Desert Shrubland	30	4	1,251	<1	<1	369	5	1	533	<1	<1	369	5	1	533	–	–	177	1	<1	133	5,265
8. Developed/ Disturbed Land[1]	7	2	241	6	1	253	6	1	220	3	1	257	6	1	220	5	1	324	6	1	213	26,479
9. Dunes	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
10. Grassland	1	<1	61	1	<1	177	1	<1	47	1	<1	186	1	<1	47	6	1	145	1	<1	40	2,010
11. Greasewood Flat	<1	<1	6	–	–	–	<1	<1	6	–	–	0	<1	<1	6	–	–	4	<1	<1	6	19
12. Herbaceous Wetland	<1	<1	4	–	–	2	<1	<1	4	–	–	2	<1	<1	4	<1	<1	5	<1	<1	4	4,438
13. Montane Grassland	–	–	–	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–	–	–	–	12,854
14. Montane Shrubland	14	3	1,781	50	16	3,071	13	3	1,687	49	15	3,055	13	3	1,687	8	2	1,152	13	3	1,672	106,207
15. Open Water	–	–	–	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–	–	–	–	2,445
16. Pinyon-juniper	128	29	15,971	129	42	12,909	103	25	12,368	124	42	11,459	103	25	12,368	182	47	24,123	102	24	14,131	521,470
17. Ephemeral Wash	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18. Sagebrush Shrubland	126	31	7,178	110	36	8,183	104	27	6,696	110	38	8,166	104	27	6,696	95	22	6,392	115	30	6,597	315,223
19. Saltbush Shrubland	<1	<1	21	–	–	–	<1	<1	21	–	–	–	<1	<1	21	–	–	23	<1	<1	21	497
20. Tundra	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	16,504
21. Woody Riparian and Wetlands	2	1	200	5	2	621	2	1	188	5	2	622	2	1	188	3	1	138	2	1	187	15,660

[1] Although the developed/disturbed land cover type is not considered to be suitable wildlife habitat and is not included in analyses and reported disturbance acreages, some wildlife species may utilize these areas.

Table 3.8-53 Summary of Region III Alternative Route Impact Parameters for Federally Listed and Candidate Species

Species	Alternative III-A			Alternative III-B			Alternative III-C			Alternative III-D		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Desert tortoise potential habitat (acres)	919	254	108,494	926	175	119,026	1,108	224	111,813	926	175	119,026
Percentage of existing habitat within the Region III desert tortoise analysis area	0.05	0.01	5.44	0.05	0.01	5.97	0.06	0.01	5.60	0.05	0.01	5.97
Greater sage-grouse potential habitat (acres)[1]	606	132	61,191	655	130	68,892	803	169	97,471	655	130	68,892
Percentage of existing habitat within the Region III sage-grouse analysis area	0.05	0.01	5.13	0.05	0.01	5.77	0.07	0.01	8.17	0.05	0.01	5.77
Utah prairie dog potential habitat (acres)	531	100	66,296	574	110	68,903	558	105	68,697	574	110	68,903
Percentage of existing habitat within the Region III Utah prairie dog analysis area	0.07	0.01	8.28	0.07	0.01	8.60	0.07	0.01	8.58	0.07	0.01	8.60
California condor potential habitat (acres)	247	63	30,108	268	67	30,523	240	64	31,092	268	67	30,523
Percentage of existing habitat within the Region III California condor analysis area	0.02	<0.01	2.03	0.02	<0.01	2.06	0.02	<0.01	2.10	0.02	<0.01	2.06
Yuma clapper rail potential habitat (acres)	68	10	5,528	69	11	6,916	79	15	10,325	69	11	6,916
Percentage of existing habitat within the Region III Yuma clapper rail analysis area	0.08	0.01	6.76	0.08	0.01	8.46	0.10	0.02	12.63	0.08	0.01	8.46
Western yellow-billed cuckoo potential habitat (acres)	127	27	12,618	152	27	15,501	95	19	12,241	152	27	15,501
Percentage of existing habitat within the Region III western yellow-billed cuckoo analysis area	0.06	0.01	6.27	0.08	0.01	7.70	0.05	0.01	6.08	0.08	0.01	7.70
Southwestern willow flycatcher potential habitat (acres)	60	16	7,090	83	16	8,585	16	3	1,916	83	16	8,585
Percentage of existing habitat within the Region III southwestern willow flycatcher analysis area	0.05	0.01	5.93	0.07	0.01	7.18	0.01	<0.01	1.60	0.07	0.01	7.18

[1] Impacts to sage-grouse potential habitat are based on impacts to the sagebrush shrubland vegetation community. Impacts to Utah occupied habitat, Utah brood-rearing areas, and Utah wintering habitat are presented in **Table 3.8-48**.

The loss or conversion of habitat, especially undisturbed occupied habitat and USFWS-designated critical habitat would result in an incremental reduction in the amount of available habitat in the Region III desert tortoise analysis area. Mortality as a result of crushing and burying also may result from construction activities. In most instances, suitable habitat adjacent to disturbed areas would continue to be available for use by this species. However, displacement would increase competition and could result in some local reductions in desert tortoise populations if adjacent habitats are at carrying capacity. Potential impacts also could include burrow abandonment or loss of eggs or young.

Operation-related impacts to desert tortoises under Alternative III-A would include increased human presence and noise during maintenance activities, which may result in displacement. Increased vehicle traffic within occupied desert tortoise habitat may lead to mortalities as a result of crushing. Desert tortoises also may experience increased predation by raptor and ravens resulting from the increase of perching opportunity provided by the existence of transmission towers and lines. Direct mortality could result from construction personnel or members of the public handling tortoises. Desert tortoises expel their water reserve as a defense mechanism and can die if they aren't able to access water and rehydrate quickly. Also, there is potential for increased public access along Project roads to contribute to the problem of members of the public bringing desert tortoises home to become pets.

Potential impacts to the desert tortoise would result from incremental increases in habitat fragmentation caused by vegetation removal and other surface-disturbing activities associated with transmission line construction. Other direct impacts could occur as a result of mortality caused by construction equipment and support vehicles crushing individuals and destroying burrows. Long-term increases in vehicle traffic and human activity associated with operations also could have adverse effects on the desert tortoise. These impacts would be more pronounced within occupied habitat and USFWS critical habitat. In most instances, suitable habitat adjacent to disturbed areas would continue to be available for use by this species. However, displacement would increase competition and could result in some local reductions in desert tortoise populations if adjacent habitats are at carrying capacity.

Impacts to the desert tortoise and its habitat along Alternative III-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-4**, **SSWS-15**, and **WLF-3**.

Remaining impacts to the desert tortoise under Alternative III-A would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the desert tortoise would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

<u>California Condor (Endangered; EXNE)</u>

Condors regularly forage, roost, and may even nest in southern Utah (Sutter et al. 2005). Based on their ability to travel up to 200 miles in a day (UDWR 2011), this species may be found along Alternative III-A. The current range of this population is centered on the Colorado River Basin in northern Arizona and southern Utah. Although condors often winter in Arizona, many individuals from the southwestern population forage over Utah. They can travel back and forth between the Grand Canyon and Zion National Park in a single day. Condors commonly occur in Utah between April and November but peak numbers usually occur from June through August.

Because the species has such a large foraging range, direct impacts from construction activities associated with Alternative III-A to foraging habitat would include the construction and operation disturbance of 247 acres and 63 acres, respectively. These areas represent 0.02 percent and <0.01 percent, respectively, of the California condor analysis area. Condors are cavity-nesting birds and

most nest sites have been found in caves, on rock ledges, or in tree cavities. Direct impacts to condor nesting habitat from construction activities are unlikely because the species nests in rugged, remote locations. Indirect impacts would occur to 30,108 acres, which represent 2.03 percent of California condor potential habitat within the California condor analysis area.

Direct impacts from operation of Alternative III-A to the California condor include the potential for collision and electrocution associated with transmission lines (AGFD 2011; 2004; Snyder and Rea 1998; Terres 1980; USFWS 1996). Since 1995 there have been a total of seven transmission line-related California condor deaths in California and Arizona (Ventana Wildlife Society 2007). The California condor is a very large avian scavenger, with a wingspan of 9.5 feet and a weight of up to 25 pounds. Using thermal updrafts, condors can soar and glide up to 50 miles per hour. Therefore, condors have low maneuverability which contributes to the potential for transmission line collision and electrocution. The potential for electrocution mortality to California condors warrants special consideration regarding adequate spacing of transmission equipment (APLIC 2006). The wingspan of a condor could exceed typical separation distances of electrical conductors and other energized equipment. California condors normally produce only a single egg every other year (AGFD 2008). Because they have a low reproductive rate, populations can be impacted by even sporadic mortality (USFWS 1996).

Impacts to the California condor along Alternative III-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1,** and **WLF-8**.

Remaining impacts to the California condor would be limited to temporary disturbance of potential foraging habitat. This disturbance is anticipated to have little impact given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Greater Sage-grouse (Candidate)

Sage-grouse along Alternative III-A in southwestern Utah are found in portions of Beaver and Iron counties. These counties support the largest sage-grouse populations in southwestern Utah.

As presented in **Table 3.8-48**, 1 active lek occurs within 4 miles of Alternative III-A. Alternative III-A also crosses a variety of sage-grouse habitats in Utah (**Figure 3.8-5**).

The types of impacts to sage-grouse from construction and operation of Alternative III-A generally would be the same as described for Alternative I-A but would differ in the number of leks crossed and amount of habitat disturbed (**Table 3.8-48**). Impacts to occupied sage-grouse habitat under Alternative III-A would include the construction and operation disturbance of 90 acres and 17 acres, respectively. These areas represent <0.01 percent and <0.01 percent, respectively, of the Region III sage-grouse analysis area.

Implementation of WWEC BMPs and TWE-32 would require TransWest to identify sensitive areas to the sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat. Given the minor amount of sage-grouse habitat crossed by the proposed Project under Alternative III-A (**Table 3.8-48**), potential impacts from operation of the proposed Project would be primarily limited to habitat loss and fragmentation.

Yuma Clapper Rail (Endangered)

The Yuma clapper rail may occur within suitable marsh habitat along the Muddy and Virgin rivers and at the Ash Meadows NWR. It also is suspected to occur at the Pahranagat NWR and the Las Vegas Wash.

Direct impacts to the Yuma clapper rail include habitat loss, modification, and fragmentation. Alternative III-A would result in the construction and operation disturbance of 68 acres and 10 acres, respectively, of potentially suitable herbaceous wetland habitat. These areas represent 0.08 percent and 0.01 percent, respectively, of suitable habitat within the Region III Yuma clapper rail analysis area (**Table 3.8-53**). Indirect impacts would occur to 5,528 acres, which represent 6.76 percent of Yuma clapper rail potential habitat within the Region III Yuma clapper rail analysis area. Improved access as a result of Project roads under Alternative III-A may result in increased human disturbance to the species. These impacts would be more pronounced if construction were to occur during the breeding season.

Operation of the proposed Project would incrementally increase the collision potential for Yuma clapper rails. Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components, presents details regarding collision impacts to migratory birds.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the Yuma clapper rail and its habitat along Alternative III-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Remaining impacts to nesting Yuma clapper rails under Alternative III-A would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Yuma clapper rail would be limited to habitat loss, fragmentation, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Western Yellow-billed Cuckoo (Threatened)

This species may occur along Alternative III-A in several areas of southern Utah and Nevada. The western yellow-billed cuckoo is a confirmed breeder along the Muddy River in Clark County, Nevada (Floyd et al. 2007). Records also exist for the western yellow-billed cuckoo along the Virgin River in Nevada and in the Beaver Dam Wash in Washington County, Utah (Bosworth 2003; Parrish et al. 2002).

The types of impacts to the western yellow-billed cuckoo under Alternative III-A generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-53**). Under Alternative III-A, direct impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 127 acres and 27 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitats. These areas represent 0.06 percent and 0.01 percent, respectively, of suitable habitat within the Region III western yellow-billed cuckoo analysis area. Indirect impacts would occur to 12,618 acres, which represent 6.27 percent of western yellow-billed cuckoo potential habitat within the Region III western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative III-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-6, SSWS-15, WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8.**

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Southwestern Willow Flycatcher (Endangered)

The southwestern willow flycatcher may occur within suitable riparian habitat along Alternative III-A in southwestern Utah and southern Nevada. Habitat that is essential to the conservation of the species is identified on the Pahranagat River, the Muddy River, and a portion of the Virgin River. Designated Critical Habitat does not occur along Alternative III-A.

Direct impacts to the southwestern willow flycatcher include habitat loss, modification, and fragmentation. Under Alternative III-A, direct impacts to the southwestern willow flycatcher may occur as a result of the construction and operation disturbance of 60 acres and 16 acres, respectively, of potentially suitable woody riparian and wetlands habitats. These areas represent 0.05 percent and 0.01 percent, respectively, of suitable habitat within the Region III southwestern willow flycatcher analysis area (**Table 3.8-53**). Indirect impacts would occur to 7,090 acres, which represent 5.93 percent of southwestern willow flycatcher potential habitat within the Region III southwestern willow flycatcher analysis area.

Southwestern willow flycatchers nest in native riparian habitat where available, but also will nest in monocultures of salt cedar or Russian olive (USGS 2008). Improved access as a result of Project roads may further fragment suitable habitat and result in increased disturbance to the species. These impacts would be more pronounced if construction were to occur during the southwestern willow flycatcher breeding season (March 15 to October 15).

Operation of the proposed Project would incrementally increase the collision potential for southwestern willow flycatchers. Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components, presents details regarding collision impacts to migratory birds.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the southwestern willow flycatcher and its habitat along Alternative III-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8**, **SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Remaining impacts to the southwestern willow flycatcher would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Utah Prairie Dog (Threatened)

Along Alternative III-A, the Utah prairie dog is found in Beaver, Iron, and Washington counties, Utah. Alternative III-A also crosses a USFWS-designated Utah Prairie Dog Recovery Unit.

The transmission line and associated facilities would be sited 0.5 mile from occupied habitat (**SSWS-7**). Direct mortalities would not be expected as a direct result of the transmission line and associated facilities; however, access roads in proximity to occupied habitat could result in direct mortalities from vehicle collision. Transmission structures may increase perching and nesting opportunities for raptors, which may result in direct mortalities to the Utah prairie dog as a result of increased predation.The types of impacts to Utah prairie dogs under Alternative III-A generally would be the same as described for Alternative II-C, but would differ in the amount of habitat disturbed (**Table 3.8-50**). Under Alternative III-A, direct impacts to the Utah prairie dog may occur as a result of the disturbance of potentially suitable habitat (**Table 3.8-50**). Impacts to the Utah prairie dog may occur as a result of the construction and operation disturbance of 531 acres and 100 acres, respectively, of potentially suitable grassland habitat. These areas represent 0.07 percent and 0.01 percent, respectively, of suitable habitat within the Region III Utah prairie dog analysis area. Indirect impacts would occur to 66,296 acres, which represent 5.13 percent of Utah prairie dog potential habitat within the Region III Utah prairie dog analysis area. Additional impacts may result from increased habitat fragmentation, noxious weed invasion, and human activity and noise. Avoidance of occupied Utah prairie dog habitat would minimize the potential disturbance from increased human activity and noise associated with maintenance activities along the transmission line.

Impacts to the Utah prairie dog and its habitat along Alternative III-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-26, TWE-27, TWE-28, TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-7, SSWS-15, NX-1**, and **NX-2**.

It is not anticipated that construction activities would permanently alter Utah prairie dog colonies that would be crossed by the Project and installation of the transmission line would not restrict the colonization of the 250-foot-wide transmission line ROW by Utah prairie dogs. In fact, habitat disturbance may encourage future colonization temporarily, based on the availability of soft, permeable soils that would occur along the ROW subsequent to the Project construction. Habitat surveys would be conducted to determine whether occupied habitat occurs within the Project disturbance footprint.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Utah prairie dog would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative III-A, remaining impacts to the Utah prairie dog would be limited to temporary habitat disturbance. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur in Region III are presented in **Table 3.8-54**. The types of impacts under Alternative III-A to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative III-A (e.g., desert shrub, grassland, and sagebrush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-15** through **3.5-18**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-

specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Table 3.8-52 presents habitat acreage impacts by vegetation community/habitat type on USFS lands. Using **Table 3.8-52** in combination with the information presented in **Table 3.8-54**, habitat impacts for each species can be determined. For other sensitive species (BLM and state), please refer to the corresponding vegetation community impacts tables are presented in **Tables 3.5-15** through **3.5-18**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing trampling acreages and the facility acreages to determine construction disturbance, and using the operations numbers alone to understand acres of operations disturbance for each vegetation community/habitat type. **Table 3.8-53** summarizes habitat impacts to federally listed species potentially occurring in Region III.

Table 3.8-54 BLM Sensitive, USFS Sensitive, and State Sensitive Species Potentially Occurring in Region III

BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Mammals - Bats	
Allen's big-eared bat	Desert shrubland, greasewood flat, montane shrubland, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Brazilian free-tailed bat	Aspen forest and woodland, conifer forest, desert shrubland, herbaceous wetland, montane shrubland, open water, sagebrush shrubland, saltbush shrubland
California leaf-nosed bat	Desert shrubland, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
California myotis	Aspen forest and woodland, conifer forest, deciduous forest, desert shrubland, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Cave myotis	Desert shrubland, herbaceous wetland, montane grassland, woody riparian and wetlands
Fringed myotis	Agricultural land, desert shrubland, grassland, greasewood flat, herbaceous wetland, montane grassland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Long-eared myotis	Agricultural land, aspen forest and woodland, cliff and canyon, conifer forest, deciduous forest, desert shrubland, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Pallid bat	Agricultural land, aspen forest and woodland, barren/sparsely vegetated, conifer forest, deciduous forest, desert shrubland, grassland, greasewood flat, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Spotted bat	Agricultural land, aspen forest and woodland, conifer forest, deciduous forest, desert shrubland, grassland, greasewood flat, herbaceous wetland, montane grassland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Townsend's (Western) big-eared bat	Aspen forest and woodland, conifer forest, deciduous forest, desert shrubland, greasewood flat, herbaceous wetland, montane shrubland, open water, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Western red bat	Agricultural land, deciduous forest, desert shrubland, herbaceous wetland, open water, woody riparian and wetlands
Yuma myotis	Agricultural land, aspen forest and woodland, barren/sparsely vegetated, cliff and canyon, deciduous forest, desert shrubland, grassland, greasewood flat, herbaceous wetland, montane shrubland, open water, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Mammals - Other	
Dark kangaroo mouse	Desert shrubland, grassland, sagebrush shrubland, saltbush shrubland
Desert bighorn sheep	Cliff and canyon, desert shrubland, montane grassland
Desert Valley kangaroo mouse	Desert shrubland, sagebrush shrubland, saltbush shrubland

Table 3.8-54 BLM Sensitive, USFS Sensitive, and State Sensitive Species Potentially Occurring in Region III

BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Kit fox	Agricultural land, barren/sparsely vegetated, desert shrubland, grassland, montane grassland, sagebrush shrubland, saltbush shrubland
Pygmy rabbit	Sagebrush shrubland
Rocky Mountain bighorn sheep	Cliff and canyon, conifer forest, montane grassland, montane shrubland
Birds	
White-faced ibis	Agricultural land, herbaceous wetland, open water
Bald eagle	Open water, woody riparian and wetlands
Swainson's hawk	Agricultural land, barren/sparsely vegetated, desert shrubland, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland
Ferruginous hawk	Cliff and canyon, desert shrubland, grassland, montane grassland, montane shrubland, sagebrush shrubland, saltbush shrubland
Golden eagle	Agricultural land, cliff and canyon, desert shrubland, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland
Peregrine falcon	Aspen forest and woodland, cliff and canyon, conifer forest, deciduous forest, desert shrubland, grassland, herbaceous wetland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Long-billed curlew	Grassland, herbaceous wetland, woody riparian and wetlands
Burrowing owl	Agricultural land, barren/sparsely vegetated, desert shrubland, grassland, montane grassland, montane shrubland, sagebrush shrubland, saltbush shrubland
Great gray owl	Aspen forest and woodland, conifer forest
Long-eared owl	Agricultural land, aspen forest and woodland, conifer forest, deciduous forest, desert shrubland, grassland, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Short-eared owl	Agricultural land, grassland, greasewood flat, herbaceous wetland, montane grassland, sagebrush shrubland
Lewis's woodpecker	Aspen forest and woodland, conifer forest, deciduous forest, pinyon-juniper, woody riparian and wetlands
Red-naped sapsucker	Aspen forest and woodland, conifer forest, deciduous forest, woody riparian and wetlands
Loggerhead shrike	Agricultural land, grassland, greasewood flat, montane grassland, montane shrubland, pinyon-juniper, sagebrush shrubland, saltbush shrubland
Sage thrasher	Sagebrush shrubland
Le Conte's thrasher	Desert shrubland, woody riparian and wetlands
Brewer's sparrow	Sagebrush shrubland
Sage sparrow	Sagebrush shrubland
Bobolink	Agricultural land, grassland, herbaceous wetland
Reptiles	
Banded Gila monster	Barren/sparsely vegetated, desert shrubland, grassland
Chuckwalla	Barren/sparsely vegetated, desert shrubland
Corn snake	Barren/sparsely vegetated, grassland, greasewood flat, herbaceous wetland, woody riparian and wetlands
Desert iguana	Barren/sparsely vegetated, desert shrubland, sagebrush shrubland, saltbush shrubland
Desert night lizard	Barren/sparsely vegetated, cliff and canyon, desert shrubland
Long-nosed leopard lizard	Barren/sparsely vegetated, desert shrubland, greasewood flat, sagebrush shrubland, saltbush shrubland
Mojave rattlesnake	Desert shrubland

Table 3.8-54 BLM Sensitive, USFS Sensitive, and State Sensitive Species Potentially Occurring in Region III

BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Sidewinder	Barren/sparsely vegetated, desert shrubland
Speckled rattlesnake	Barren/sparsely vegetated, desert shrubland, sagebrush shrubland, saltbush shrubland
Western banded gecko	Barren/sparsely vegetated, desert shrubland, sagebrush shrubland, saltbush shrubland
Nevada shovel-nosed snake	Barren/sparsely vegetated, desert shrubland, sagebrush shrubland, saltbush shrubland
Western threadsnake (blindsnake)	Barren/sparsely vegetated, desert shrubland, grassland, greasewood flat, herbaceous wetland, montane grassland, montane shrubland, sagebrush shrubland, saltbush shrubland, woody riparian and wetlands
Zebra-tailed lizard	Barren/sparsely vegetated, desert shrubland
Terrestrial Invertebrates	
MacNeill sooty wing skipper (MacNeill saltbush sootywing butterfly)	Grassland, herbaceous wetland, saltbush shrubland, woody riparian and wetlands
Mojave gypsum bee	Barren/sparsely vegetated, desert shrubland, sagebrush shrubland
Mojave poppy bee	Barren/sparsely vegetated, desert shrubland, sagebrush shrubland
Mono basin skipper (Railroad Valley skipper) butterfly	Desert shrubland, grassland, montane grassland, sagebrush shrubland
Northern Mojave blue (Mojave blue) butterfly	Barren/sparsely vegetated, desert shrubland, sagebrush shrubland

[1] Habitat types are limited to those present in Region III. Species could occur in other habitat types.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative III-A, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative III-B

Alternative III-B habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region III include 6 federally listed and 1 federal candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Suitable habitat for the Mexican spotted owl does not occur along Alternative III-B; therefore, impacts are not expected to occur to this species. Section 3.7.6.5 presents a description of existing disturbance along Alternative III-B.

Desert Tortoise (Threatened)

The desert tortoise is known to occur along Alternative III-B in Clark and Lincoln counties, Nevada. This species is found exclusively with the Mojave Desert shrub community.

The types of impacts to the desert tortoise under Alternative III-B generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-47**). Direct impacts to the desert tortoise may occur as a result of the construction and operation disturbance of 926 acres and 175 acres, respectively, of potentially suitable habitat. These areas represent 0.05 percent and 0.01 percent, respectively, of potentially suitable habitat within the Region III desert tortoise analysis area. Indirect impacts would occur to 119,026 acres, which represent 5.97 percent of desert tortoise potential habitat within the Region III desert tortoise analysis area.

Impacts to the desert tortoise and its habitat along Alternative III-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-4, SSWS-15**, and **WLF-3.**

Remaining impacts to the desert tortoise under Alternative III-B would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the desert tortoise would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

California Condor (Endangered; EXNE)

California condors regularly forage, roost, and may even nest in southern Utah (Sutter et al. 2005). Based on their ability to travel up to 200 miles in a day (Utah Department of Natural Resources [UDNR] 2011), this species may be found along Alternative III-B.

Because the species has such a large range, direct impacts from construction activities associated with Alternative III-B to foraging habitat would include the construction and operation disturbance of 268 acres and 67 acres, respectively. These areas represent 0.02 percent and <0.01 percent, respectively, of the Region III California condor analysis area (**Table 3.8-53**). Indirect impacts would occur to 30,523 acres, which represent 2.06 percent of California condor potential habitat within the Region III California condor analysis area. California condors are cavity-nesting birds and most nest sites have been found in caves, on rock ledges, or in tree cavities. Impacts to California condor nesting habitat from construction activities are unlikely because the species nests in rugged, remote locations.

The types of impacts from the operation of Alternative III-B to the California condor generally would be the same as described under Alternative III-A but would differ in the amount of habitat disturbed.

Impacts to the California condor along Alternative III-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1,** and **WLF-8**.

Remaining impacts to the California condor would be limited to temporary disturbance of potential foraging habitat. This disturbance is anticipated to have little impact given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Greater Sage-grouse (Candidate)

Sage-grouse in southwestern Utah along Alternative III-B occur in portions of Beaver and Iron counties. These counties support the largest sage-grouse populations in southwestern Utah.

The types of impacts to the sage-grouse under Alternative III-B generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed. However, as presented in **Table 3.8-48**, no active leks or UDWR mapped occupied sage-grouse habitat would be impacted by Alternative III-B.

Implementation of WWEC BMPs, ECO-1, ECO-4, and TWE-32 would require TransWest to identify sensitive areas to the sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat. Given the lack of sage-grouse habitat crossed by the proposed Project under Alternative III-B (**Table 3.8-48**), potential mortality from operation of the proposed Project would be primarily limited to habitat loss and fragmentation.

Yuma Clapper Rail (Endangered)

The Yuma clapper rail may occur within suitable marsh habitat along the Muddy and Virgin rivers in southern Nevada along Alternative III-B.

The types of impacts to the Yuma clapper rail under Alternative III-B generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-53**). Alternative III-B would result in the construction and operation disturbance of 69 acres and 11 acres, respectively, of potentially suitable habitat. These areas represent 0.08 percent and 0.01 percent, respectively, of suitable herbaceous wetland habitat within the Region III Yuma clapper rail analysis area. Indirect impacts would occur to 6,916 acres, which represent 8.46 percent of Yuma clapper rail potential habitat within the Region III Yuma clapper rail analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the Yuma clapper rail and its habitat along Alternative III-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Remaining impacts to nesting Yuma clapper rails under Alternative III-B would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Yuma clapper rail would be limited to habitat loss, fragmentation, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Western Yellow-billed Cuckoo (Threatened)

This species may occur along Alternative III-B in southern Nevada. The western yellow-billed cuckoo is a confirmed breeder along the Muddy River in Clark County, Nevada (Floyd et al. 2007).

The types of impacts to the western yellow-billed cuckoo under Alternative III-B generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed (**Table 3.8-53**).

Under Alternative III-B, direct impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 152 acres and 27 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitats. These areas represent 0.08 percent and 0.01 percent, respectively, of suitable habitat within the Region III western yellow-billed cuckoo analysis area. Indirect impacts would occur to 15,501 acres, which represent 7.70 percent of western yellow-billed cuckoo potential habitat within the Region III western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative III-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, SSWS-15, WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Southwestern Willow Flycatcher (Endangered)

The southwestern willow flycatcher may occur within suitable riparian habitat along Alternative III-B in southern Nevada. Habitat that is essential to the conservation of the species is identified on the Pahranagat River, the Muddy River, and a portion of the Virgin River. Designated Critical Habitat does not occur along Alternative III-B but does occur approximately 10 miles southeast at the Virgin River. This critical habitat is contiguous with habitat that is essential to the conservation of the species and exists upstream to the Arizona border. Other potential suitable habitat for the southwestern willow flycatcher near Alternative III-B includes portions of the Meadow Valley Wash, the Muddy River, and the Colorado River System (Hiatt and Boone 2003).

The types of impacts to the southwestern willow flycatcher under Alternative III-B generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-53**). Alternative III-B would result in the construction and operation disturbance of 83 acres and 16 acres, respectively, of potentially suitable woody riparian and wetlands habitat. These areas represent 0.07 percent and 0.01 percent, respectively, of potentially suitable habitat within the Region III southwestern willow flycatcher analysis area. Indirect impacts would occur to 8,585 acres, which represent 7.18 percent of southwestern willow flycatcher potential habitat within the Region III southwestern willow flycatcher analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the southwestern willow flycatcher and its habitat along Alternative III-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the southwestern willow flycatchers would be limited to habitat loss, fragmentation,

mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Utah Prairie Dog (Threatened)

Along Alternative III-B, the Utah prairie dog is found in Beaver, Iron, and Washington counties, Utah. Alternative III-B also crosses a USFWS-designated Utah Prairie Dog Recovery Unit.

The transmission line and associated facilities would be sited 0.5 mile from occupied habitat (**SSWS-7**). Direct mortalities would not be expected as a direct result of the transmission line and associated facilities; however, access roads in proximity to occupied habitat could result in direct mortalities from vehicle collision. Transmission structures may increase perching and nesting opportunities for raptors, which may result in direct mortalities to the Utah prairie dog as a result of increased predation.

The types of impacts to the Utah prairie dog under Alternative III-B generally would be the same as described for Alternative II-C but would differ in the amount of habitat disturbed (**Table 3.8-50**). Alternative III-B would result in the construction and operation disturbance of 574 acres and 110 acres, respectively, of potentially suitable grassland habitat. These areas represent 0.07 percent and 0.01 percent, respectively, of potential habitat within the Region III Utah prairie dog analysis area. Indirect impacts would occur to 68,903 acres, which represent 8.60 percent of Utah prairie dog potential habitat within the Region III Utah prairie dog analysis area. Additional impacts may result from increased habitat fragmentation, noxious weed invasion, and human activity and noise. Avoidance of occupied Utah prairie dog habitat would minimize the potential disturbance from increased human activity and noise associated with maintenance activities along the transmission line.

Impacts to the Utah prairie dog and its habitat along Alternative III-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-26, TWE-27, TWE-28, TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-7**, **SSWS-15**, **NX-1**, and **NX-2**.

It is not anticipated that construction activities would permanently alter Utah prairie dog colonies that would be crossed by the Project and installation of the transmission line would not restrict the colonization of the 250-foot-wide transmission line ROW by Utah prairie dogs. In fact, habitat disturbance may encourage future colonization temporarily, based on the availability of soft, permeable soils that would occur along the ROW subsequent to the Project construction. Habitat surveys would be conducted to determine whether occupied habitat occurs within the Project disturbance footprint.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Utah prairie dog would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative III-B, remaining impacts to the Utah prairie dog would be limited to temporary habitat disturbance. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur under Alternative III-B are presented in **Table 3.8-54**. The types of impacts under Alternative III-B to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative III-B (e.g., desert shrub, sagebrush shrubland, saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-15**

through **3.5-18**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative III-B, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative III-C

Alternative III-C habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region III include 6 federally listed and 1 federal candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Suitable habitat for the Mexican spotted owl does not occur along Alternative III-C; therefore, impacts are not expected to occur to this species. Section 3.7.6.5 presents a description of existing conditions along Alternative III-C.

Desert Tortoise (Threatened)

The desert tortoise occurs along Alternative III-C in Clark and Lincoln counties, Nevada. This species is found exclusively within the Mojave Desert shrub community.

The types of impacts to the desert tortoise under Alternative III-C generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-47**). Impacts to the desert tortoise may occur as a result of the construction and operation disturbance of 1,108 acres and 224 acres, respectively, of potentially suitable habitat. These areas represent 0.06 percent and 0.01 percent, respectively, of potentially suitable habitat within the Region III desert tortoise analysis area. Indirect impacts would occur to 111,813 acres, which represent 5.60 percent of desert tortoise potential habitat within the Region III desert tortoise analysis area.

Impacts to the desert tortoise and its habitat along Alternative III-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-4, SSWS-15**, and **WLF-3**.

Remaining impacts to the desert tortoise under Alternative III-C would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project

construction and operation impacts to the desert tortoise would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

California Condor (Endangered; EXNE)

California condors regularly forage, roost, and may even nest in southern Utah (Sutter et al. 2005). Based on their ability to travel up to 200 miles in a day (UDNR 2011), this species may occur along Alternative III-C.

Because the species has such a large range, direct impacts under Alternative III-C to potential foraging habitat would include the construction and operation disturbance of 240 acres and 64 acres, respectively. These areas represent 0.02 percent and <0.01 percent, respectively, of the Region III California condor analysis area (**Table 3.8-53**). Indirect impacts would occur to 31,092 acres, which represent 2.10 percent of California condor potential habitat within the Region III California condor analysis area. California condors are cavity-nesting birds and most nest sites have been found in caves, on rock ledges, or in tree cavities. Impacts to California condor nesting habitat from construction activities are unlikely because the species nests in rugged, remote locations.

The types of impacts from the operation of Alternative III-C to the California condor generally would be the same as described under Alternative III-A but would differ in the amount of habitat impacted.

Impacts to the California condor along Alternative III-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1**, and **WLF-8**.

Remaining impacts to the California condor would be limited to temporary disturbance of potential foraging habitat. This disturbance is anticipated to have little impact given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Greater Sage-grouse (Candidate)

Sage-grouse along Alternative III-C in southwestern Utah occur in portions of Beaver and Iron counties. These counties support the largest sage-grouse populations in southwestern Utah.

The types of impacts to the sage-grouse under Alternative III-C generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed. However, as presented in **Table 3.8-48**, no active leks or UDWR mapped sage-grouse habitat would be impacted by Alternative III-C.

Implementation of WWEC BMPs, ECO-1, ECO-4, and TWE-32 would require TransWest to identify sensitive areas to the sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat. Given the lack of sage-grouse habitat crossed by the proposed Project under Alternative III-C (**Table 3.8-48**), potential impacts from operation of the proposed Project would be limited primarily to habitat loss and fragmentation.

Yuma Clapper Rail (Endangered)

The Yuma clapper rail may occur within suitable marsh habitat along the Muddy and Virgin rivers in southern Nevada along Alternative III-C.

The types of impacts to the Yuma clapper rail under Alternative III-C generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-53**). Alternative III-C would result in the construction and operation disturbance of 79 acres and 15 acres, respectively, of potentially suitable herbaceous wetland habitat. These areas represent 0.10 percent and 0.02 percent, respectively, of potentially suitable habitat within the Region III Yuma clapper rail analysis area. Indirect impacts would occur to 10,325 acres, which represent 12.63 percent of Yuma clapper rail potential habitat within the Region III Yuma clapper rail analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the Yuma clapper rail and its habitat along Alternative III-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Remaining impacts to nesting Yuma clapper rails under Alternative III-C would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Yuma clapper rail would be limited to habitat loss, fragmentation, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Western Yellow-billed Cuckoo (Threatened)

This species may occur along Alternative III-C in southern Nevada. The western yellow-billed cuckoo is a confirmed breeder along the Muddy River in Clark County, Nevada (Floyd et al. 2007).

The types of impacts to the western yellow-billed cuckoo under Alternative III-C generally would be the same as described for Alternative I-A but would differ in the amount of habitat disturbed. Under Alternative III-C, direct impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 95 acres and 19 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitats (**Table 3.8-53**). These areas represent 0.05 percent and 0.01 percent, respectively, of potentially suitable habitat within the Region III western yellow-billed cuckoo analysis area. Indirect impacts would occur to 12,241 acres, which represent 6.08 percent of western yellow-billed cuckoo potential habitat within the Region III western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative III-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, SSW-15, WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Southwestern Willow Flycatcher (Endangered)

The southwestern willow flycatcher may occur within suitable riparian habitat along Alternative III-C in southern Nevada. Habitat that is essential to the conservation of the species is identified on the Pahranagat River. Designated Critical Habitat does not occur along Alternative III-C but does occur approximately 10 miles southeast at the Virgin River. This habitat is contiguous with habitat that is essential to the conservation of the species and exists upstream to the Arizona border. Other potential habitat that has been recognized as suitable for the southwestern willow flycatcher near Alternative III-C includes portions of the Meadow Valley Wash, the Muddy River, and the Colorado River System (Hiatt and Boone 2003).

The types of impacts to the southwestern willow flycatcher under Alternative III-C generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-53**). Alternative III-C would result in the construction and operation disturbance of 16 acres and 3 acres, respectively, of potentially suitable woody riparian and wetlands habitat. These areas represent 0.01 percent and <0.01 percent, respectively, of potentially suitable habitat within the Region III southwestern willow flycatcher analysis area. Indirect impacts would occur to 1,916 acres, which represent 1.60 percent of southwestern willow flycatcher potential habitat within the Region III southwestern willow flycatcher analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the southwestern willow flycatcher and its habitat along Alternative III-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the southwestern willow flycatcher would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Utah Prairie Dog (Threatened)

Along Alternative III-C, the Utah prairie dog is found in Beaver, Iron, and Washington counties, Utah. Alternative III-C also crosses a USFWS designated Utah Prairie Dog Recovery Unit.

The transmission line and associated facilities would be sited 0.5 mile from occupied habitat (**SSWS-7**). Direct mortalities would not be expected as a direct result of the transmission line and associated facilities; however, access roads in proximity to occupied habitat could result in direct mortalities from vehicle collision. Transmission structures may increase perching and nesting opportunities for raptors, which may result in direct mortalities to the Utah prairie dog as a result of increased predation.

The types of impacts to Utah prairie dogs under Alternative III-C generally would be the same as described for Alternative II-C but would differ in the amount of habitat disturbed (**Table 3.8-50**). Alternative III-C would result in the construction and operation disturbance of 558 acres and 105 acres, respectively, of potentially suitable grassland habitat. These areas represent 0.07 percent and 0.01 percent, respectively, of potentially suitable habitat within the Region III Utah prairie dog analysis area. Indirect impacts would occur to 68,697 acres, which represent 8.58 percent of Utah prairie dog potential habitat within the Region III Utah prairie dog analysis area. Additional impacts may result from

increased habitat fragmentation, noxious weed invasion, and human activity and noise. Avoidance of occupied Utah prairie dog habitat would minimize the potential disturbance from increased human

Impacts to the Utah prairie dog and its habitat along Alternative III-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-26, TWE-27, TWE-28, TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-7, SSWS-15**, **NX-1**, and **NX-2**.

It is not anticipated that construction activities would permanently alter Utah prairie dog colonies that would be crossed by the Project and installation of the transmission line would not restrict the colonization of the 250-foot-wide transmission line ROW by Utah prairie dogs. In fact, habitat disturbance may encourage future colonization temporarily, based on the availability of soft, permeable soils that would occur along the ROW subsequent to Project construction. Habitat surveys would be conducted to determine whether occupied habitat occurs within the Project disturbance footprint.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Utah prairie dog would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative III-C, remaining impacts to the Utah prairie dog would be limited to temporary habitat disturbance. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur along Alternative III-C are presented in **Table 3.8-54**. The types of impacts under Alternative III-C to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative III-C (e.g., desert shrub, sagebrush shrubland, saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-15** through **3.5-18**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative III-C, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative III-D (Agency Preferred)

Alternative III-D habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region III include 6 federally listed and 1 federal candidate species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impact discussions are presented below. Suitable habitat for the Mexican spotted owl does not occur along Alternative III-D; therefore, impacts are not expected to occur to this species. Section 3.7.6.5 presents a description of existing disturbance along Alternative III-D.

Desert Tortoise (Threatened)

The desert tortoise is known to occur along Alternative III-D in Clark and Lincoln counties, Nevada. This species is found exclusively with the Mojave Desert shrub community.

The types of impacts to the desert tortoise under Alternative III-D generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-47**). Direct impacts to the desert tortoise may occur as a result of the construction and operation disturbance of 926 acres and 175 acres, respectively, of potentially suitable habitat. These areas represent 0.05 percent and 0.01 percent, respectively, of potentially suitable habitat within the Region III desert tortoise analysis area. Indirect impacts would occur to 119,026 acres, which represent 5.97 percent of desert tortoise potential habitat within the Region III desert tortoise analysis area.

Impacts to the desert tortoise and its habitat along Alternative III-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-4, SSWS-15**, and **WLF-3.**

Remaining impacts to the desert tortoise under Alternative III-D would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the desert tortoise would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

California Condor (Endangered; EXNE)

California condors regularly forage, roost, and may even nest in southern Utah (Sutter et al. 2005). Based on their ability to travel up to 200 miles in a day (UDNR 2011), this species may be found along Alternative III-D.

Because the species has such a large range, direct impacts from construction activities associated with Alternative III-D to foraging habitat would include the construction and operation disturbance of 268 acres and 67 acres, respectively. These areas represent 0.02 percent and <0.01 percent, respectively, of the Region III California condor analysis area (**Table 3.8-53**). Indirect impacts would occur to 30,523 acres, which represent 2.06 percent of California condor potential habitat within the Region III California condor analysis area. California condors are cavity-nesting birds and most nest sites have been found in caves, on rock ledges, or in tree cavities. Impacts to California condor nesting habitat from construction activities are unlikely because the species nests in rugged, remote locations.

The types of impacts from the operation of Alternative III-D to the California condor generally would be the same as described under Alternative III-A but would differ in the amount of habitat disturbed.

Impacts to the California condor along Alternative III-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1,** and **WLF-8**.

Remaining impacts to the California condor would be limited to temporary disturbance of potential foraging habitat. This disturbance is anticipated to have little impact given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Greater Sage-grouse (Candidate)

Sage-grouse in southwestern Utah along Alternative III-D occur in portions of Beaver and Iron counties. These counties support the largest sage-grouse populations in southwestern Utah.

The types of impacts to the sage-grouse under Alternative III-D generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed. However, as presented in **Table 3.8-48**, no active leks or UDWR mapped occupied sage-grouse habitat would be impacted by Alternative III-D.

Implementation of WWEC BMPs, ECO-1, ECO-4, and TWE-32 would require TransWest to identify sensitive areas to the sage-grouse (e.g., leks, nesting habitat, wintering habitat, etc.). These measures, along with both the general and site-specific measures discussed under **SSWS-5**, would require TransWest to implement several actions to avoid and minimize potential impacts to the greater sage-grouse and its habitat. Given the lack of sage-grouse habitat crossed by the proposed Project under Alternative III-D (**Table 3.8-48**), potential mortality from operation of the proposed Project would be primarily limited to habitat loss and fragmentation.

Yuma Clapper Rail (Endangered)

The Yuma clapper rail may occur within suitable marsh habitat along the Muddy and Virgin rivers in southern Nevada along Alternative III-D.

The types of impacts to the Yuma clapper rail under Alternative III-D generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-53**). Alternative III-D would result in the construction and operation disturbance of 69 acres and 11 acres, respectively, of potentially suitable habitat. These areas represent 0.08 percent and 0.01 percent, respectively, of suitable herbaceous wetland habitat within the Region III Yuma clapper rail analysis area. Indirect impacts would occur to 6,916 acres, which represent 8.46 percent of Yuma clapper rail potential habitat within the Region III Yuma clapper rail analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the Yuma clapper rail and its habitat along Alternative III-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Remaining impacts to nesting Yuma clapper rails under Alternative III-D would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Yuma clapper rail would be limited to habitat loss, fragmentation, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Western Yellow-billed Cuckoo (Threatened)

This species may occur along Alternative III-D in southern Nevada. The western yellow-billed cuckoo is a confirmed breeder along the Muddy River in Clark County, Nevada (Floyd et al. 2007).

The types of impacts to the western yellow-billed cuckoo under Alternative III-D generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-53**). Under Alternative III-D, direct impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 152 acres and 27 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitats. These areas represent 0.08 percent and 0.01 percent, respectively, of suitable habitat within the Region III western yellow-billed cuckoo analysis area. Indirect impacts would occur to 15,501 acres, which represent 7.70 percent of western yellow-billed cuckoo potential habitat within the Region III western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative III-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, SSWS-15, WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Southwestern Willow Flycatcher (Endangered)

The southwestern willow flycatcher may occur within suitable riparian habitat along Alternative III-D in southern Nevada. Habitat that is essential to the conservation of the species is identified on the Pahranagat River, the Muddy River, and a portion of the Virgin River. Designated Critical Habitat does not occur along Alternative III-D but does occur approximately 10 miles southeast at the Virgin River. This critical habitat is contiguous with habitat that is essential to the conservation of the species and exists upstream to the Arizona border. Other potential suitable habitat for the southwestern willow flycatcher near Alternative III-D includes portions of the Meadow Valley Wash, the Muddy River, and the Colorado River System (Hiatt and Boone 2003).

The types of impacts to the southwestern willow flycatcher under Alternative III-D generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-53**). Alternative III-D would result in the construction and operation disturbance of 83 acres and 16 acres, respectively, of potentially suitable woody riparian and wetlands habitat. These areas represent 0.07 percent and 0.01 percent, respectively, of potentially suitable habitat within the Region III southwestern willow flycatcher analysis area. Indirect impacts would occur to 8,585 acres, which represent 7.18 percent of southwestern willow flycatcher potential habitat within the Region III southwestern willow flycatcher analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the southwestern willow flycatcher and its habitat along Alternative III-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the southwestern willow flycatcher would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Utah Prairie Dog (Threatened)

Along Alternative III-D, the Utah prairie dog is found in Beaver, Iron, and Washington counties, Utah. Alternative III-D also crosses a USFWS-designated Utah Prairie Dog Recovery Unit.

The transmission line and associated facilities would be sited 0.5 mile from occupied habitat (**SSWS-7**). Direct mortalities would not be expected as a direct result of the transmission line and associated facilities; however, access roads in proximity to occupied habitat could result in direct mortalities from vehicle collision. Transmission structures may increase perching and nesting opportunities for raptors, which may result in direct mortalities to the Utah prairie dog as a result of increased predation.

The types of impacts to the Utah prairie dog under Alternative III-D generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-50**). Alternative III-D would result in the construction and operation disturbance of 574 acres and 110 acres, respectively, of potentially suitable grassland habitat. These areas represent 0.07 percent and 0.01 percent, respectively, of potential habitat within the Region III Utah prairie dog analysis area. Indirect impacts would occur to 68,903 acres, which represent 8.60 percent of Utah prairie dog potential habitat within the Region III Utah prairie dog analysis area. Additional impacts may result from increased habitat fragmentation, noxious weed invasion, and human activity and noise. Avoidance of occupied Utah prairie dog habitat would minimize the potential disturbance from increased human activity and noise associated with maintenance activities along the transmission line.

Impacts to the Utah prairie dog and its habitat along Alternative III-D would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-26, TWE-27, TWE-28, TWE-29, TWE-30, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-7**, **SSWS-15**, **NX-1**, and **NX-2**.

It is not anticipated that construction activities would permanently alter Utah prairie dog colonies that would be crossed by the Project and installation of the transmission line would not restrict the colonization of the 250-foot-wide transmission line ROW by Utah prairie dogs. In fact, habitat disturbance may encourage future colonization temporarily, based on the availability of soft, permeable soils that would occur along the ROW subsequent to the Project construction. Habitat surveys would be conducted to determine whether occupied habitat occurs within the Project disturbance footprint.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Utah prairie dog would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative III-D, remaining impacts to the Utah prairie dog would be limited to temporary habitat disturbance. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

BLM Sensitive, USFS Sensitive, and State Sensitive Species

BLM sensitive, USFS sensitive, and state sensitive species that may occur under Alternative III-D are presented in **Table 3.8-54**. The types of impacts under Alternative III-D to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with the dominant habitat types along Alternative III-D (e.g., desert shrub, sagebrush shrubland, saltbush shrubland) are more likely to be impacted. Impacts to these habitat types are presented in **Tables 3.5-15** through **3.5-18**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, USFS, and applicable state wildlife agencies.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM, USFS sensitive, and state sensitive species and their habitats are the same as those identified for Alternative III-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative III-D, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative Variations in Region III

The types of impacts to special status wildlife species under the three alternative variations in Region III generally would be the same as the comparable portions of Alternatives III-A but would differ in the amount of habitat disturbed (**Table 3.8-55**). No sage-grouse or desert tortoise habitat would be impacted by the alternative variations in Region III. Similar to the comparable portions of Alternative III-A, after considering design features and mitigation measures, impacts to special status wildlife species from Project construction and operation would be limited primarily to habitat loss and fragmentation.

Alternative Connectors in Region III

The Moapa, Arrowhead, and Avon alternative connectors would include minimal increases of total habitat disturbance if they were to be utilized. **Table 3.8-56** summarizes impacts associated with the alternative connectors in Region III.

Table 3.8-55 Summary of Impacts to Special Status Species Under Region III Alternative Variations[1]

Impact Parameters	Ox Valley East Alternative Variation		Comparable Portion of Alternative Route III-A		Ox Valley West Alternative Variation		Comparable Portion of Alternative III-A		Pinto Alternative Variation		Comparable Portion of Alternative Route III-A	
	Construction Impact	Operation Impact	Construction Impact	Operation Impact	Construction Impact	Operation Impact	Construction Impact	Operation Impact	Construction Impact	Operation Impact	Construction Impact	Operation Impact
Special status wildlife species habitat (acres)	313	106	275	77	309	109	275	77	453	112	403	112
Length of transmission line (miles)	17		15		17		15		29		23	
Number of potential special status raptor species nests within 1 mile of potential disturbance areas [2]	1 unknown raptor species[2]		11 unknown raptor species[2]		1 unknown raptor species[2]		11 unknown raptor species[2]		2 golden eagle, 5 unknown raptor species[2]		2 ferruginous hawk, 2 golden eagle, 1 long-eared owl, 48 unknown raptor species[2]	

[1] Raptor nest data received for Utah is incomplete for this portion of Region III.

[2] Nests of raptor species, which are not classified as special status, are tabulated in Section 3.7, Wildlife. Nests of unknown raptor species are tabulated in both Sections 3.7 and 3.8 because they may have been utilized by either special status raptors or non-special status raptors.

Table 3.8-56 Summary of Region III Alternative Connector Impact Parameters for Wildlife

Alternative Connector	Analysis
Moapa Alternative Connector	• Approximately 13 miles in length.[1] • Approximately 175 acres of construction and 33 acres of operation impacts to special status wildlife species habitat would occur. • No construction, operation, or indirect impacts to desert tortoise critical habitat would occur. • Approximately 176 acres of construction, 33 acres of operation, and 23,350 acres of indirect impacts to desert tortoise potential habitat would occur. • No special status raptor nests are within 1 mile of potential disturbance areas. • No occupied sage-grouse habitat crossed by alignment.
Avon Alternative Connector	• Approximately 8 miles in length.[1] • Approximately 96 acres of construction and 18 acres of operation impacts to special status wildlife species habitat would occur. • No construction, operation, or indirect impacts to desert tortoise critical habitat would occur. • No construction, operation, or indirect impacts to desert tortoise potential habitat would occur. • Approximately 18 acres of construction, 3 acres of operation, and 3,187 acres of indirect impacts to Utah prairie dog potential habitat in high intensity survey areas would occur. • Approximately 81 acres of construction, 15 acres of operation, and 10,719 acres of indirect impacts to Utah prairie dog potential habitat in low intensity survey areas would occur. • Two ferruginous hawk and one unknown raptor species nests are within 1 mile of potential disturbance areas. • No occupied sage-grouse habitat crossed by alignment.
Arrowhead Alternative Connector	• Approximately 3 miles in length.[1] • Approximately 53 acres of construction and 9 acres of operation impacts to special status wildlife species habitat would occur. • No construction, operation, or indirect impacts to desert tortoise critical habitat would occur. • Approximately 54 acres of construction, 9 acres of operation, and 6,377 acres of indirect impacts to desert tortoise potential habitat would occur. • No special status raptor nests are within 1 mile of potential disturbance areas. • No occupied sage-grouse habitat crossed by alignment.

[1] Length refers to length of 600-kV transmission line and serves as a proxy metric for avian collision potential.

Table 3.8-57 provides a comparison of alternative electrode bed locations proposed near the Southern Terminal. Some locations might serve multiple alternative routes, while others could only be associated with a certain alternative route.

No special status raptor nests are identified at Region III ground electrode sites. Data for this region is incomplete.

Table 3.8-57 Summary of Region III Alternative Ground Electrode System Location Impacts for Special Status Wildlife Species[1]

Alternative Ground Electrode System Locations	Estimated Wildlife Habitat Disturbance (total acres)		Analysis
	Construction Impact	Operation Impact	
Mormon Mesa- Carp Elgin Rd (Alternative III-A)	90	18	• Approximately 6 miles of 34.5-kV interconnection lines.[2] • Approximately 90 acres of construction and 18 acres of operation impacts to desert tortoise potential habitat would occur. • Approximately 34 acres of construction and 7 acres of operation impacts to southwestern willow flycatcher potential habitat would occur. • Approximately 34 acres of construction and 7 acres of operation impacts to western yellow-billed cuckoo potential habitat would occur. • No occupied sage-grouse leks within 4 miles. • No sage-grouse occupied habitat within refined transmissison corridor. • No special status raptor nests are within 1 mile of potential disturbance areas.
Mormon Mesa-Carp Elgin Rd (Alternative III-B)	102	24	• Approximately 6 miles of 34.5-kV interconnection lines.[2] • Approximately 102 acres of construction and 24 acres of operation impacts to desert tortoise potential habitat would occur. • Approximately 39 acres of construction and 9 acres of operation impacts to southwestern willow flycatcher potential habitat would occur. • Approximately 39 acres of construction and 9 acres of operation impacts to western yellow-billed cuckoo potential habitat would occur. • No occupied sage-grouse leks within 4 miles. • No sage-grouse occupied habitat within refined transmissison corridor. • No special status raptor nests are within 1 mile of potential disturbance areas.
Halfway Wash- Virgin River (Alternative III-A)	83	15	• Approximately 8 miles of 34.5-kV interconnection lines.[2] • Approximately 83 acres of construction and 15 acres of operation impacts to desert tortoise potential habitat would occur. • Approximately 19 acres of construction and 3 acres of operation impacts to southwestern willow flycatcher potential habitat would occur. • Approximately 19 acres of construction and 3 acres of operation impacts to western yellow-billed cuckoo potential habitat would occur. • No occupied sage-grouse leks within 4 miles. • No sage-grouse occupied habitat within refined transmissison corridor. • No special status raptor nests are within 1 mile of potential disturbance areas.
Halfway Wash- Virgin River (Alternative B)	92	19	• Approximately 8 miles of 34.5-kV interconnection lines.[2] • Approximately 92 acres of construction and 19 acres of operation impacts to desert tortoise potential habitat would occur. • Approximately 21 acres of construction and 4 acres of operation impacts to southwestern willow flycatcher potential habitat would occur. • Approximately 21 acres of construction and 4 acres of operation impacts to western yellow-billed cuckoo potential habitat would occur. • Approximately 1 acre of construction and <1 acre of operation impacts to California condor potential habitat would occur. • No occupied sage-grouse leks within 4 miles. • No sage-grouse occupied habitat within refined transmissison corridor. • No special status raptor nests are within 1 mile of potential disturbance areas.

Table 3.8-57 Summary of Region III Alternative Ground Electrode System Location Impacts for Special Status Wildlife Species[1]

Alternative Ground Electrode System Locations	Estimated Wildlife Habitat Disturbance (total acres)		Analysis
	Construction Impact	Operation Impact	
Halfway Wash East (Alternative III-A)	101	24	• Approximately 4 miles of 34.5-kV interconnection lines.[2] • Approximately 101 acres of construction and 24 acres of operation impacts to desert tortoise potential habitat would occur. • Approximately 31 acres of construction and 7 acres of operation impacts to southwestern willow flycatcher potential habitat would occur. • Approximately 31 acres of construction and 7 acres of operation impacts to western yellow-billed cuckoo potential habitat would occur. • No occupied sage-grouse leks within 4 miles. • No sage-grouse occupied habitat within refined transmissison corridor. • No special status raptor nests are within 1 mile of potential disturbance areas.
Halfway Wash East (Alternative III-B)	111	29	• Approximately 10 miles of 34.5-kV interconnection lines.[2] • Approximately 111 acres of construction and 29 acres of operation impacts to desert tortoise potential habitat would occur. • Approximately 34 acres of construction and 9 acres of operation impacts to southwestern willow flycatcher potential habitat would occur. • Approximately 34 acres of construction and 9 acres of operation impacts to western yellow-billed cuckoo potential habitat would occur. • No occupied sage-grouse leks within 4 miles. • No sage-grouse occupied habitat within refined transmissison corridor. • No special status raptor nests are within 1 mile of potential disturbance areas.
Meadow Valley 2 (Alternative III-C)	170	61	• Approximately 22 miles of 34.5-kV interconnection lines.[2] • Approximately 75 acres of construction and 27 acres of operation impacts to desert tortoise critical habitat would occur. • Approximately 170 acres of construction and 61 acres of operation impacts to desert tortoise potential habitat would occur. • Approximately 17 acres of construction and 6 acres of operation impacts to southwestern willow flycatcher potential habitat would occur. • Approximately 17 acres of construction and 6 acres of operation impacts to western yellow-billed cuckoo potential habitat would occur. • Approximately 5 acres of construction and 2 acres of operation impacts to California condor potential habitat would occur. • No occupied sage-grouse leks within 4 miles. • No sage-grouse occupied habitat within refined transmissison corridor. • No special status raptor nests are within 1 mile of potential disturbance areas.
Delta Design Option 2	125	37	• Approximately 14 miles of 34.5-kV interconnection lines.[2] • Approximately 2 acres of construction and 1 acre of operation impacts to Yuma clapper rail potential habitat would occur. • Approximately 2 acres of construction and 1 acre of operation impacts to western yellow-billed cuckoo potential habitat would occur. • Approximately 1 acre of construction and <1 acre of operation impacts to California condor potential habitat would occur. • No occupied sage-grouse leks within 4 miles. • No sage-grouse occupied habitat within refined transmissison corridor. • No special status raptor nests are within 1 mile of potential disturbance areas.

[1] Potential impacts to specific vegetation communities are provided in **Table 3.5-18.**

[2] Length refers to length of 34.5-kV interconnection lines and serves as a metric for avian collision potential.

Region III Series Compensation Stations (Design Option 2)

If Design Option 2 were implemented, a series compensation station would be necessary along the AC-configured alternative routes of Region III. There are three potential sites, each corresponding to a specific alternative route. These series compensation station alternatives are depicted in **Figure 2-2**. Potential construction and operation impacts to general vegetation communities from these options are provided in **Table 3.5-8**. No impacts to IBAs, Bird Habitat Conservation Areas, and potential waterfowl habitats are anticipated to occur under at any of the Region III series compensation stations.

Series Compensation Station 1 - Design Option 2 corresponds to Alternative III-A. The approximate acreages of potential construction impacts to wildlife and wildlife habitats would include: 22 acres of Utah pronghorn yearlong substantial habitat and 22 acres of small and non-game habitat. The approximate acreages of potential operation impacts to wildlife and wildlife habitats would include: 15 acres of Utah pronghorn yearlong substantial habitat and 15 acres of small and non-game habitat. A total of 3 potential raptor nests are located within the proposed series compensation station site, and nine potential raptor nests are located within the siting area for this facility.

Series Compensation Station 2 - Design Option 2 corresponds to Alternative III-C. The approximate acreages of potential construction impacts to wildlife and wildlife habitats would include: 22 acres of Nevada pronghorn yearlong habitat and 22 acres of small and non-game habitat. The approximate acreages of potential operation impacts to wildlife and wildlife habitats would include: 15 acres of Nevada pronghorn yearlong habitat and 15 acres of small and non-game habitat. There are no known potential raptor nests located within the proposed series compensation station site and siting area for this facility.

Series Compensation Station 3 - Design Option 2 corresponds to Alternative II-B. The approximate acreages of potential construction impacts to wildlife and wildlife habitats would include: 22 acres of Utah pronghorn yearlong crucial habitat and 22 acres of small and non-game habitat. The approximate acreages of potential operation impacts to wildlife and wildlife habitats would include: 15 acres of Utah pronghorn yearlong crucial habitat and 15 acres of small and non-game habitat. There are no known potential raptor nests located within the proposed series compensation station site and siting area for this facility.

Region III Conclusion

A comparison of impact parameters for Region III alternatives indicates that potential construction and operation impacts to special status wildlife species would be varied across all alternatives as shown in **Table 3.8-53**. Alternative III-A would result in the greatest acreage of direct and indirect impacts to sage-grouse potential habitat in comparison to the other Region III alternatives (**Table 3.8-48**). In addition, Alternatives III-B and III-C would result in no construction, operation, or indirect impacts to sage-grouse potential habitat, whereas Alternative III-A would result in 90 acres of construction impact, 17 acres of operation impact, and 13,673 acres of indirect impact to sage-grouse occupied habitat. Alternative III-C would result in the greatest acreage of direct and indirect impacts to desert tortoise potential habitat in comparison to the other Region III alternatives (**Table 3.8-47**). Alternative III-B would result in the greatest acreage of direct and indirect impacts to southwest willow flycatcher and western yellow-billed cuckoo potential habitat in comparison to the other Region III alternatives (**Table 3.8-53**). However, project effects on special status wildlife species and their potential habitat would be avoided or considered to be low magnitude and short-term after applying BMPs, design features, and additional mitigation, regardless of the chosen alternative.

3.8.6.6 Region IV

Tables 3.8-58, **3.8-59,** and **3.8-60** provide a tabulation of impacts associated with the alternative routes in Region IV. Key impact parameters that relate to the impact discussion in Section 3.8.6.2, Impacts to Special Status Species Common to All Alternative Routes and Associated Components, and specific differences by alternative are discussed below.

Table 3.8-58 Summary of Region IV Alternative Route Impact Parameters for Desert Tortoise

Parameter (acres)	Alternative IV-A (Agency Preferred)			Alternative IV-B			Alternative IV-C		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
USFWS critical habitat	–	–	–	–	–	–	43	9	7,004
USFWS potential habitat	547	123	56,051	548	117	57,152	606	122	60,412

Table 3.8-59 Special Status Raptor Species Nests within 1 mile of Potential Disturbance Areas in Region IV

Species	Alternative IV-A	Alternative IV-B	Alternative IV-C	Marketplace Alternative Variation	Sunrise Mountain Alternative Connector	Lake Las Vegas Alternative Connector	Three Kids Mine Alternative Connector	River Mountain Alternative Connector	Railroad Pass Alternative Connector
Peregrine falcon	–	1	1	–	–	–	–	1	–

[1] Total nests for Region IV is not equal to a sum of alternate routes and other project components. This is due to the fact that nests could be present within 1 mile of potential disturbance areas along multiple routes.

Alternative IV-A (Applicant Proposed and Agency Preferred)

Alternative IV-A habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region IV includes 4 federally listed species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impacts are discussed below. Section 3.7.6.6 presents a description of existing disturbance along Alternative IV-A.

Table 3.8-60 summarizes habitat impacts to federally listed species potentially occurring in Region IV.

Desert Tortoise (Threatened)

The desert tortoise occurs along the entire length of Alternative IV-A (**Figure 3.8-6**). This species is found exclusively with the Mojave Desert shrub community.

The types of impacts to the desert tortoise under Alternative IV-A generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-60**). Impacts to the desert tortoise may occur as a result of the construction and operation disturbance of 547 acres and 123 acres, respectively, of potentially suitable habitat. These areas represent 0.07 percent and 0.02 percent, respectively, of potentially suitable habitat within the Region IV desert tortoise analysis area. Indirect impacts would occur to 56,051 acres, which represent 6.86 percent of desert tortoise potential habitat within the Region IV desert tortoise analysis area.

Table 3.8-60 Summary of Region IV Alternative Route Impact Parameters for Federally Listed and Candidate Species

Species	Alternative IV-A			Alternative IV-B			Alternative IV-C		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Desert tortoise potential habitat (acres)	547	123	56,051	548	117	57,152	606	122	60,412
Percentage of existing habitat within the Region IV desert tortoise analysis area	0.07	0.02	6.86	0.07	0.01	6.99	0.07	0.01	7.39
Yuma clapper rail potential habitat (acres)	<1	<1	26	<1	<1	118	<1	<1	118
Percentage of existing habitat within the Region IV Yuma clapper rail analysis area	<0.01	<0.01	3.62	<0.01	<0.01	16.42	<0.01	<0.01	16.42
Western yellow-billed cuckoo potential habitat (acres)	5	1	449	6	2	675	7	2	710
Percentage of existing habitat within the Region IV western yellow-billed cuckoo analysis area	0.11	0.02	10.23	0.14	0.05	15.37	0.16	0.05	16.17
Southwestern willow flycatcher potential habitat (acres)	5	1	424	5	1	557	6	2	592
Percentage of existing habitat within the Region IV southwestern willow flycatcher analysis area	0.14	0.03	11.55	0.14	0.03	15.17	0.16	0.05	16.12

Impacts to the desert tortoise and its habitat along Alternative IV-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-4, SSWS-15**, and **WLF-3.**

Remaining impacts to the desert tortoise under Alternative IV-A would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the desert tortoise would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Western Yellow-billed Cuckoo (Threatened)

This species may occur along Alternative IV-A in southern Nevada in close proximity to perennial streams, wetlands, and lakes.

The types of impacts to the western yellow-billed cuckoo under Alternative IV-A generally would be the same as described for Alternative I-A. Under Alternative IV-A, direct impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 5 acres and 1 acre, respectively, of potentially suitable herbaceous wetland and woody riparian and wetland habitats. These areas represent 0.11 percent and 0.02 percent, respectively, of potentially suitable habitat within the Region IV western yellow-billed cuckoo analysis area. Indirect impacts would occur to 449 acres, which represent 10.23 percent of western yellow-billed cuckoo potential habitat within the Region IV western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative IV-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Remaining impacts to nesting western yellow-billed cuckoos under Alternative IV-A would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Southwestern Willow Flycatcher (Endangered)

The southwestern willow flycatcher may occur within suitable riparian habitat along Alternative IV-A in southern Nevada. Potential suitable habitat for the southwestern willow flycatcher near Alternative IV-A includes portions of the Meadow Valley Wash, the Muddy River, and the Colorado River System (Hiatt and Boone 2003).

The types of impacts to the southwestern willow flycatcher under Alternative IV-A generally would be the same as described for Alternative III-A, but would differ in the amount of habitat disturbed (**Table 3.8-60**). Alternative IV-A would result in the construction and operation disturbance of 5 acres

and 1 acre, respectively, of potentially suitable woody riparian and wetlands habitat. These areas represent 0.14 percent and 0.03 percent, respectively, of potentially suitable habitat within the Region IV southwestern willow flycatcher analysis area. Indirect impacts would occur to 424 acres, which represent 11.55 percent of southwestern willow flycatcher potential habitat within the Region IV southwestern willow flycatcher analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the southwestern willow flycatcher and its habitat along Alternative III-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, SSWS-15, WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8.**

Remaining impacts to the southwestern willow flycatcher would be limited to habitat loss fragmentation mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact given the linear nature of the Project and the extent of native habitats in the surrounding Project region.

Yuma Clapper Rail (Endangered)

The Yuma clapper rail may occur within suitable marsh habitat in southern Nevada along Alternative IV-A.

Direct impacts to the Yuma clapper rail include habitat loss, modification, and fragmentation (**Table 3.8-60**). Alternative IV-A would result in the construction and operation disturbance of <1 acre and <1 acre, respectively, of potentially suitable herbaceous wetland habitat. These areas represent <0.01 percent and <0.01 percent, respectively, of suitable habitat within the Region IV Yuma clapper rail analysis area. Indirect impacts would occur to 26 acres, which represent 3.62 percent of Yuma clapper rail potential habitat within the Region IV Yuma clapper rail analysis area. Improved access as a result of Project roads under Alternative IV-A may result in increased human disturbance to the species. These impacts would be more pronounced if construction were to occur during the breeding season.

Operation of the proposed Project would incrementally increase the collision potential for Yuma clapper rails. Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components, presents details regarding collision impacts to migratory birds.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the Yuma clapper rail and its habitat along Alternative III-A would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Remaining impacts to nesting Yuma clapper rails under Alternative IV-A would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Yuma clapper rail would be limited to habitat loss, fragmentation, and disturbance during routine maintenance activities. This disturbance is anticipated to

have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

BLM Sensitive and State Sensitive Species

BLM sensitive and state sensitive species that may occur along Alternative IV-A are presented in **Table 3.8-61**. The types of impacts under Alternative IV-A to BLM sensitive, USFS sensitive, and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with desert shrubland are more likely to be impacted. Impacts to this habitat type are presented in **Tables 3.5-19** through **3.5-21**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, Western, and NDOW.

Table 3.8-61 BLM Sensitive and State Sensitive Species Potentially Occurring in Region IV

BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Mammals - Bats	
Allen's big-eared bat	Desert shrubland, saltbush shrubland, woody riparian and wetlands
Big free-tailed bat	Barren/sparsely vegetated, cliff and canyon, desert shrubland, herbaceous wetland, saltbush shrubland, woody riparian and wetlands
Brazilian free-tailed bat	Desert shrubland, herbaceous wetland, open water, saltbush shrubland
California leaf-nosed bat	Desert shrubland, saltbush shrubland, woody riparian and wetlands
California myotis	Desert shrubland, herbaceous wetland, open water, saltbush shrubland, woody riparian and wetlands
Cave myotis	Desert shrubland, herbaceous wetland, open water, woody riparian and wetlands
Fringed myotis	Desert shrubland, herbaceous wetland, open water, saltbush shrubland, woody riparian and wetlands
Greater western mastiff bat	Barren/sparsely vegetated, cliff and canyon, desert shrubland
Long-eared myotis	Cliff and canyon, desert shrubland, herbaceous wetland, open water, saltbush shrubland, woody riparian and wetlands
Pallid bat	Barren/sparsely vegetated, desert shrubland, grassland, saltbush shrubland, woody riparian and wetlands
Spotted bat	Barren/sparsely vegetated, cliff and canyon, desert shrubland, herbaceous wetland, open water, saltbush shrubland, woody riparian and wetlands
Townsend's (Western) big-eared bat	Desert shrubland, herbaceous wetland, open water, saltbush shrubland, woody riparian and wetlands
Western red bat	Desert shrubland, herbaceous wetland, open water, woody riparian and wetlands
Yuma myotis	Barren/sparsely vegetated, cliff and canyon, desert shrubland, herbaceous wetland, open water, saltbush shrubland, woody riparian and wetlands
Mammals - Other	
Desert bighorn sheep	Cliff and canyon, desert shrubland
Birds	
White-faced ibis	Herbaceous wetland, open water
Bald eagle	Open water, woody riparian and wetlands
Swainson's hawk	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Ferruginous hawk	Cliff and canyon, desert shrubland, saltbush shrubland
Golden eagle	Cliff and canyon, desert shrubland, saltbush shrubland

Table 3.8-61 BLM Sensitive and State Sensitive Species Potentially Occurring in Region IV

BLM Sensitive and State Sensitive Species	Associated Vegetation Communities/Habitat Types[1]
Peregrine falcon	Cliff and canyon, desert shrubland, herbaceous wetland, saltbush shrubland, woody riparian and wetlands
Western snowy plover	Barren/ sparsely vegetated, herbaceous wetland
Burrowing owl	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Long-eared owl	Desert shrubland, saltbush shrubland, woody riparian and wetlands
Red-naped sapsucker	Woody riparian and wetlands
Loggerhead shrike	Saltbush shrubland
Le Conte's thrasher	Desert shrubland, woody riparian and wetlands
Reptiles	
Banded Gila monster	Barren/ sparsely vegetated, desert shrubland
Chuckwalla	Barren/ sparsely vegetated, desert shrubland
Desert glossy snake	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Desert iguana	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Desert night lizard	Barren/ sparsely vegetated, cliff and canyon, desert shrubland
Long-nosed leopard lizard	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Mojave rattlesnake	Desert shrubland
Desert shrubland	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Mojave shovel-nosed snake	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Nevada shovel-nosed snake	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Sidewinder	Barren/ sparsely vegetated, desert shrubland
Speckled rattlesnake	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Western banded gecko	Barren/ sparsely vegetated, desert shrubland, saltbush shrubland
Western threadsnake (blindsnake)	Barren/ sparsely vegetated, desert shrubland, herbaceous wetland, saltbush shrubland, woody riparian and wetlands
Zebra-tailed lizard	Barren/ sparsely vegetated, desert shrubland
Terrestrial Invertebrates	
Mojave gypsum bee	Barren/ sparsely vegetated, desert shrubland
Mojave poppy bee	Barren/ sparsely vegetated, desert shrubland
Mono Basin skipper (Railroad Valley skipper) butterfly	Desert shrubland
Northern Mojave blue (Mojave blue) butterfly	Barren/ sparsely vegetated, desert shrubland

[1] Habitat types are limited to those present in Region IV. Species could occur in other habitat types.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative II-F, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would

vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative IV-B

Alternative IV-B habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region IV includes 4 federally listed species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impacts are discussed below. Section 3.7.6.6 presents a description of existing disturbance along Alternative IV-B.

Desert Tortoise (Threatened)

The desert tortoise occurs along the entire length of Alternative IV-B (**Figure 3.8-6**). This species is found exclusively with the Mojave Desert shrub community.

The types of impacts to the desert tortoise under Alternative IV-B generally would be the same as described for Alternative III-A but would differ in the amount of habitat disturbed (**Table 3.8-60**). Impacts to the desert tortoise may occur as a result of the construction and operation disturbance of 548 acres and 117 acres, respectively, of potentially suitable habitat. These areas represent 0.07 percent and 0.01 percent, respectively, of potentially suitable habitat within the Region IV desert tortoise analysis area. Indirect impacts would occur to 57,152 acres, which represent 6.99 percent of desert tortoise potential habitat within the Region IV desert tortoise analysis area.

Impacts to the desert tortoise and its habitat along Alternative IV-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-4, SSWS-15**, and **WLF-3**.

Remaining impacts to the desert tortoise under Alternative IV-B would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the desert tortoise would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Western Yellow-billed Cuckoo (Threatened)

This species may occur along Alternative IV-B in southern Nevada in close proximity to perennial streams, wetlands, and lakes.

The types of impacts to the western yellow-billed cuckoo under Alternative IV-B generally would be the same as described for Alternative I-A (**Table 3.8-60**). Under Alternative IV-B, direct impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 6 acres and 2 acres, respectively, of potentially suitable herbaceous wetland and woody riparian and wetland habitats. These areas represent 0.14 percent and 0.05 percent, respectively, of potentially suitable habitat within the Region IV western yellow-billed cuckoo analysis area. Indirect impacts would occur to 675 acres, which represent 15.37 percent of western yellow-billed cuckoo potential habitat within the Region IV western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative IV-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-6, SSWS-15, WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Southwestern Willow Flycatcher (Endangered)

The southwestern willow flycatcher may occur within suitable riparian habitat along Alternative IV-B in southern Nevada. Potential suitable habitat for the southwestern willow flycatcher near Alternative IV-B includes portions of the Meadow Valley Wash, the Muddy River, and the Colorado River System (Hiatt and Boone 2003).

The types of impacts to the southwestern willow flycatcher under Alternative IV-B generally would be the same as described for Alternative III-A, but would differ in the amount of habitat disturbed (**Table 3.8-60**). Alternative IV-B would result in the construction and operation disturbance of 5 acres and 1 acre, respectively, of potentially suitable woody riparian and wetlands habitat. These areas represent 0.14 percent and 0.03 percent, respectively, of potentially suitable habitat within the Region IV southwestern willow flycatcher analysis area. Indirect impacts would occur to 557 acres, which represent 15.17 percent of southwestern willow flycatcher potential habitat within the Region IV southwestern willow flycatcher analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the southwestern willow flycatcher and its habitat along Alternative IV-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the southwestern willow flycatcher would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Yuma Clapper Rail (Endangered)

The Yuma clapper rail may occur within suitable marsh habitat in southern Nevada along Alternative IV-B.

Direct impacts to the Yuma clapper rail include habitat loss, modification, and fragmentation (**Table 3.8-60**). Alternative IV-B would result in the construction and operation disturbance of <1 acre and <1 acre, respectively, of potentially suitable herbaceous wetland habitat. These areas represent <0.01 percent and <0.01 percent, respectively, of suitable habitat within the Region IV Yuma clapper rail analysis area. Indirect impacts would occur to 118 acres, which represent 16.42 percent Yuma clapper rail potential habitat within the Region IV Yuma clapper rail analysis area. Improved access as a result of Project roads under Alternative IV-B may result in increased human disturbance to the species. These impacts would be more pronounced if construction were to occur during the breeding season.

Operation of the proposed Project would incrementally increase the collision potential for Yuma clapper rails. Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components, presents details regarding collision impacts to migratory birds.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the Yuma clapper rail and its habitat along Alternative IV-B would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Remaining impacts to nesting Yuma clapper rails under Alternative IV-B would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Yuma clapper rail would be limited to habitat loss, fragmentation, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

BLM Sensitive and State Sensitive Species

BLM sensitive and state sensitive species that may occur along Alternative IV-B are presented in **Table 3.8-61**. The types of impacts under Alternative IV-B to BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with desert shrubland are more likely to be impacted. Impacts to this habitat type are presented in **Tables 3.5-19** through **3.5-21**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, Western, and NDOW.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative IV-B, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Alternative IV-C

Alternative IV-C habitat disturbance and fragmentation are described in Section 3.7.6.3.

Key Parameters Summary

Based on species occurrence information and habitat associations, special status wildlife species that may be impacted in Region IV includes 4 federally listed species. BLM sensitive and state sensitive species are analyzed with respect to their habitat associations in each region. Species-specific impacts are discussed below. Section 3.7.6.6 presents a description of existing disturbance along Alternative IV-C.

Desert Tortoise (Threatened)

The desert tortoise is found along the entire length of Alternative IV-C (**Figure 3.8-6**). This species is found exclusively with the Mojave Desert shrubland community.

The types of impacts to the desert tortoise under Alternative IV-C generally would be the same as described for Alternative III-A, but would differ in the amount of habitat disturbed (**Table 3.8-60**). Impacts to the desert tortoise may occur as a result of the construction and operation disturbance of 606 acres and 122 acres, respectively, of potentially suitable habitat. These areas represent 0.07 percent and 0.01 percent, respectively, of potentially suitable habitat within the Region IV desert tortoise analysis area. Indirect impacts would occur to 60,412 acres, which represent 7.39 percent of desert tortoise potential habitat within the Region IV desert tortoise analysis area.

Impacts to the desert tortoise and its habitat along Alternative IV-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-4, SSWS-15,** and **WLF-3**.

Remaining impacts to the desert tortoise under Alternative IV-C would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the desert tortoise would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities.

Western Yellow-billed Cuckoo (Threatened)

This species may occur along Alternative IV-C in southern Nevada in close proximity to perennial streams, wetlands, and lakes.

The types of impacts to the western yellow-billed cuckoo under Alternative IV-C generally would be the same as described for Alternative I-A (**Table 3.8-60**). Under Alternative IV-C, direct impacts to the western yellow-billed cuckoo may occur as a result of the construction and operation disturbance of 7 acres and 2 acres, respectively, of potentially suitable woody riparian and wetlands and herbaceous wetland habitats. These areas represent 0.16 percent and 0.05 percent, respectively, of potentially suitable habitat within the Region IV western yellow-billed cuckoo analysis area. Indirect impacts would occur to 710 acres, which represent 16.17 percent of western yellow-billed cuckoo potential habitat within the Region IV western yellow-billed cuckoo analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the western yellow-billed cuckoo and its habitat along Alternative IV-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-6, SSWS-15, WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8.**

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the western yellow-billed cuckoo would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Southwestern Willow Flycatcher (Endangered)

The southwestern willow flycatcher may occur within suitable riparian habitat along Alternative IV-C in southern Nevada. Potential suitable habitat for the southwestern willow flycatcher near Alternative IV-C includes portions of the Meadow Valley Wash, the Muddy River, and the Colorado River System (Hiatt and Boone 2003).

The types of impacts to the southwestern willow flycatcher under Alternative IV-C generally would be the same as described for Alternative III-A, but would differ in the amount of habitat disturbed (**Table 3.8-60**). Alternative IV-C would result in the construction and operation disturbance of 6 acres and 2 acres, respectively, of potentially suitable woody riparian and wetlands habitat. These areas represent 0.16 percent and 0.05 percent, respectively, of potentially suitable habitat within the Region IV southwestern willow flycatcher analysis area. Indirect impacts would occur to 592 acres, which represent 16.12 percent of southwestern willow flycatcher potential habitat within the Region IV southwestern willow flycatcher analysis area.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the southwestern willow flycatcher and its habitat along Alternative IV-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-26, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-8, WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the southwestern willow flycatcher would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

Yuma Clapper Rail (Endangered)

The Yuma clapper rail may occur within suitable marsh habitat in southern Nevada along Alternative IV-C.

Direct impacts to the Yuma clapper rail include habitat loss, modification, and fragmentation (**Table 3.8-60**). Alternative IV-C would result in the construction and operation disturbance of <1 acre and <1 acre, respectively, of potentially suitable herbaceous wetland habitat. These areas represent <0.01 percent and <0.01 percent, respectively, of suitable habitat within the Region IV Yuma clapper rail analysis area. Indirect impacts would occur to 118 acres, which represent 16.42 percent of Yuma

clapper rail potential habitat within the Region IV Yuma clapper rail analysis area. Improved access as a result of Project roads under Alternative IV-C may result in increased human disturbance to the species. These impacts would be more pronounced if construction were to occur during the breeding season.

Operation of the proposed Project would incrementally increase the collision potential for Yuma clapper rails. Section 3.7.6.2, Impacts Common to All Alternative Transmission Line Routes and Associated Components, presents details regarding collision impacts to migratory birds.

TransWest's design features and BMPs for minimizing impacts to wetland/riparian habitats are described in **Appendix C**. Impacts to the Yuma clapper rail and its habitat along Alternative IV-C would be minimized through implementation of the following design features and mitigation measures:

- Applicable design features: TWE-8, TWE-24, TWE-25, TWE-29, TWE-31, TWE-32, TWE-33, and TWE-34; and
- Applicable mitigation measures: **SSWS-15**, **WLF-1**, **WLF-4**, **WLF-5**, **WLF-6**, **WLF-7**, and **WLF-8**.

Remaining impacts to nesting Yuma clapper rails under Alternative IV-C would be limited to temporary habitat disturbance. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to the Yuma clapper rail would be limited to habitat loss, fragmentation, and disturbance during routine maintenance activities. This disturbance is anticipated to have little impact, given the linear nature of the Project and extent of native habitats in the surrounding Project region.

BLM Sensitive and State Sensitive Species

BLM sensitive and state sensitive species that may occur along Alternative IV-C are presented in **Table 3.8-61**. The types of impacts of construction and operation to BLM sensitive and state sensitive species generally would be the same as discussed in Section 3.7.6.1, Impacts to Wildlife Common to All Alternative Routes and Associated Components. Species associated with desert shrubland are more likely to be impacted. Impacts to this habitat type are presented in **Tables 3.5-19** through **3.5-21**. Total habitat impacts can be calculated from the vegetation tables by adding the ROW clearing/trampling acreages and the facility acreages to determine construction disturbance. The operations numbers alone reflect acres of operations disturbance for each vegetation community/habitat type. Additional species-specific mitigation measures and habitat surveys will be coordinated with the BLM, Western, and NDOW.

Design features and additional mitigation measures applicable to avoiding and minimizing impacts to BLM and state sensitive species and their habitats are the same as those identified for Alternative I-A.

Species-specific mitigation measures and habitat surveys also would reduce impacts to these species. After considering design features and proposed mitigation measures, remaining Project construction and operation impacts to BLM sensitive and state sensitive species and their habitats would be limited to habitat loss, fragmentation, mortality from collisions, and disturbance during routine maintenance activities. Under Alternative IV-C, remaining impacts to special status wildlife species, especially nesting raptors and other migratory bird species, would be limited to temporary habitat disturbance and would vary by habitat type. This disturbance is anticipated to have little impact given the extent of native habitats in the surrounding Project region.

Marketplace Alternative Variation

The types of impacts to special status wildlife species under the Marketplace Alternative Variation in Region IV generally would be the same as the comparable portions of Alternatives IV-B but would

differ in the amount of habitat disturbed (**Table 3.8-62**). After considering design features and mitigation measures, impacts to special status wildlife species from Project construction and operation would be similar to the comparable portions of Alternatives IV-B.

Alternative Connectors in Region IV

The five alternative connectors would include minimal increases of total special status wildlife habitat disturbance if they were to be utilized. These alternative connectors would cross desert tortoise potential habitat. **Table 3.8-63** summarizes impacts associated with the alternative connectors in Region IV.

Table 3.8-62 Summary of Region IV Alternative Variation Impact Parameters for Special Status Wildlife Species

Impact Parameters	Marketplace Alternative Variation			Comparable Portion of Alternative IV-B		
	Construction Impact	Operation Impact	Indirect Impact	Construction Impact	Operation Impact	Indirect Impact
Desert tortoise critical habitat (acres)	–	–	–	–	–	–
Desert tortoise potential habitat (acres)	108	19	12,737	79	11	12,193
Length of transmission line (miles)	8			7		
Number of special status raptor nests within 1 mile of potential disturbance areas	–			–		

Table 3.8-63 Summary of Region IV Alternative Connector Impact Parameters for Wildlife

Alternative Connector	Analysis
Sunrise Mountain Alternative Connector	• No construction, operation, or indirect impacts to desert tortoise critical habitat would occur. • Approximately 51 acres of construction, 8 acres of operation, and 5,815 acres of indirect impacts to desert tortoise potential habitat would occur. • No special status raptor nests are within 1 mile of potential disturbance areas.
Lake Las Vegas Alternative Connector	• No construction, operation, or indirect impacts to desert tortoise critical habitat would occur. • Approximately 75 acres of construction, 20 acres of operation, and 7,513 acres of indirect impacts to desert tortoise potential habitat would occur. • No special status raptor nests are within 1 mile of potential disturbance areas.
Three Kids Mine Alternative Connector	• No construction, operation, or indirect impacts to desert tortoise critical habitat would occur. • Approximately 98 acres of construction, 27 acres of operation, and 10,576 acres of indirect impacts to desert tortoise potential habitat would occur. • No special status raptor nests are within 1 mile of potential disturbance areas.
River Mountains Alternative Connector	• No construction, operation, or indirect impacts to desert tortoise critical habitat would occur. • Approximately 165 acres of construction, 58 acres of operation, and 15,648 acres of indirect impacts to desert tortoise potential habitat would occur. • One peregrine falcon nest is within 1 mile of potential disturbance areas.
Railroad Pass Alternative Connector (Alts IV-A & IV-B)	• No construction, operation, or indirect impacts to desert tortoise critical habitat would occur. • Approximately 69 acres of construction, 17 acres of operation, and 8,393 acres of indirect impacts to desert tortoise potential habitat would occur. • No special status raptor nests are within 1 mile of potential disturbance areas.

Region IV Conclusion

A comparison of impact parameters for Region IV alternatives indicates that potential construction and operation impacts to special status wildlife species would be varied across all alternatives as shown in **Table 3.8-60**. Alternative IV-C would result in the greatest acreage of direct and indirect impacts to desert tortoise potential habitat in comparison to the other Region IV alternatives (**Table 3.8-60**). Alternative IV-C also would result in the greatest direct and indirect impacts to southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma clapper rail potential habitat in comparison to the other Region IV alternatives (**Table 3.8-60**). The greatest level of impacts to special status wildlife species among all Region IV alternatives associated with Alternative IV-C is due to greater impacts to desert tortoise habitat. However, project effects on special status wildlife species and their potential habitat would be avoided or considered to be low magnitude and short-term after applying BMPs, design features, and additional mitigation.

3.8.6.7 Residual Impacts

Although it is anticipated that wildlife mitigation measures would be effectively implemented, some residual impacts to wildlife and wildlife habitat would occur. Long-term residual impacts to habitat have been quantified and disclosed as operation impact acreages to vegetation communities. Residual impacts would include the loss of vegetation related to the permanent placement of facilities; access roads for the life of the Project; the invasion and spread of noxious weeds and invasive species into previously undisturbed areas; and fragmentation of native habitats. Timeframes for successful reclamation can vary by habitat type and initial impact intensity. Section 3.5.1.1 discusses residual impacts to vegetation communities. Depending on the timing of construction and reclamation success, species that are rare or whose habitat requirements are very specific and limited could be impacted at the local population level.

During extended periods of reclamation, it is expected that habitat function would be reduced until reclamation is fully complete. However, achieving plant maturity and full restoration of vegetation communities would require a long time period, during which there would be temporary loss, degradation, and alteration of habitat. Even with successful reclamation to original vegetation communities after decommissioning, variability in plant structure and age would still constitute habitat fragmentation. Habitat fragmentation could result in long-term wildlife avoidance and displacement. Long-term changes in wildlife species occurrence and diversity could occur as a result of changes in habitat composition, quality, and continuity. The time required to successfully reclaim all impacted habitats to original species composition, diversity, and age structure may range from 3 to 5 years to 10 to 100 years in certain conditions as described in Section 3.5.6.7, Residual Impacts.

Predators and scavengers could be impacted by changes in wildlife behavior and occurrence due to long-term habitat fragmentation. Wildlife population dynamics could be altered temporarily or permanently, as a result of habitat alteration, degradation, and fragmentation. Large predators could exhibit altered prey selection and hunting success in response to changes in species occurrence.

Although mitigation measures to reduce and avoid impacts to avian species are anticipated to be successful, the complete elimination of collision and electrocution risks is not anticipated. Therefore, avian species in the special status wildlife analysis area would experience long-term exposure to collision and, to a much lesser extent, electrocution risks during the life of the Project. Many factors influence collision risk. In general, juvenile birds would be at higher risk of collision than adults (APLIC 2012). With few exceptions (e.g., whooping crane, California condor), research-based literature necessary to determine and disclose population level impacts to bird species from transmission lines is not available. Vegetation management along the ROW would occur during the life of the Project. As a result, avian foraging habitat and breeding territories would be disrupted or fragmented.

Although all new roads constructed by the Project for use during maintenance and operation are intended to be decommissioned along with other Project infrastructure during decommissioning, some risk of continued recreational use by the public along these routes may exist. Use of Project routes by recreational all-terrain vehicles would potentially adversely impact some special status wildlife species within the Project area. These species could avoid roads and off-road routes that experience consistent use. This avoidance would potentially result in shifts in species composition in otherwise suitable habitats and disproportional foraging of vegetation communities.

Vegetation recovery to similar cover and species composition after implementation of a reclamation program is expected to occur at varying rates. Reclamation and recovery timeframes for each vegetation cover type are presented in Section 3.5.6.8, Residual Impacts. Some native habitats may not return to pre-construction conditions due to alteration of soil communities, noxious weed invasion, and loss of biological soil crusts. Fragmentation of native habitats and the conversion of vegetation communities may occur over the long term, depending on the success of reclamation and associated disturbance from maintenance activities over the life of the Project. Noxious weed and invasive species may persist over the long term regardless of the implementation of control programs.

3.8.6.8 Irreversible and Irretrievable Commitment of Resources

Construction and operation of any of the proposed Project alternatives would result in the irretrievable commitment of both wildlife and wildlife habitats during the life of the Project. Depending on the selection of alternatives, the amount of wildlife habitat irretrievably committed would range from 9,959 acres to 12,164 acres. However, as discussed in **Appendix D**, it is anticipated that upon decommissioning of the Project, reclamation measures should result in the return of impacted areas to native habitats including all Project access roads. Special status wildlife in the vicinity of the Project would potentially be indirectly impacted by increased disturbance levels that result from recreational all-terrain vehicle use by the public along access roads constructed for use during operations and maintenance of the Project. Some vegetation communities are expected to return to a native state within a relatively short period of time (i.e., 5 years). Other more sensitive habitats such as sagebrush shrublands may require up to 50 years or longer to return to native conditions. Regardless of timeframes, it is possible that wildlife habitat disturbed during construction could return to pre-project conditions, thus avoiding any irreversible commitments of wildlife resources.

3.8.6.9 Relationship between Local Short-term Uses and Long-term Productivity

Wildlife habitat would be diminished until reclaimed areas return to mature vegetation communities. As discussed above, these temporal losses can vary in the time required to return to pre-construction conditions. This range of temporal loss is expected to be between 5 and 50 years, depending upon the vegetation community. Construction and operation of any of the Project alternatives as is anticipated to result in minor impacts to the short-term productivity of local migratory bird populations and sagebrush obligate wildlife species due to loss or degradation of habitat. These impacts are expected to be limited to mortality resulting from collisions with Project infrastructure and avoidance due to increased predation. Impacts from direct habitat loss are expected to be negligible because the total anticipated loss of wildlife habitat due to Project construction would be less than 1 percent of available habitats within the Project analysis area.

3.8.6.10 Impacts from the No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed or operated. The special status wildlife analysis area would exist under current authorizations and land uses (e.g., livestock grazing, agriculture, energy development, mining, etc.). Therefore, impacts to special status wildlife species associated with the development of the proposed Project would not occur.