3.6 Special Status Plant Species

3.6.1 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 plant lists for Nevada (Nevada Administrative Code 501.100-503.104) that include many of the BLM and USFS sensitive species as well as ESA-listed species.

In accordance with the ESA, as amended, the lead agencies (BLM and Western) in coordination with the USFWS must ensure that any action that they authorize, fund, or carry out would not adversely affect a federally listed threatened or endangered species, and cannot destroy or adversely modify designated critical habitats for federally listed plant species. In addition, as stated in the BLM's Special Status Species Management Policy 6840 (6840 Policy) (Rel. 6-125), it also 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."

Regulations that directly influence special status species management decisions within the analysis area are primarily implemented by the BLM and USFS. Special status species regulations relevant to the Project include:

- ESA of 1973;
- BLM Special Status Species Management Policy 6840 (6840 Policy) (Rel. 6-125);
- USFS Manual (FSM) 2670;
- Nevada Administrative Code (CE); and
- Nevada Revised Statutes (NRS).

The analysis for special status species assumes the BLM and USFS will continue to manage special status species' habitats in coordination with the USFWS.

3.6.2 Data Sources

Information regarding special status plant species and their habitat within the analysis area was obtained from a review of existing published sources, BLM RMPs, USFS LRMPs, BLM, USFS, USFWS, and NPS file information, as well as WYNDD, CNHP, UNHP, and NNHP database information. In addition, information obtained through correspondence with agency botanists and ecologists was incorporated into this section as appropriate.

3.6.3 Analysis Area

The analysis area for special status plant species encompasses the total area within the HUC 10 watershed boundaries (as defined in Section 3.4.3) crossed by the 2-mile transmission line corridors for all alternatives and the locations of other Project components including terminals and ground electrodes. Special status plant species and their habitats that may be present within the 2-mile transmission line corridor (based on available literature and data reviewed for the Project) are carried forward for analysis.

3.6.4 Baseline Description

In total, 304 special status plant species were evaluated for potential occurrence within the 2-mile transmission line corridor. These species, their associated habitats, and potential for occurrence within

and around the 2-mile transmission line corridor are summarized in **Appendix G**, **Table G-1**. Occurrence potential was evaluated for each species based on its habitat requirements and known distribution. Based on these evaluations, 162 special status plant species have been eliminated from further consideration in the EIS. The rationale for eliminating these species from detail analysis is provided in **Appendix G**, **Table G-1**. In total, 140 special status plant species were carried forward for detailed analysis. Some species are included in multiple protection status categories. A summary of the listing status, habitat, and general distribution for the federally listed plant species that were carried forward in detailed analysis is provided below. Special status plant species occurrences are summarized by Project region in Section 3.6.5, Regional Summary of Special Status Plant Species.

3.6.4.1 Federally Listed, Candidate, and Proposed Plant Species

Shivwitz Milkvetch (*Astragalus ampullaroides*) – Federally Endangered

The Shivwitz milkvetch, a perennial forb, was listed as endangered pursuant to the ESA on September 28, 2001, due to its rarity and declining population trends as well as the threats of urban development, off-road vehicle use, grazing, displacement by invasive plants, and mineral development (USFWS ECOS 2012). The species is found within desert shrub and saltbush communities, specifically warm desert shrub, creosote bush (*Larrea tridentata*), and juniper (*Juniperus* spp.) communities on purple-hued patches of soft clay typically associated with the Petrified Forest member of the Chinle Formation. Occupied sites are small, with populations found between 3,018 and 4,363 feet amsl in sparsely vegetated habitat with an average 12 percent vegetative cover. The species is typically found in dense patches, flowering between May and June. The species is constrained by the isolation of appropriate soil substrate and limited mechanisms for seed dispersal, with fluctuating population numbers that may be dependent on rainfall (UNPS 2003-2006; USFWS 2006).

The Shivwitz milkvetch is an endemic species of the Mojave Desert and is known to occur in the vicinity of St. George in Washington County, southwestern Utah. Within the analysis area, Shivwitz milkvetch is only known from two locations in Washington County, Utah. The remaining known occurrences for this species are east of the analysis area. The species has been documented approximately 4 miles southeast of the 2-mile transmission line corridor for Alternative III-A in Washington County, Utah. On December 27, 2006, the USFWS designated 2,181 acres of critical habitat for the species in Washington County, Utah; the closest critical habitat parcel is located adjacent to Alternative III-A (USFWS ECOS 2012).

Deseret Milkvetch (*Astragalus desereticus*) – Federally Threatened

The Deseret milkvetch, a perennial herb, was listed as threatened under the ESA on October 20, 1999 (USFWS ECOS 2012). The species is found in barren/sparsely vegetated, montane shrub, desert shrub, and pinyon–juniper communities, specifically open to sparse juniper-sagebrush (*Artemisia* sp.) communities on open, steep, naturally disturbed south and west (rarely north) facing slopes. Populations are found between 5,400 and 5,700 feet amsl, flowering between May and June.

The Deseret milkvetch is a narrow endemic occurring only on the sandy-gravelly hillsides of the Moroni Formation near the community of Birdseye in Utah County, Utah (UDWR 2012). A 5-year review of the species was completed in 2011 (USFWS). The review determined that many of the previously identified threats were not as significant as had been anticipated or had failed to develop. Based on the 5-year review UFWS determined that the species should be proposed for delisting due to the absence of threats to the species and its habitat and because the species' known range and population size is greater than previously thought (USFWS 2011).

The species has been documented within the 2-mile transmission line corridor for Alternatives II-A, II-E, and II-F in Utah County, Utah. The species is not found outside the analysis area. Critical habitat has not been designated for this species.

Jones Cycladenia (*Cycladenia humilis* var. *jonesii*) – Federally Threatened

The Jones cycladenia, a perennial herb, was listed as threatened under the ESA on May 5, 1986 (USFWS ECOS 2012). The species is found in desert shrub, and pinyon–juniper communities, specifically, buckwheat (*Eriogonum* sp.)/Mormon tea (*Ephedra* sp.), cool desert shrub, and juniper communities comprised of gypiferous saline soils. Populations are found between 4,400 and 6,000 feet amsl, flowering between mid May and June (UNPS 2003-2006).

The Jones cycladenia is an endemic of the Chinle, Cutler, and Summerville formations within Emery, Garfield, Grand, and Kane counties, Utah (UNPS 2003-2006). Jones cycladenia is found in the southern portions of the analysis area in Emery and Grand counties, Utah. The majority of the known occurrences for the species are found outside of the analysis area. The species is known to occur in central Utah, documented approximately 8.5 miles southwest of the 2-mile transmission line corridor for Alternatives II-B and II-C in Emery County, Utah. Critical habitat has not been designated for this species (USFWS ECOS 2012).

Las Vegas Buckwheat (*Eriogonum corymbosum* var. *nilesii*) – Federal Candidate

The Las Vegas buckwheat, a perennial subshrub, was designated a candidate for federal listing under the ESA on December 6, 2007 (USFWS ECOS 2012). Threats to the species include the loss of individuals and/or habitat, inadequacy of existing regulatory mechanisms, and noxious and invasive weed species. The species is found in barren/sparsely vegetated areas, specifically, on and near gypsum soils, often forming low mounds or outcrops in washes and drainages, or in areas of generally low relief. The species is often associated with California bearpoppy (*Arctomecon californica*) and other gypsum-tolerant species, surrounded by burrobush (*Ambrosia dumosa*), desert princesplume (*Stanleya pinnata*), fourwing saltbush (*Atriplex canescens*), Torrey's jointfir (*Ephedra torreyana*), creosote bush (*Larrea tridentata*), catclaw acacia (*Acacia greggii*), Mojave seablite (*Suaeda torreyana*), and Fremont's dalea (*Psorothamnus fremontii*). Populations are found between 1,900 to 3,839 feet amsl and flower between August and November (NNHP 2001; Styles 2010).

The Las Vegas buckwheat, a species of the Mojave Desert, is known from the Las Vegas and Muddy Mountains region of Clark County, Nevada; Lincoln County, Nevada, near Toquop Wash; and Washington County, Utah (NNHP 2001; Styles 2010). Within the analysis area, the species is found in Clark County and southern Lincoln County. The bulk of the known occurrences are found west of the analysis area. The species has been documented within the 2-mile transmission line corridor for Alternatives III-A, III-B, and III-C in Lincoln and Clark counties, Nevada, and adjacent to multiple 2-mile transmission line corridors in Clark County, Nevada. Since this species is listed as a federal candidate, critical habitat has not been designated for this species (USFWS ECOS 2012).

Barneby Ridgecress (*Lepidium barnebyanum*) – Federally Endangered

The Barneby ridgecress, a perennial herb, was listed as threatened under the ESA on September 28, 1990 (USFWS ECOS 2012). Threats to the species include oil and gas activities, ORVs, and trampling from livestock grazing. The species is found within pinyon-juniper communities on poorly developed soils derived from the marly shale outcrops in a zone of interbedding geologic stratas from the Uinta and Green River formations. Populations are found between 6,200 and 6,500 feet amsl and flowering occurs in early May (USFWS 1993).

Within the analysis area, the Barneby ridgecress is known from only three ridges near Indian Canyon on the Uintah and Ouray Reservations of the Ute Indian Tribe within the Uinta Basin, Duchesne County, northeastern Utah (USFWS 1993). The species is not found outside the analysis area. This species has been documented adjacent to the 2-mile transmission line corridor for Alternatives II-A and II-E in Duchesne County, Utah. Critical habitat has not been designated for this species.

San Rafael Cactus (*Pediocactus despainii*) – Federally Endangered

The San Rafael cactus was listed as endangered pursuant to the ESA on September 16, 1987 (52 FR 34914) due to its rarity and declining population trends as a result of over-collection, trampling, and destruction of habitat for access to oil and gas reserves. Threats to San Rafael cactus include small population size, habitat loss, ORV use, trampling by humans and livestock, mineral and energy development, and illegal collection. The species grows in pinyon-juniper communities on fine textured, mildly alkaline soils rich in calcium derived from limestone substrates of the Carmel Formation and the Sinbad member of the Moenkopi formation. The species is most commonly found on benches, hill tops, and gentle slopes with a southern exposure. It grows in open woodlands of scattered Utah juniper (*Juniper osteosperma*) and pinyon pine (*Pinus edulis*) with an understory of shrubs and grasses (USFWS 1995). The habitat of the San Rafael cactus is underlain by bentonite clay, uranium ore deposits, gypsum, petroleum, and other minerals. Populations are found at approximately 6,000 feet amsl, flowering between late April and early May.

The San Rafael cactus is restricted entirely to the San Rafael Swell in Emery and Wayne counties of central Utah. Approximately half of the known occurrences are found within the analysis area in Emery County, Utah; the rest of the known occurrences are found south of the analysis area predominantly in Emery County, Utah. The species has been documented within and adjacent to the 2-mile transmission line corridor for Alternative II-C in Emery County, Utah. Critical habitat has not been designated for this species.

Siler Pincushion Cactus (*Pediocactus sileri*) – Federally Threatened

The Siler pincushion cactus was listed as threatened pursuant to the ESA on December 27, 1993 (58 FR 68476) due to habitat destruction from mining activities, off-road vehicle use, over-collection from both private and commercial interests, and trampling by grazing livestock (58 FR 68476; NatureServe 2012; Phillips et al. 1979; USFWS 1986a). The effects of these identified threats are intensified by the species' restricted habitat and its small, scattered, disjunct populations (44 FR 61786; NatureServe 2012; USFWS 1986a). The species grows in desert shrub, montane shrub, pinyon-juniper, and conifer forests in gypsiferous and calcareous clay soils derived from members of the Moenkopi Formation, and sometimes on members of the Chinle and Kaibab Formations. It is commonly associated with shadscale (*Atriplex confertifolia*), fourwing saltbush, big sagebrush (*Artemisia tridentata*), flat sagebrush (*Artemisia bigelovii*), rabbitbrush (*Chrysothamnus* spp.), and Mormon tea (*Ephedra* spp.). At higher elevations, common associates are Colorado pinyon (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*), and cliffrose (*Purshia mexicana*), while lower elevation habitat is dominated by creosotebush (*Larrea tridentata*) and cheesebush (*Hymenoclea salsola*) (USFWS 1986a). This species typically grows in soils which are high in soluble salts, usually white or gray in color, or occasionally red if derived from some red members of the Moenkopi Formation (58 FR 68476; Phillips et al. 1979). Populations are found between 3,000 to 5,200 feet amsl, flowering between March and April/May.

The Siler pincushion cactus is found in the extreme southern parts of Washington and Kane counties in southwestern Utah. All known occurrences for Siler pincushion cactus are found outside the analysis area. The species has been documented approximately 23 miles southeast of the 2-mile transmission line corridor for Alternative III-A in Washington County, Utah. Critical habitat has not been designated for this species.

Winkler Cactus (*Pediocactus winkleri*) – Federally Threatened

The Winkler cactus was listed as threatened pursuant to the ESA on August 20, 1998 (63 FR 44587) due to habitat destruction from ORV use, over-collection from both private and commercial interests, and, to a lesser extent, from mineral exploration, disease, and trampling by grazing livestock (USFWS 2007). The species is found in barren/sparsely vegetated, and saltbush shrub communities. The species inhabits benches, hilltops, and gentle southern exposed slopes on barren, open sites at lower elevations, growing in fine-textured, mildly alkaline soils with high clay content derived from the Dakota

Formation and Brushy Basin member of the Morrison Formation (BLM 2008; Tilley et al. 2011a; USFWS 1995). The species is associated with the saltbrush vegetation community of the Canyonlands section of the Colorado Plateau Floristic Division, characterized by drought-tolerant shrubs and grasses with ephemeral forbs including saltbush, rabbitbrush (*Chrysothamnus pulchellus*), vetches (*Astragalus* spp.), catseye (*Cryptantha* spp.), and Nuttall's horsebrush (*Tetradymia nuttallii*) (USFWS 1995). Populations are found between 4,800 to 5,200 feet amsl, flowering between late March and mid-May.

The Winkler cactus is endemic to central Utah in Emery and Wayne counties. Winkler cactus is found in only two locations within the analysis area in Emery County, Utah. The majority of the species' known locations are found south of the analysis area. The species has been documented approximately 1.5 miles east and 6 miles northwest of the 2-mile transmission line corridor for Alternative II-C in Emery County, Utah. Critical habitat has not been designated for this species.

Graham's Penstemon (*Penstemon grahamii*) – Federally Proposed

The Graham's penstemon has been proposed for listing as a threatened species under the ESA pursuant to candidate notice of review documents dated September 12, 2006 (71 FR 53756 53835). Threats to the species include degradation of the species' habitat by mineral and energy development, ORV use, overgrazing, overutilization for horticultural use, small population sizes, and limited distribution. The species inhabits desert shrub, saltbush shrub, and pinyon-juniper communities, specifically, sparsely vegetated shadscale, buckwheat, horsebrush, ryegrass, and pinyon-juniper communities on shale ledges and talus of the Green River Formation. Populations are found between 4,600 to 7,600 feet amsl, flowering between late May and mid-June (NatureServe 2012; UNPS 2003-2006).

The Graham's penstemon is restricted to the Uinta Basin in Uintah, Carbon, and Duchesne counties, Utah, and adjacent Rio Blanco County, Colorado. Within the analysis area, Graham's penstemon is restricted to the Uinta Basin, with the majority of known occurrences in the analysis area located in southern Uintah County. The species has been documented within Alternatives II-A, II-B, II-C, II-D, and II-E within Uintah and Duchesne counties, Utah; and adjacent to the 2-mile transmission line corridor for Alternatives II-B and II-C in Rio Blanco County, Colorado. Proposed critical habitat has been designated for this species, which affords protection under the ESA (USFWS ECOS 2012).

White River Beardtongue (*Penstemon scariosus* var. *albifluvis*) – Federal Candidate

The White River beardtongue was designated as a candidate for federal listing under the ESA on November 28, 1983 (48 FR 53640). Due to its association with oil shale barrens, the species is vulnerable to habitat destruction as a consequence of energy exploration, production and other activities within its limited habitat (48 FR 53640). Habitat loss and fragmentation has the potential to result in reduced seed and pollen dispersal leading to a reduced beardtongue population (48 FR 53640). The White River beardtongue is found in barren/sparsely vegetated, pinyon-juniper, and desert shrub communities. It is specifically endemic to the oil shale barrens found in semi-barren openings in pinyon-juniper-desert shrub or desert shrub communities on substrates composed of fine-textured soils and shale fragments weathered from the Green River Formation of the Uinta Basin of northeastern Utah and adjacent Colorado (BLM 2008). The species is frequently found on white or red soil at an elevation of 5,000 to 6,680 feet amsl, flowering between late May and June. Associated vegetation includes shadscale, rabbitbrush, ricegrass (*Achnatherum hymenoides*), Salina ryegrass (*Elymus salinus*), sagebrush, and Barneby's thistle (*Cirsium barnebyi*) (Tilley et al. 2011b; USFWS 2012b).

According to available data, the White River beardtongue is located in eastern Uintah County, Utah, and western Rio Blanco County, Colorado, near the White River in the vicinity of Evacuation Creek and Weaver Ridge. Within the analysis area, White River beardtongue is found along the border between Colorado and Utah within its range. The species has been documented approximately 6 miles west of the 2-mile transmission line corridor for Alternatives II-B and II-C in Rio Blanco County, Colorado; and approximately 8 miles southeast of the 2-mile transmission line corridor for Alternative II-D in Uintah

County, Utah. Since this species is only a candidate for federal listing, critical habitat has not been designated (USFWS ECOS 2012).

Clay Phacelia (*Phacelia argillacea*) – Federally Endangered

The clay phacelia, a winter annual, was listed as endangered pursuant to the ESA on June 28, 1978 (43 FR 44810), due to climactic changes, edaphic factors, and its drastically small population size. Additional threats include rarity and declining population trends as a result of over-collection, trampling, livestock and wildlife grazing, noxious and invasive weed species, railroad maintenance, and destruction of habitat for access to oil and gas reserves. The species is found in pinyon-juniper, montane shrub, and barren/sparsely vegetated areas. It is specifically found on steep slopes (up to 70 percent) in sparsely populated juniper-pinyon and mountain brush communities (Welsh 1987) associated with skunkbush sumac (*Rush trilobata*) and serviceberry (*Amelranchier alnifolia*) located on shaley clay colluviums of the Green River Formation (Atwood 1975; USFWS 1982). The species occurs at elevations between 6,000 and 7,000 feet amsl, flowering between late May and early June.

Within the analysis area, clay phacelia has a limited range, with its only known occurrences being in Spanish Fork Canyon in the vicinity of Tucker and down-canyon near Mill Fork in Utah County, central Utah (UDWR 2010-2012). The species has been documented within, and immediately adjacent to, the 2-mile transmission line corridor for Alternative II-E in Utah County, Utah. Critical habitat has not been designated for this species.

Clay Reed-mustard (*Schoenocrambe argillacea*) – Federally Threatened

The clay reed-mustard, a perennial herb, was listed as threatened pursuant to the ESA on January 14, 1992, due to habitat disturbance from oil and gas, and oil shale developments (57 FR 1398 1403). Additional threats to the species includes its small population size, habitat destruction from mineral and energy exploration and development, recreational activities, and/or building stone excavation. The species occurs in mixed desert shrub communities of shadscale, Indian ricegrass, and pygmy sagebrush (*Artemisia pygmaea*) located on generally north-facing slopes composed of clay soils rich with gypsum overlain with sandstone talus on shale substrates at the contact zone between the lower Uinta and upper Green River formations (UDWR 2010-2012; UNPS 2003-2006). The species occurs at elevations between 4,800 and 5,600 feet amsl, flowering between April and May.

Within the analysis area, the clay reed-mustard has limited range. The species is endemic to the Bookcliffs in Uintah County, Utah; known populations are present from the west side of the Green River to the east side of Willow Creek (UDWR 2010-2012; UNPS 2003-2012). The species is known to occur in northeastern Utah, documented within, and immediately adjacent to, the 2-mile transmission line corridor for Alternatives II-D and II-F in Utah County, Utah. Critical habitat has not been designated for this species.

Shrubby Reed-mustard (*Schoenocrambe suffrutescens*) – Federally Endangered

The shrubby reed-mustard, a perennial herb, was listed as endangered pursuant to the ESA on October 6, 1987 (52 FR 37416 37420) due to various habitat disturbances including building stone removal, localized historic overgrazing, and oil and gas development (USFWS ECOS 2012). The species occurs in shadscale, pygmy sagebrush, mountain mahogany (*Cercocarpus montanus*), juniper, and other mixed desert shrub communities on calcareous shale substrates of the Evacuation Creek member of the Green River Shale Formation (BLM 2008; UNPS 2003-2006). The species occurs at elevations between 5,400 and 6,000 feet amsl, flowering between late May and June/July.

The shrubby reed-mustard is endemic to the Hill Creek and Willow Creek drainages, and to the Badland Cliffs within Duchesne and Uintah counties, Utah (BLM 2008; UNPS 2003-2006), within the analysis area. No known occurrences occur outside of the analysis area. The species has been documented approximately 1 mile south of the 2-mile transmission line corridor for Alternative II-D in Duchesne

County, Utah, and approximately 5 miles south of the 2-mile transmission line corridor for Alternatives II-D and II-F in Uintah County, Utah. Critical habitat has not been designated for this species (USFWS ECOS 2012).

Colorado Hookless Cactus (*Sclerocactus glaucus*) – Federally Threatened

The Colorado hookless cactus was listed as threatened pursuant to the ESA on October 11, 1979, based primarily on threats of over-collection and habitat destruction (44 FR 58868). Additional threats to Colorado hookless cactus include loss of habitat, mineral and energy development, utility construction, water development Projects, illegal collection, recreational ORV use, and grazing. The species grows in salt desert shrub communities, big sagebrush, and pinyon-juniper woodlands on alluvial benches, soils that are coarse, gravelly river alluvium usually consisting of Mancos shale with volcanic cobbles and pebbles of the surface (USFWS 2012a). The soil is weathered from the Uinta and Green River formations. The species is more abundant on south-facing slopes with up to a 30 percent grade, with associated species such as shadscale, galleta (*Hilaria jamesii*), black sagebrush (*Artemisia nova*), and Indian ricegrass (USFWS 2010a, 1990). Populations are found between 4,500 to 6,000 feet amsl, flowering between April and May.

The Colorado hookless cactus is known in Mesa, Delta, Garfield, and Montrose counties, Colorado. The species occurs in two locations of the upper Colorado and Gunnison River valleys of western Colorado; one on the alluvial river terraces of the Gunnison River near Delta to southern Mesa County and the other on the alluvial river terraces of the Colorado River and in the Plateau and Roan Creek drainages near Debeque, Colorado (USFWS 2010a, 1990). The species has been documented within, and adjacent to, the 2-mile transmission line corridor for Alternatives II-B and II-C in Mesa and Garfield counties, Colorado. Within the analysis area, there are no additional Colorado hookless cacti known occurrences. The majority of known occurrences of Colorado hookless cactus are located outside of the analysis area. Critical habitat has not been designated for this species.

Uinta Basin Hookless Cactus (*Sclerocactus wetlandicus*) – Federally Threatened

The Uinta Basin hookless cactus (a member of the *Sclerocactus glaucus* complex due to taxonomic differentiation) was listed as threatened pursuant to the ESA on October 11, 1979 based primarily on threats of mineral and energy development, water development, and collection (44 FR 58868). The species grows in salt desert shrub communities and pinyon-juniper woodlands on river benches, valley slopes, and rolling hills on Quaternary and Tertiary alluvial soils that are fine textured, dry, and overlain with cobble and pebble (BLM 2008). The soil is weathered from the Duchesne River, Uinta, and Green River formations. The species is more abundant on south facing slopes with up to a 30 percent grade, with associated species such as shadscale, galleta, black sagebrush, and Indian ricegrass (USFWS 1990). Populations are found between 4,500 to 6,600 feet amsl, flowering between April to late May.

Uinta Basin hookless cactus is found extensively on the Duchesne River, Green River, and Mancos formations in Carbon, Duchesne, and Uintah counties, Utah. The Uinta Basin hookless cactus (as part of the *S. glaucus* complex) is known to occur in Uintah, Duchesne, and Carbon counties, Utah. The species occurs on the alluvial river terraces near the confluence of the Green, White, and Duchesne rivers, south along the Green River to the vicinity of Sand Wash and the mouth of the Pariette Draw, the Badland Cliffs, and the clay badlands of the Pariette Draw drainage south of Myton, Utah. Within Uintah and Duchesne Counties, core conservation areas for the species have been identified by USFWS. These core conservation areas contain the dense known concentrations of cacti (BLM 2012a). There are two levels of core conservation areas (1, 2) based on pollinator travel distance, and habitat connectivity between populations and individuals. A trans-located population of cactus also falls within the boundaries of one of the core conservation areas. A potentially genetically isolated population of cactus is found near Bonanza, Utah. In the analysis area, the species is located in west and central Uintah County, Utah. The species has been documented within, and adjacent to, Alternatives II-D and II-F in Uintah and Duchesne counties, Utah, and immediately adjacent to the 2-mile transmission line

corridor for Alternative II-A in Duchesne County, Utah. Critical habitat has not been designated for this species.

Wright Fishhook Cactus (*Sclerocactus wrightiae*) – Federally Endangered

The Wright fishhook cactus was listed as endangered pursuant to the ESA on October 11, 1979 (44 FR 58866) due to species collection by professional and amateur cactus growers, resource extraction within occupied and suitable habitat, cactus borer beetle predation, cattle trampling, and ORV crushing. The species grows in salt desert shrub and pinyon-juniper communities, typically in semi-barren sites within desert scrub or open woodland (USFWS 1985). Associated species include pinyon pine (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*), valley saltbush (*Atriplex cuneata*), shadscale, saltbush, and galleta (USFWS 1985). The species is found in areas with well-developed gypsiferous layers and in areas with no gypsum, and has been documented on Mancos shale, Emery, Entrada, and Dakota sandstone, Morrison, Summerville, Curtis, and Moenkopi formations, Carmel limestone, and alluvium (70 FR 44544) with soil substrate ranging from clays to sandy silts to fine sands. Populations are found between 4,260 and 5,900 feet amsl, flowering between April and May (NatureServe 2012).

The Wright fishhook cactus is endemic to Emery, Sevier, and Wayne counties in central Utah. Distribution generally follows a low elevation trough around the southern end of the San Rafael Swell uplift. Wright fishhook cactus is found in only two locations within the analysis area in Emery County, Utah. The species has been documented approximately 3.5 miles southeast of the 2-mile transmission line corridor for Alternative II-C in Emery County, and approximately 4 miles south of the 2-mile transmission line corridor for Alternative II-C in Sevier County, Utah. Critical habitat has not been designated for this species.

Ute Ladies'-tresses Orchid (*Spiranthes diluvialis*) – Federally Threatened

The Ute ladies'-tresses orchid was listed as threatened pursuant to the ESA on January 17, 1992 (57 FR 2048), due to adverse impacts such as grazing, and loss or fragmentation of habitat as a result of noxious weed species invasion, and shifts in the species-dependant hydrologic regime. Additional threats to Ute ladies'-tresses orchid include habitat loss and modification, over-collection, noxious and invasive species, herbicide drift, recreation activities, mowing, livestock grazing, hydrologic modifications, herbivory, loss of pollinators, drought, and loss of mycorrhizal symbionts. The species is aquatic or wetland-dependent, and typically occupies moist to very wet, somewhat alkaline or calcareous native meadows near streams, springs, seeps, lake shores, or abandoned stream meanders that still retain ample groundwater (Fertig 2000; USFWS 2010b). The orchid appears to require moisture in the rooting zone, typically provided by a high groundwater table, through the growing season and into late summer or early autumn. Plants usually occur as small scattered groups and occupy relatively small areas within the riparian system. Elevations range from 4,200 to 7,000 feet amsl over the entire range of the species, but in each state the species is found at more specific elevation ranges. The species typically flowers from July to August, but can vary from late June to late September depending on the state/region (Fertig 2000; USFWS 2010b).

The Ute ladies'-tresses orchid is known to occur in central and northeastern Utah, northwestern Colorado, and eastern Nevada (USFWS 2010b). Habitat for the Ute ladies'-tresses orchid is also found in southwestern Wyoming (USFWS 2010b). Within the analysis area, the species occurs in wet areas and riparian areas in the northern portion of the analysis area in Duchesne and Uintah counties, Utah. The species is also found outside of the analysis area. The species has been documented within Alternatives II-A and II-E in Utah, Uintah, Duchesne, and Wasatch counties, Utah; and also adjacent to the 2-mile transmission line corridor for Alternatives II-A, II-D, and II-E in Daggett, Duchesne, Wasatch, Uintah, and Utah counties, Utah. Critical habitat has not been designated for this species.

Last Chance Townsendia (*Townsendia aprica*) – Federally Threatened

The Last Chance townsendia was listed as threatened pursuant to the ESA on August 21, 1985 (50 FR 33734) due to mineral and energy development, road building, and livestock trampling. The species generally occurs in galleta and salt desert shrub, and pinyon-juniper communities of the Mancos shale formation (NatureServe 2012). Commonly associated species include galleta, blue grama (*Bouteloua gracilis*), black sagebrush (*Artemisia nova*), shadscale, and yellow rabbitbrush (*Chrysothamnus viscidiflorus*). Surface geology of suitable habitat is highly mixed, containing a wide variety of soils of unusual soil chemistries. The species is mostly found in shale lens soils with very fine silt texture with very high alkalinities, occurring in small, isolated pockets. In effect, such pockets form islands of suitable habitat within otherwise unsuitable geologic substrates. Populations are found between 6,100 to 8,000 feet amsl. The species typically flowers between April and May.

The Last Chance townsendia is endemic to Emery, Sevier, and Wayne counties in central Utah. The majority of the species' populations occur in an 8 km by 48 km band from interstate 70 at the western edge of the San Rafael Swell in southwestern Emery County, west to Fremont Junction in extreme southeastern Sevier County, south to the vicinity of Hartnet Draw in north-central Wayne County. Within the analysis area, Last Chance townsendia is found in eastern Sevier County, and southwestern Emery County. The majority of the populations are found outside the analysis area. Additional small, isolated populations occur to the east and south of the main population group; one near the southern margin and one in the center of the San Rafael Swell and one in the central portion of Capitol Reef National Park. The species has been documented adjacent to the 2-mile transmission line corridor for Alternative II-C in Emery and Sevier counties, Utah. Critical habitat has not been designated for this species.

BLM Sensitive, Forest Sensitive, and Nevada State Listed Species

In addition to federally listed and candidate species, a total of 132 BLM sensitive, USFS sensitive, NPS sensitive, or Nevada state-protected species potentially occur within the 2-mile transmission corridor. This total also includes Nevada cacti and yucca species protected under NRS 527.060.120, which prohibits the destruction, cutting, mutilating, or removal of cactus (*Cactaceae* ssp.) and yucca (Yucca ssp.) without the written permission of the landowner and/or Nevada State Forester Firewarden (NRS 527). Descriptions of occurrence and habitat used by these plant species are provided in **Appendix G**, **Table G-1**. The occurrence of these plants, by region, is presented below.

3.6.5 Regional Summary of Special Status Plant Species

A summary of the number of special status plant species by Project regions is provided in **Table 3.6-1**.

Table 3.6-1 Special Status Plant Species Summary by Project Region

Total within the Analysis Area (All Regions)	Region I	Region II	Region III	Region IV
140	24	84	50	20

Note: Numerous special status plant species are listed within multiple agencies and several species are analyzed in multiple regions.

3.6.5.1 Region I

Region I extends from the Terminal Siting Area east of Rawlins, Wyoming, southwestward through northwestern Colorado and northeastern Utah. Dominant vegetation community types consist mainly of shrublands, specifically sagebrush shrublands and saltbush shrublands. A description of these communities is presented in Section 3.5, Vegetation. Special status plant species that may occur within the 2-mile transmission line corridor in Region I are presented in **Table 3.6-2**.

Table 3.6-2 Special Status Plant Species Potentially Occurring in Region I

Common Name	Scientific Name	Status[1]
Meadow pussytoes	*Antennaria arcuata*	BLM-WY
Cushion milkvetch	*Astragalus aretoides*	BLM-CO
Debris milkvetch	*Astragalus detritalis*	BLM-CO
Meadow milkvetch	*Astragalus diversifolius*	BLM-WY
Duchesne milkvetch	*Astragalus duchesnensis*	BLM-CO
Starvling milkvetch	*Astragalus jejunus* var. *jejunus (Astragalus jejunus)*	BLM-CO
Nelson's milkvetch	*Astragalus nelsonianus*	BLM-CO
Trelease's milkvetch	*Astragalus racemosus* var. *treleasei*	BLM-WY
Ownbey's thistle	*Cirsium ownbeyi*	BLM-WY
Cedar Rim thistle	*Cirsium pulcherrimum* var. *aridum (Cirsium aridum)*	BLM-WY
Tufted cryptantha	*Cryptantha caespitosa*	BLM-CO
Rollins cryptantha	*Cryptantha rollinii*	BLM-CO
Uinta Basin springparsley	*Cymopterus duchesnesis*	BLM-CO
Wyoming tansymustard	*Descurainia torulosa*	BLM-WY
Single-stemmed wild buckwheat	*Eriogonum acaule*	BLM-CO
Ephedra buckwheat	*Eriogonum ephredoides*	BLM-CO
Woodside buckwheat	*Eriogonum tumulosum*	BLM-CO
Nuttall sandwort	*Minuartia nuttallii*	BLM-CO
Matted fiddleleaf	*Nama densum* var. *parviflorum*	BLM-CO
Gibbens penstemon (Gibbens beardtongue)	*Penstemon gibbensii*	BLM-WY, BLM-CO, BLM-UT
Beaver Rim phlox	*Phlox pungens*	BLM-WY
Tufted twinpod	*Physaria condensata*	BLM-WY
Ute ladies'-tresses orchid	*Spiranthes diluvialis*	FT (CO, UT, WY), BLM-NV, NV State CE
Strigose easter daisy	*Townsendia strigosa*	BLM-CO

[1]Status: FE = Federally Endangered; FT = Federally Threatened; FC = Federal Candidate; BLM = BLM Sensitive; USFS = Forest Sensitive.

3.6.5.2 Region II

Region II extends from northeastern Utah and northwestern Colorado to the IPP in western Utah. Vegetation communities within Region II are diverse, with the dominant vegetation community types consisting of sagebrush shrubland, saltbush shrubland, and pinyon-juniper. Other common vegetation communities include woody riparian and wetlands, grassland, montane shrublands, and agriculture. A description of these communities is presented in Section 3.5, Vegetation. Special status plant species that may occur within the 2-mile transmission line corridor in Region II are presented in **Table 3.6-3**.

Table 3.6-3 Special Status Plant Species Potentially Occurring in Region II

Common Name	Scientific Name	Status[1]
Mussentuchit gilia	*Aliciella tenuis (Gilia tenuis)*	BLM-UT

Table 3.6-3 Special Status Plant Species Potentially Occurring in Region II

Common Name	Scientific Name	Status[1]
Jones' blue star	*Amsonia jonesii*	BLM-CO
Link Trail columbine	*Aquilegia flavescens* var. *rubicunda*	USFS-Manti-La Sal NF
Utah columbine	*Aquilegia scopulorum* var. *goodrichii*	BLM-UT
Unknown	*Arabis goodrichii*	BLM-UT
Cushion milkvetch	*Astragalus aretoides*	BLM-CO
Bicknell milkvetch	*Astragalus consobrinus*	USFS-Fishlake NF
Debeque milkvetch	*Astragalus debequaeus*	BLM-CO
Deseret milkvetch	*Astragalus desereticus*	FT (UT)
Horseshoe milkvetch	*Astragalus desperatus* var. *neeseae (Astragalus equisolensis*)	BLM-UT
Debris milkvetch	*Astragalus detritalis*	BLM-CO
Duchesne milkvetch	*Astragalus duchesnensis*	BLM-CO
Hamilton milkvetch	*Astragalus hamiltonii*	FC(UT), BLM-UT
Starvling milkvetch	*Astragalus jejunus* var. *jejunus (Astragalus jejunus)*	BLM-CO
Loa milkvetch	*Astragalus loanus*	BLM-UT
Ferron milkvetch	*Astragalus musiniensis*	BLM-CO
Naturita milkvetch	*Astragalus naturitensis*	BLM-CO
San Rafael milkvetch	*Astragalus rafaelensis*	BLM-CO
Cisco milkvetch	*Astragalus sabulosus* var. *sabulosus*	BLM-UT
Giant fourwing saltbush	*Atriplex canescens* var. *gigantea*	BLM-UT
Dainty moonwort	*Botrychium crenulatum*	USFS-Ashley NF, USFS-Uinta-Wasatch-Cache NF, BLM-NV
Slender moonwort	*Botrychium lineare*	USFS-Ashley NF, USFS-Uinta-Wasatch-Cache NF
Barneby's catseye	*Cryptantha barnebyi*	BLM-UT
Tufted cryptantha	*Cryptantha caespitosa*	BLM-CO
Creutzfeldt-flower	*Cryptantha creutzfeldtii*	USFS-Manti-La Sal NF, BLM-UT
Graham's catseye	*Cryptantha grahamii*	BLM-UT
Rollins cryptantha	*Cryptantha rollinii*	BLM-CO
Jones cycladenia	*Cycladenia humilis* var. *jonesii (Cycladenia jonesii)*	FT (UT)
Uinta Basin springparsley	*Cymopterus duchesnesis*	BLM-CO
Nevada willowherb	*Epilobium nevadense*	USFS-Fishlake NF, BLM-UT, BLM-NV
Carrington daisy	*Erigeron carringtonae*	USFS-Manti-La Sal NF
Maguire daisy	*Erigeron maguirei*	USFS-Fishlake NF, BLM-UT
Untermann daisy	*Erigeron untermanii*	USFS-Ashley NF, BLM-UT
Single-stemmed wild buckwheat	*Eriogonum acaule*	BLM-CO
Elsinore buckwheat	*Eriogonum batemanii* var. *ostlundii*	USFS-Fishlake NF

Table 3.6-3 Special Status Plant Species Potentially Occurring in Region II

Common Name	Scientific Name	Status[1]
Unknown	*Eriogonum brevicaule* var. *mitophyllum*	BLM-UT
Grand buckwheat	*Eriogonum contortum*	BLM-CO
Ephedra buckwheat	*Eriogonum ephredoides*	BLM-CO
Ibex buckwheat	*Eriogonum nummulare* var. *ammophilum*	BLM-UT
Woodside buckwheat	*Eriogonum tumulosum*	BLM-CO
Utah spurge	*Euphorbia nephradenia*	BLM-UT
Tufted green gentian	*Frasera paniculata*	BLM-CO
Narrowstem gilia	*Gilia stenothysra*	BLM-CO
Canyon sweetvetch	*Hedysarum occidentale* var. *canone*	USFS-Manti-La Sal NF
Wasatch jamesia	*Jamesia americana* var. *macrocalyx*	USFS-Uinta-Wasatch-Cache NF
Barneby ridgecress	*Lepidium barnebyanum*	FE (UT)
Dolores rushpink	*Lygodesmia grandiflora* var. *doloresensis*	BLM-UT
Entrada rushpink	*Lygodesmia grandiflora* var. *entrada*	BLM-UT
Pioche blazingstar	*Mentzelia argillicola*	BLM-NV, BLM-UT
Goodrich blazingstar (Goodrich stickleaf)	*Mentzelia goodrichii*	USFS-Ashley NF, BLM-UT
Horse Canyon stickleaf	*Mentzelia multicaulis* var. *librina*	BLM-UT
Shultz stickleaf	*Mentzelia shultziorum*	BLM-UT
Nuttall sandwort	*Minuartia nuttallii*	BLM-CO
Matted fiddleleaf	*Nama densum* var. *parviflorum*	BLM-CO
Trotter oreoxis	*Oreoxis trotteri*	BLM-UT
Ligulate feverfew	*Parthenium ligulatum*	BLM-CO
San Rafael cactus (Despain pincushion cactus)	*Pediocactus despainii*	FE (UT)
Winkler cactus	*Pediocactus winkleri*	FT (UT)
Neese narrowleaf penstemon	*Penstemon angustifolius* var. *dulcis*	BLM-UT
Goodrich penstemon	*Penstemon goodrichii*	BLM-UT
Graham's penstemon	*Penstemon grahamii*	FP, BLM-CO, BLM-UT
White River beardtongue (White River penstemon)	*Penstemon scariosus (Penstemon scariosus* var. *albifluvis)*	FC (CO, UT), BLM-CO, BLM-UT
Ward beardtongue	*Penstemon wardii*	BLM-UT, USFS-Fishlake NF
Clay phacelia	*Phacelia argillacea*	FE (UT)
Argyle Canyon phacelia	*Phacelia argylensis*	BLM-UT
Utah phacelia	*Phacelia utahensis*	BLM-UT
Jones indigo-bush	*Psorothamnus polydenius* var. *jonesii (Psorothamnus nummularious)*	BLM-UT

Table 3.6-3 Special Status Plant Species Potentially Occurring in Region II

Common Name	Scientific Name	Status[1]
Arizona willow	*Salix arizonica*	USFS-Dixie NF, USFS-Fishlake NF, USFS-Manti-La Sal NF
Clay reed-mustard	*Schoenocrambe argillacea*	FT (UT)
Shrubby reed-mustard	*Schoenocrambe suffrutescens*	FE (UT)
Colorado hookless cactus	*Sclerocactus glaucus*	FT (CO)
Uinta Basin hookless cactus	*Sclerocactus wetlandicus*	FT (UT)
Wright fishhook cactus	*Sclerocactus wrightiae*	FE (UT)
Maguire campion	*Silene petersonii*	USFS-Dixie NF, USFS-Fishlake NF, USFS-Manti-La Sal NF
Psoralea globemallow	*Sphaeralcea psoraloides*	BLM-UT
Ute ladies'-tresses orchid	*Spiranthes diluvialis*	FT (CO, UT, WY), BLM-NV, NV State CE
Thompson talinum	*Talinum thompsonii*	BLM-UT
Cathedral Bluff meadow-rue	*Thalictrum heliophilum*	BLM-CO
Duchesne greenthread (Caespitose greenthread)	*Thelesperma caespitosum (Thelesperma caespitosa)*	USFS-Ashley NF, BLM-UT, BLM-WY
Last Chance townsendia	*Townsendia aprica*	FT (UT)
Sigurd townsendia (Sevier townsendia)	*Townsendia jonesii* var. *lutea*	BLM-UT, USFS-Fishlake NF
Strigose easter daisy	*Townsendia strigosa*	BLM-CO
Strigose townsendia	*Townsendia strigosa* var. *prolixa*	BLM-UT
Sterile yucca	*Yucca sterilis (Yucca harrimaniae* var. *sterilis*)	BLM-UT

[1]Status: FE = Federally Endangered; FT = Federally Threatened; FC = Federal Candidate; BLM = BLM Sensitive; USFS = Forest Sensitive.

3.6.5.3 Region III

Region III extends from the IPP in western Utah to north Las Vegas, Nevada. In Region III, desert shrub communities start shifting into the dominant vegetation community. Other common vegetation communities include pinyon-juniper, sagebrush shrubland, saltbush shrubland, grassland, and woody riparian and wetlands. A description of these communities is presented in Section 3.5, Vegetation. Special status plant species that may occur within the 2-mile transmission line corridor in Region III are presented in **Table 3.6-4**.

Table 3.6-4 Special Status Plant Species Potentially Occurring in Region III

Common Name	Scientific Name	Status[1]
Sticky ringstem	*Anulocaulis leiosolenus* var. *leiosolenus*	NPS-Lake Mead NRA, BLM-NV
Unknown	*Arabis goodrichii*	BLM-UT
Las Vegas bearpoppy	*Arctomecon californica*	NPS-Lake Mead NRA, NV State CE, BLM-NV
White bearpoppy	*Arctomecon merriamii*	BLM-NV
Eastwood milkweed	*Asclepias eastwoodiana*	BLM-NV

Table 3.6-4 Special Status Plant Species Potentially Occurring in Region III

Common Name	Scientific Name	Status[1]
Sheep Mountain milkvetch	*Astragalus amphioxys* var. *musimonum*	BLM-NV
Shivwitz milkvetch	*Astragalus ampullarioides*	FE (UT)
Torrey milkvetch	*Astragalus calycosus* var. *monophyllidius*	BLM-NV
Veyo milkvetch	*Astragalus ensiformis* var. *gracilior*	BLM-NV
Needle Mountains milkvetch	*Astragalus eurylobus*	BLM-NV
Black woollypod	*Astragalus funereus*	BLM-NV
Threecorner milkvetch	*Astragalus geyeri* var. *triquetrus*	NPS-Lake Mead NRA, NV State CE, BLM-NV
Gilman milkvetch	*Astragalus gilmanii*	BLM-NV
Straw milkvetch	*Astragalus lentiginosus* var. *stramineus*	BLM-NV
Halfring milkvetch	*Astragalus mohavensis* var. *hemygyrus*	BLM-NV
Mokiak milkvetch	*Astragalus mokiacensis*	NPS-Lake Mead NRA, BLM-NV
Pink egg milkvetch (Long-calyx eggvetch)	*Astragalus oophorus* var. *lonchocalyx*	BLM-UT, BLM-NV
Giant fourwing saltbush	*Atriplex canescens* var. *gigantea*	BLM-UT
Alkali mariposa lily	*Calochortus striatus*	BLM-NV
Baird camissonia	*Camissonia bairdii*	BLM-UT
Gould camissonia	*Camissonia gouldii*	BLM-UT
White River catseye	*Cryptantha welshii*	BLM-NV
Sanicle biscuitroot	*Cymopterus ripleyi* var. *saniculoides*	BLM-NV
Gold Butte moss	*Didymodon nevadensis*	BLM-NV
Silverleaf sunray	*Enceliopsis argophylla*	NPS-Lake Mead NRA, BLM-NV
Antelope Canyon goldenbush	*Ericameria cervina*	BLM-NV
Las Vegas buckwheat	*Eriogonum corymbosum var. nilesii*	FC (NV), BLM-NV, NV State CE#
Ibex buckwheat	*Eriogonum nummulare* var. *ammophilum*	BLM-UT
Wirestem buckwheat	*Eriogonum pharnaceoides* var. *cervinum*	BLM-UT
Sticky buckwheat	*Eriogonum viscidulum*	NPS-Lake Mead NRA, NV State CE, BLM-NV
Bullfrog Hills sweetpea	*Lathyrus hitchcockianus*	BLM-NV
Polished blazingstar	*Mentzelia polita*	BLM-NV
Sand cholla	*Opuntia pulcella (Grusonia pulchella)*	NV State CY
Siler pincushion cactus	*Pediocactus sileri*	FT (UT)
Beaver Dam breadroot	*Pediomelum castoreum*	NPS-Lake Mead NRA, BLM-NV
White-margined beardtongue	*Penstemon albomarginatus*	BLM-NV
Neese narrowleaf penstemon	*Penstemon angustifolius* var. *dulcis*	BLM-UT
Yellow twotone beardtongue	*Penstemon bicolor* ssp. *bicolor*	BLM-NV
Rosy twotone beardtongue	*Penstemon bicolor* ssp. *roseus*	NPS-Lake Mead NRA, BLM-NV
Tunnel Springs beardtongue	*Penstemon concinnus*	BLM-NV
Franklin penstemon	*Penstemon franklinii*	BLM-UT

Table 3.6-4 Special Status Plant Species Potentially Occurring in Region III

Common Name	Scientific Name	Status[1]
Pinyon penstemon	*Penstemon pinorum*	USFS-Dixie NF, BLM-UT
Parry petalonyx	*Petalonyx parryii*	BLM-UT
Parish phacelia	*Phacelia parishii*	BLM-NV
Pygmy poreleaf	*Porophyllum pygmaeum*	BLM-NV
Blaine pincushion	*Sclerocactus blainei*	BLM-NV
Schlesser pincushion	*Sclerocactus schlesseri*	BLM-NV
St. George blue-eyed grass	*Sisyrinchium radicatum*	BLM-NV
Jones' globemallow	*Sphaeralcea caespitosa* var. *caespitosa*	BLM-UT
Ute ladies'-tresses orchid	*Spiranthes diluvialis*	FT (CO, UT, WY), BLM-NV, NV State CE

[1]Status: FE = Federally Endangered; FT = Federally Threatened; FC = Federal Candidate; BLM = BLM Sensitive; NPS = NPS Sensitive; USFS = Forest Sensitive; NV State CE = NV State Critically Endangered; NV State CE = NV State Recommended for Listing a Critically Endangered; NV State CY = NV State Protected as a Cacti, Yucca, or Christmas Tree.

3.6.5.4 Region IV

Region IV extends from north Las Vegas, Nevada to Marketplace. There is less diversity of vegetation communities in Region IV, with the dominant vegetation community type being desert shrub. The remaining eight vegetation communities in Region IV all occupy less than 1 percent of the analysis area. A description of these communities is presented in Section 3.5, Vegetation. Special status plant species that may occur within the 2-mile transmission line corridor in Region IV are presented in **Table 3.6-5**.

Table 3.6-5 Special Status Plant Species Potentially Occurring in Region IV

Common Name	Scientific Name	Status[1]
Sticky ringstem	*Anulocaulis leiosolenus* var. *leiosolenus*	NPS-Lake Mead NRA, BLM-NV
Las Vegas bearpoppy	*Arctomecon californica*	NPS-Lake Mead NRA, NV State CE, BLM-NV
White bearpoppy	*Arctomecon merriamii*	BLM-NV
Black woollypod	*Astragalus funereus*	BLM-NV
Threecorner milkvetch	*Astragalus geyeri* var. *triquetrus*	NPS-Lake Mead NRA, NV State CE, BLM-NV
Straw milkvetch	*Astragalus lentiginosus* var. *stramineus*	BLM-NV
Mokiak milkvetch	*Astragalus mokiacensis*	NPS-Lake Mead NRA, BLM-NV
Alkali mariposa lily	*Calochortus striatus*	BLM-NV
Las Vegas catseye	*Cryptantha insolita*	NV State CE
Gold Butte moss	*Didymodon nevadensis*	BLM-NV
Silverleaf sunray	*Enceliopsis argophylla*	NPS-Lake Mead NRA, BLM-NV
Las Vegas buckwheat	*Eriogonum corymbosum* var. *nilesii*	FC (NV), BLM-NV, NV State CE
Sticky buckwheat	*Eriogonum viscidulum*	NPS-Lake Mead NRA, NV State CE, BLM-NV
Catchfly gentian	*Eustoma exaltatum*	BLM-NV
Beaver Dam breadroot	*Pediomelum castoreum*	NPS-Lake Mead NRA, BLM-NV
White-margined beardtongue	*Penstemon albomarginatus*	BLM-NV
Yellow twotone beardtongue	*Penstemon bicolor* ssp. *bicolor*	BLM-NV
Rosy twotone beardtongue	*Penstemon bicolor* ssp. *roseus*	NPS-Lake Mead NRA, BLM-NV

Table 3.6-5 Special Status Plant Species Potentially Occurring in Region IV

Common Name	Scientific Name	Status[1]
Parish phacelia	*Phacelia parishii*	BLM-NV
St. George blue-eyed grass	*Sisyrinchium radicatum*	BLM-NV

[1]Status: FE = Federally Endangered; FT = Federally Threatened; FC = Federal Candidate; BLM = BLM Sensitive; NPS = NPS Sensitive; USFS = Forest Sensitive; NV State CE = NV State Critically Endangered; NV State CE# = NV State Recommended for Listing a Critically Endangered; NV State CY = NV State Protected as a Cacti, Yucca, or Christmas Tree.

3.6.6 Impacts to Special Status Plant Species

As described above, the analysis area for special status plant species encompasses the HUC 10 watershed boundaries crossed by the 2-mile transmission line corridor. For impacts, the discussions focus on the impacts resulting from construction and operation activities within the 2-mile transmission line corridor. Operation activities include maintenance activities for the transmission line. The 2-mile transmission line corridor consists of a one-mile buffer on each side of the reference center line. Within the 2-mile transmission line is located the 250-foot-wide transmission line ROW. The 250-foot-wide transmission line ROW would contain the surface footprint for all temporary and permanent facilities associated with construction and operation activities. Permanent and temporary access roads would be located within the 250-foot-wide transmission line ROW where practical. Within the 2-mile transmission line corridor and outside of the 250-foot-wide transmission line ROW, access roads would be the only surface disturbance. The access roads locations have not been defined at this time. Additional surface facilities outside the 2-mile transmission line corridor include terminals and electrode beds.

Occurrence potential within the 2-mile transmission line corridor was evaluated for each plant species based on habitat requirements (including associated geological formations, soil substrates, vegetation communities, and elevation range) and known distribution. Special status plant species that were identified as potentially occurring within the analysis area were carried forward for impact analysis. The special status plant species carried forward in this analysis include the following: 18 federally listed species, 115 BLM sensitive species, 20 Forest sensitive species, 8 NPS-Lake Mead NRA sensitive species, and 7 species with state protection, as listed in the previous sections and **Appendix G**, **Table G-1**. Impact issues and the analysis considerations for special status plant species within the 2-mile transmission line corridor are listed in **Table 3.6-6**. Due to the programmatic nature of the EIS, impacts to the special status plant species are discussed within the context of the 2-mile transmission line corridor with the assumption that impacts could occur anywhere within the 2-mile transmission line corridor. For the facilities located outside the 2-mile transmission line corridor, which include ground electrodes, and terminals, impacts to special status species are discussed within the context of the facilities' proposed footprints.

Table 3.6-6 Relevant Analysis Considerations for Special Status Plant Species

Resource Topic	Analysis Considerations and Relevant Assumptions
Potential loss of individuals and/or suitable or occupied habitats as a result of construction and operation activities	The analysis will include a programmatic assessment of direct disturbance effects from temporary (i.e., construction-related) and permanent facility footprints.
Number of species whose range is limited to within or directly adjacent to the impact analysis area.	The analysis will evaluate impacts in the context of the range of the species and the 2-mile wide transmission line corridor, and facility footprints.

Table 3.6-6 Relevant Analysis Considerations for Special Status Plant Species

Resource Topic	Analysis Considerations and Relevant Assumptions
Increased trampling or removal of aboveground vegetation	The analysis will evaluate partial and complete vegetation removal as a result of construction and operation activities (e.g., clearing, stringing, vehicles driving cross-country, etc.).
Increased habitat fragmentation from access road construction and operation	The analysis will evaluate indirect effects of habitat fragmentation as a result of an increased road network, edge effects, and presence of transmission line ROW.
Accumulation of fugitive dust from increased access roads and vehicle traffic	The analysis will evaluate indirect effects from increased fugitive dust emissions associated with roads and vehicles on a potential decrease in species and habitat productivity.
Potential for introduction and spread of noxious and invasive species from construction and operation activity	The analysis will evaluate indirect effects of potential introduction and spread of noxious weeds from construction equipment or vehicles, spreading from infested area into the undisturbed areas.
Potential for greater access to populations from collectors	The analysis will evaluate indirect effects associated with potential loss of species and suitable/potential habitat as a result of greater public access to populations for plant collectors, and increased non-Project-related motor vehicle use via an expanded road network and ROW system.
Potential loss of pollinators	The analysis will evaluate indirect effects associated with potential loss of pollinators due to fugitive dust emissions and habitat fragmentation.

Impact parameters were used in combination with effects information for the purpose of quantifying impacts. The impact parameters also allow comparisons among the alternative routes and variations. The following impact parameters used for this analysis are:

- Acreage of potential habitat (based on species-specific modeling results) within the 2-mile transmission line corridors for federally listed and Forest sensitive plant species potentially impacted by the Project.
- Acreage of critical habitat within the 2-mile transmission line corridors for federally listed species potentially impacted by the Project.
- The presence of known individuals or populations within the 2-mile transmission line corridors for all special status plant species carried forward for detailed analysis that could be potentially impacted by the Project.
- The presence of potential habitat (based on preliminary desktop analysis) within the corridors for BLM sensitive, NPS-Lake Mead NRA sensitive, and state-listed plant species potentially impacted by the Project.
- Presence of species whose range is limited to within or directly adjacent to the 2-mile transmission line corridor.

Potential direct and indirect effects on special status plant species and their associated habitats as a result of construction, operation, and decommissioning activities are discussed below. After impacts are identified, relevant agency BMPs and design features are discussed in terms of reducing impacts. If significant impacts remain after application of BMPs and design features, additional mitigation is recommended to reduce impacts to non-significant levels.

The impacts analysis for special status plant species assumes that the USFWS will continue to have jurisdiction over the management of federally endangered, threatened, proposed, and candidate species populations. The BLM will continue to manage BLM sensitive species is accordance with BLM Manual 6840. The USFS will continue to manage Forest sensitive species in accordance with USFS Manual 2670. The National Park Service will continue to manage NPS sensitive species in accordance with the

Lake Mead General Management Plan (NPS 1986) and the Lake Mead NRA RMP (NPS 2002). In addition, the BLM, USFS, and NPS will continue to manage special status species habitats in coordination with USFWS.

3.6.6.1 Impacts from Terminal Construction and Operation

The northern and southern terminals would be constructed regardless of alternative route selection.

Northern Terminal

Direct and indirect impacts to special status plant species from construction and operation of the northern terminal can be grouped into two main categories: 1) loss of individuals and/or populations; and 2) loss of potentially suitable habitat. The habitat analysis is presented within a programmatic framework, given that site-specific disturbance locations and exact locations of suitable habitat (i.e., ground-verified potential habitat locations) are unknown. Species-specific impacts, as a result of construction and operation of the northern terminal, are presented in **Table 3.6-7**. Based on species occurrence information, no special status plant species populations are known within the northern terminal area.

Table 3.6-7 Impacts to Special Status Plant Species from Construction of the Northern and Southern Terminals

			Northern Terminal[2]		Southern Terminal[3]	
Common Name	**Scientific Name**	**Status[1]**	**Known Populations Impacted? (Y/N)**	**Potential Habitat Impacted? (Y/N)**	**Known Populations Impacted? (Y/N)**	**Potential Habitat Impacted? (Y/N)**
Meadow pussytoes	*Antennaria arcuata*	BLM-WY	N	Y	N	N
Meadow milkvetch	*Astragalus diversifolius*	BLM-WY	N	Y	N	N
Trelease's milkvetch	*Astragalus racemosus* var. *treleasei*	BLM-WY	N	Y	N	N
Ownbey's thistle	*Cirsium ownbeyi*	BLM-WY	N	Y	N	N
Gibbens penstemon (Gibbens beardtongue)	*Penstemon gibbensii*	BLM-WY, BLM-CO, BLM-UT	N	Y	N	N
Beaver Rim phlox	*Phlox pungens*	BLM-WY	N	Y	N	N
Tufted twinpod	*Physaria condensata*	BLM-WY	N	Y	N	N
Limber pine	*Pinus flexilis*	BLM-WY	N	Y	N	N
Persistent sepal yellowcress	*Rorippa calycina*	BLM-WY	N	Y	N	N
Ute ladies'-tresses	*Spiranthes diluvialis*	FT (CO, UT, WY), BLM-NV, NV State CE	N	Y	N	N
Laramie false sagebrush	*Sphaeromeria simplex*	BLM-WY	N	Y	N	N

[1] Status: BLM = BLM Sensitive; NPS = NPS Sensitive; NV-State CE = Nevada State Critically Endangered.

[2] Analysis encompasses the Northern Terminal Siting Area, within which the proposed Northern Terminal Site would be located.

[3] Analysis encompasses the Southern Terminal Siting Area, within which the proposed Southern Terminal Site and Southern Terminal Alternative Site would be located.

Based on species-specific habitat associations, potentially suitable habitats could be directly impacted as a result of construction implementation. Direct disturbance effects could include the loss of potential habitat as a result of ground clearing during construction, and the loss of potential habitat associated with the operational footprint of the terminal site.

Indirect effects associated with construction of the northern terminals could include the following: 1) establishment of noxious and invasive weed species during construction and operation; 2) loss of pollinators as a result of host species loss or fragmentation; and 3) accumulation of fugitive dust on vegetation species within suitable habitat, due to construction and operation vehicle and equipment use and resulting in reduced photosynthesis and habitat degradation. If pollinator populations occur within or adjacent to the terminal areas, a localized effect to host species may potentially occur. Given the lack of pollinator data associated with species dominating the various potential habitats within the terminal areas, the intensity of this impact is unknown.

Following completion of construction, 270 acres of disturbance would be reclaimed pursuant to TWE's PDTR (**Appendix D**). See Section 3.5, Vegetation, for a discussion of reclamation. At the end of the useful life of the Project, decommissioning would occur, the facilities would be dismantled and removed, and the entire terminal site would be reclaimed.

The applicant has committed to the following design features (i.e., environmental protection measures) to mitigate impacts to special status species as a result of the Project:

- TWE-12 – Minimizing surface disturbance in areas where soils and vegetation are sensitive to disturbance.
- TWE-13 – Restoration of temporary work areas;
- TWE-19 – Implementation of an Erosion Control Plan;
- TWE-26 – Implementation of a Vegetation Management Plan and Noxious Weed Management Plan; and
- TWE-29 – Implementation of a Biological Protection Plan.

Additional environmental protection measures that would apply to the Project include the WWEC performance standards (i.e., WWEC BMPs) which are listed in **Appendix C**. Also listed in **Appendix C** are the NSU and CSU restrictions which include restrictions for surface disturbance around wetlands, riparian areas, and drainages, and special status species populations. A brief overview of the WWEC performance standards applicable to special status plant species are listed below:

- AIR-1 – Cover stockpiled soil for fugitive dust;
- AIR-2 – Water surfaces prior to clearing or grading to prevent fugitive dust emissions;
- ECO-1/ECO-2/ECO-4 – Protection of sensitive and unique habitats;
- VEG-1 – Restoration using weed-free native species;
- VEG-2 – Development of an integrated vegetation management plan; and
- VEG-3 – Pesticide use stipulations.

Individual BLM FOs have FO-specific BMPs, and USFS forests have forest-specific stipulations and guidelines, that would apply to the Project within the boundaries of each FO and forest. Where there is conflict with the WWEC performance standards and individual BLM or USFS FO BMPs and stipulations and guidelines, the requirements of the individual offices will supersede the WWEC performance standards. Example of agency BMPs specific to special status plant species include:

- Conduct pre-Project habitat assessments and site inventories within suitable habitat to determine occupancy;
- Design Project infrastructure to minimize impacts within suitable habitat;
- Stay on designated roads, and other cleared/approved areas; and

- Use erosion control measures to avoid erosion on sedimentation into occupied habitat and avoidance areas.

In addition, the following mitigation measures for special status plant species are proposed:

***SS-1**: (Species-specific Surveys for Federally-listed Species) – Site- and species-specific surveys for federally listed plant species would be conducted prior to the BA to identify the precise location of known individuals and populations and ground-truth modeled habitats. Surveys would be conducted in areas identified as potential habitat through models developed for the EIS, or from agency provided models for specific species. Surveys would be conducted as described in the TWE Project Special Status Species Survey Plan and subsequent Survey Plan Memos. Species not requiring surveys prior to the BA would be identified by the USFWS and BLM. For these species, pre-construction surveys still would be required. If individuals or populations are identified during surveys in potential habitat areas, species-specific avoidance through structure and ROW design modifications would be developed and implemented. For species that cannot be avoided, species specific mitigation would need to be developed in consultation with the USFWS and BLM. Species-specific mitigation may include compensatory mitigation and transplanting of individuals.*

***SS-2**: (Species-specific Surveys for USFS Sensitive) – Site- and species-specific surveys for USFS sensitive plant species would be conducted prior to the BE to identify the precise location of known individuals and populations and ground-truth modeled habitats. Surveys would be conducted in areas identified as potential habitat through models developed for the EIS, or from agency provided models for specific species. Surveys for USFS sensitive species would be conducted only in the national forests crossed by the proposed Project. Surveys would be conducted as described in the TWE Project Special Status Species Survey Plan and subsequent Survey Plan Memos. Species not requiring surveys prior to the BE would be identified by the USFS and BLM. For these species, pre-construction surveys still would be required. If individuals or populations are identified, species-specific avoidance through structure and ROW design modifications would be developed and implemented. If individuals or populations are identified during surveys in potential habitat areas, species-specific avoidance through structure and ROW design modifications would be developed and implemented. For species that cannot be avoided, species specific mitigation would need to be developed in consultation with the USFS and BLM. Species specific mitigation may include compensatory mitigation and transplanting of individuals.*

***SS-3**: (Species-specific Surveys for BLM Sensitive, NPS Sensitive, and Nevada State Protected Species) – Site- and species-specific surveys for BLM sensitive, NPS sensitive, and Nevada state-protected plant species would be conducted prior to construction to identify the precise location of known individuals and populations and ground-truth modeled habitats. Surveys would be conducted as described in the TWE Project Special Status Species Survey Plan and subsequent Survey Plan Memos. If individuals or populations are identified, species-specific avoidance through structure and ROW design modifications would be developed and implemented.*

***SS-4**: (Avoidance of Ute Ladies'-tresses Orchid Species and Habitat) – Known individuals and populations and areas identified as potential habitat through consultation with the USFWS would be spanned by the transmission line. Surface disturbance associated with facilities, access roads, and other Project-related construction activities would not occur within the areas identified as potential habitat or within a 50-foot buffer around known occurrences. Presence of species in modeled habitat would be assumed for USFWS mitigation purposes. If potential habitat cannot be avoided, 2 years of surveys in potential habitat would be required, and USFWS formal consultation may be necessary.*

***SS-5**: Construction will occur down slope of special status plants and populations where feasible; if surface disturbance must be sited upslope, a 300-foot minimum buffer between surface disturbances and plants and populations will be incorporated. Erosion controls would be implemented at the direction of the BLM, USFS, or USFWS, as appropriate, to prevent sedimentation and erosion from upslope surface disturbance.*

***SS-6**: A minimum 300-foot buffer distance would be incorporated between federally listed individuals and populations and surface disturbance. Avoidance areas will be visible during construction through fencing, signing, rebar, etc. Construction and operation traffic will stay on designed routes, and other cleared or approved areas.*

Effectiveness: With implementation of mitigation measures **SS-1** through **SS-3**, in addition to TWE's design features, and the WWEC BMPs, no direct impacts to special status plant species and their associated suitable habitats within the Northern Terminal are anticipated. If species or habitat avoidance remains unfeasible, impact minimization and mitigation measures would be developed in consultation with the BLM, Western, USFWS, and USFS prior to construction. With implementation of mitigation measure **SS-4**, which would avoid surface disturbance in Ute ladies'-tresses orchid modeled habitat, in addition to WWEC BMPs, and TWE design features, no impacts to Ute ladies'-tresses orchid individuals or their associated habitats would be anticipated. With implementation of mitigation measure **SS-5**, erosion and sedimentation impacts to special status species would be minimized through Project design, avoidance buffers, and erosion controls. Implementation of mitigation measure **SS-6** would minimize impacts to federally listed individuals and populations through the use of avoidance buffers.

Southern Terminal

There are two sites proposed for the Southern Terminal site (Southern Terminal, and Southern Terminal Alternative). Both sites are located primarily on developed/disturbed land cover types. Within each of the Southern Terminal proposed sites, there are no known occurrences or potential habitat for special status plant species. Therefore, no impacts are anticipated to special status plant species at either of the proposed Southern Terminal sites.

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

Because the implementation of Design Option 2 would use the same alternative routes and construction techniques as the Project, impacts from construction and operation of this design option would be the similar to those discussed under the alternative routes. Differences between this design option and the Project include the locations of the southern converter station and ground electrode system, as well as the addition of a series compensation station midway between IPP and Marketplace. The southern converter station would be located near IPP in Utah instead of at Marketplace in Nevada, and the ground electrode system would be within 50 miles of IPP.

Construction and operation of a converter station near IPP, ground electrode system, and series compensation station would similar to impacts described in Section 3.5.6.1, Impacts to Vegetation Resources from Terminal Construction and Operation. Impacts to special status plant species would be as described for Alternatives II-A, II-D, II-E, and the Southern Terminal locations.

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 Project, impacts from construction and operation of this design option would be similar to those discussed under the alternative routes. The total surface disturbance at one time might be less depending on the timing and reclamation activities associated with the phased build out.

3.6.6.2 Impacts Common to All Alternative Routes and Associated Components

Construction Impacts

Construction impacts would occur within the 250-foot-wide transmission line ROW, the 2-mile transmission line corridor, and the ancillary facility footprints. Within the 250-foot-wide transmission line ROW, surface disturbances would consist of ROW clearing in preparation of transmission line structure installation; and vegetation removal and blading to facilitate the construction of temporary and

permanent aboveground and belowground ancillary facilities. Within the 2-mile transmission line corridor, surface-disturbing activities would be limited to development and maintenance of temporary and permanent access roads.

Surface disturbances resulting from construction activities within the 250-foot-wide transmission line ROW, the 2-mile transmission line corridor, and at the ancillary facilities sites would impact special status plant species through the following: 1) loss of individuals and/or populations and 2) loss of potentially suitable habitat. Given that site-specific disturbance locations and exact locations of suitable habitat (i.e., ground-verified potential habitat locations) are unknown, the species and habitat analysis is presented herein using a programmatic approach. Further, it is assumed that any known occurrences or potential habitat located within the 250-foot-wide transmission line ROW, the 2-mile transmission line corridor, or the ancillary facilities footprint potentially would be impacted by the Project.

Direct disturbance effects on species could include the loss of individuals or local populations resulting from partial removal of vegetative material due to trampling or crushing from construction vehicles and equipment, or loss of individuals as a result of ROW clearing and construction of transmission line components. Trampling of vegetation could result in permanent loss of individuals and/or populations depending on the extent of vegetation removed and the resulting damage to the individual species. The Project would cross modeled potential habitat, field verified suitable habitat, and occupied habitat of many special status plant species, which are analyzed in detail below. As a result of construction activities, direct disturbance effects to sensitive species habitat could include the loss of suitable habitat as a result of trampling or crushing from construction equipment and ROW clearing; or loss of suitable habitat as a result of transmission line structure or ancillary facility placement, in the event that spanning or avoidance of habitat is unachievable.

The types of indirect impacts to special status plant species as a result of construction activities would include potentially increased erosion, sedimentation, fugitive dust, the spread and establishment of noxious and invasive weed species, habitat fragmentation, the potential loss of pollinators, and increased opportunities for illegal collection of individual special status plant species.

Construction activities may increase erosion and sedimentation, and modify the floodplain surface as well as channel beds and banks. The effects of erosion and sedimentation may create indirect impacts on nearby riparian vegetation or directly affect the habitats of special status plant species. Changes to surface overflow and increased sedimentation can also affect upland special status plant species. Erosion and sedimentation effects could affect special status species outside the 2-mile transmission line corridor that are downstream of construction activities. See Section 3.4, Water Resources, for more detail on the effects of sedimentation on drainages in and around the Project area. Fugitive dust accumulation may adversely impact photosynthesis, respiration, transpiration, water use efficiency, leaf conductance, growth rate, gas exchange, and growth vigor (USFWS 2008). Fugitive dust tends to be a greater issue in desert vegetation communities, barren sparsely vegetated areas, and sandy soils. Linear surface disturbances such as those associated with transmission lines and roads can and have provided corridors (Gelbard and Belnap 2003; Watkins et al. 2003) and serve as a source of propagules (D'Antonio et al. 2001) for further infestation of noxious weeds and invasive species into adjacent undisturbed areas. Localized surface disturbances can and have facilitated the invasion of noxious and invasive species by removing native vegetative cover, creating areas of bare ground (Burke and Grime 1996; Watkins et al. 2003), and increasing light and nutrient availability (Stohlgren et al. 2003, 1999). Noxious and invasive weed species compete with native plants, can degrade and modify native communities, and reduce resources for native species (e.g., moisture, soil nutrients, and light).

Habitat fragmentation could occur as a result of the increased number of access roads, the 250-foot-wide transmission line ROW, and long-term surface disturbance from transmission structures and permanent facilities. The anthropogenic fragmentation of special status plant species habitats can result in more isolated, smaller populations, decreased species density, adverse impacts to pollination, decreased reproductive success, increased edge effects, and increased competition from noxious and

invasive weed species. In addition, the increase in the number of access roads within and near occupied habitats would allow greater access to special status plant species populations. This potentially could increase illegal collection of the individual species. If pollinator populations occur within or adjacent to the ROW and temporary and permanent access roads, a localized effect to pollinator and host species may occur. Given the lack of pollinator data associated with species dominating the various potential habitats within the 2-mile transmission line corridors, the intensity and extent of this potential impact is unknown.

Typically, indirect impacts to plants occur 100 to 300 feet away from the construction impact (USFWS 2012), but could affect special status species communities further away such as through increased sedimentation into drainages affecting communities downstream. Indirect effects could occur to all species and habitats located within the construction ROW regardless of the avoidance of surface disturbance and construction activities within identified habitats and populations. BMPs and design features presented above and in Section 3.5.6.2, Impacts Common to All Alternative Routes and Associated Components (Vegetation) would be implemented to minimize and mitigate indirect impacts.

Following completion of construction, temporary use areas would be reclaimed pursuant to TWE's PDTR (**Appendix D**). See Section 3.5, Vegetation, for a more thorough discussion of reclamation. At the end of the useful life of the Project, decommissioning would occur, the facilities would be dismantled and removed, and the Project areas would be reclaimed. Areas characterized by arid conditions, soils reclamation constraints, and high local populations of noxious weeds would be difficult to reclaim to native vegetation. In these areas, impacts to special status species could be greater due to the difficulties in reclamation. Specifically, impacts to special status species in the San Rafael Swell would be greater and potentially longer lasting due to the arid, desert environment, and the prevalence of low reclamation potential soils in this area.

The implementation of BMPs and design features would the same as described under Section 3.5.6.1, Impacts from Terminal Construction and Operation. Additional Project design features to be implemented include:

- TWE-6 – Implementation of an Access Road Plan;
- TWE-14 – Construction of borrow pits; and
- TWE-47 – Implementation of a Dust Control and Air Quality Plan.

Additional WWEC BMPs that would apply to the Project include:

- WWEC BMPs – VEG-2 (integrated vegetation management plan development), SOIL-1 (topsoil salvage), SOIL-2 (slopes); WAT-10 (minimize stream crossings); WAT-11 (erosion controls at drainage crossings); and REST-1 (topsoil salvage, seeding with weed-free, native seeds, and restoring pre-development contours).

An Access Road Plan would be developed and would incorporate relevant agency standards regarding road design, construction, maintenance, and decommissioning. In addition, the Access Road Plan would incorporate BMPs stipulated by the agencies in their respective decision documents and permits.

In addition, the following mitigation measure for special status plant species are proposed:

SS-7*: The Dust Control and Air Quality Plan will include dust abatement measures to minimize impacts to special status plant species including: slower speed limits on unpaved roads, using gravel for roads in occupied habitat and avoidance areas, and the application of water for dust abatement.*

Effectiveness: Implementation of mitigation measure **SS-7** would mitigate impacts to special status species resulting from fugitive dust.

Operation Impacts

The discussion of operation impacts includes maintenance activities for the transmission line. Direct and indirect impacts to special status plant species from operation of the alternative routes would result in the potential for: 1) loss of individuals and/or populations and 2) loss or degradation of potentially suitable habitat related to the use of access roads and the ROW for repair and maintenance activities and vegetation management. Impacts associated with operation activities would involve several of the same types of effects discussed for construction activities. Direct impacts would result from vegetation management activities occurring in special status plant species habitat, or if access for vegetation management requires vehicles traveling through special status plant species habitat. Vegetation management activities and their associated impacts are detailed in Section 3.5.6.2, Impacts Common to All Alternative Routes and Associated Components. Indirect impacts would be similar to those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation. Additional indirect impacts associated with operations would result from the vegetation management in the ROW. This would include effects from herbicide drift near special status plant species populations and habitats, and activities such as mowing and trimming of woody vegetation. For more information on vegetation management activities, see Section 3.5.6.2, Operation Impacts. The BMPs and design features presented above and in the referenced sections would be implemented to minimize and mitigate indirect impacts.

Decommissioning Impacts

Direct and indirect impacts to special status plant species associated with decommissioning and reclamation of the alternative routes are anticipated to be similar to those presented for construction impacts.

3.6.6.3 Region I Impacts

To determine the location and spatial extent of potentially suitable habitat for federally listed species within the 2-mile transmission line corridors, a habitat assessment was conducted using ArcGIS and best available GIS datasets based on species-specific habitat characteristics. Selected datasets and species parameters are detailed within the Special Status Species Survey Plan. Species occurrence, range, and habitats in Region I are provided in **Appendix G**, **Table G-1**. **Table 3.6-8** provides acreages and numbers of special status plant species potentially impacted by the alternative routes in Region I based on known occurrences and potential habitat within the 2-mile transmission line corridors. In Region I, 23 BLM sensitive species and 1 federally listed species could be impacted by the Project.

Table 3.6-8 Summary of Region I Alternative Route Impacts for Special Status Plant Species

Parameter	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
Federally Listed Species				
Number of species with known occurrences impacted	0	0	0	0
Number of species with potential habitat impacted	1	1	1	1
Acreage of critical habitat impacted	--	--	--	--
Acreage of Ute ladies'-tresses Orchid potential habitat impacted	862	1,390	3,082	1,876
BLM Sensitive Species				
Number of species with known occurrences impacted	3	3	3	3
Number of species with potential habitat impacted	22	22	20	22

Alternative I-A (Applicant Proposed)

Ute Ladies'-tresses Orchid (Federally Threatened)

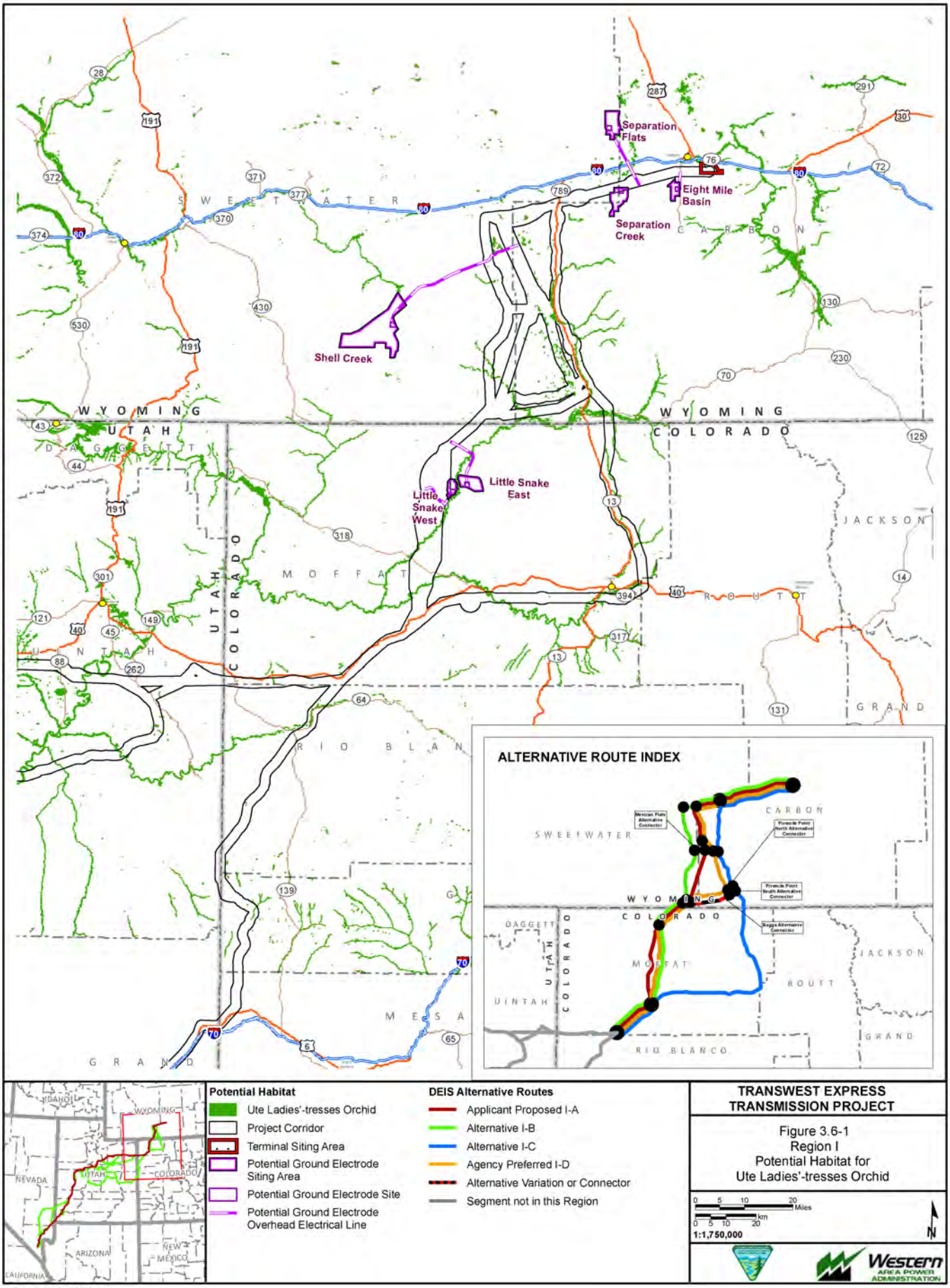
Within the 2-mile transmission line corridor for Alternative I-A, approximately 862 acres of potential habitat for the Ute ladies'-tresses orchid has been identified in the 2-mile transmission line corridor based on species-specific modeling as presented in **Table 3.6-8** and illustrated in **Figure 3.6-1**. Based on species occurrence data and agency consultation, no individuals or populations have been identified within the Alternative I-A corridor. No critical habitat has been designated for this species. Implementation of BMPs, design features, and mitigation measures and effects would be similar as presented for the Northern Terminal Ute ladies'-tresses orchid analysis. Specifically, mitigation measure **SS-2** would be implemented to avoid Ute ladies'-tresses potential habitat. Therefore, no impacts to Ute ladies'-tresses orchid and its associated habitat are anticipated.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the Alternative I-A 2-mile-wide corridor: debris milkvetch, Gibbens penstemon, and tufted cryptantha. Based on a desktop review, potential habitat has been identified for 22 BLM sensitive species within the Alternative I-A corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**.

Impacts would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. The BLM sensitive species with known locations and habitats within the corridors are located in a variety of habitats including barren, sparsely vegetated areas; shrub and woodland communities on the Green River formation, rocky outcrops, and sandy soils; and wetland and riparian areas. Two species (the cushion milkvetch and strigose Easter daisy) did not have available habitat information; therefore, a conservative analysis was applied for these species, which were carried forward within the impact analysis. Impacts to species in habitats with low reclamation potential such as rocky outcrops, sandy soils, and barren, sparsely vegetated areas would greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and woodland communities may take longer due to the longer time-frame to restore woody communities.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate potential impacts to BLM sensitive species habitats. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-3**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species or habitat avoidance to BLM sensitive species is deemed infeasible based on physical, other biological, or engineering constraints, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. In such case, impact minimization and additional mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that are avoided based on the implementation of the WWEC BMPs, applicant-committed design features, and proposed mitigation measures, direct and indirect impacts are not anticipated. As there is currently no designated critical habitat in the corridor, no impacts to critical habitat are anticipated.



Potential Habitat

- Ute Ladies'-tresses Orchid
- Project Corridor
- Terminal Siting Area
- Potential Ground Electrode Siting Area
- Potential Ground Electrode Site
- Potential Ground Electrode Overhead Electrical Line

DEIS Alternative Routes

- Applicant Proposed I-A
- Alternative I-B
- Alternative I-C
- Agency Preferred I-D
- Alternative Variation or Connector
- Segment not in this Region

TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 3.6-1
Region I
Potential Habitat for
Ute Ladies'-tresses Orchid

0 5 10 20 Miles
0 5 10 20 km
1:1,750,000
N

Western AREA POWER ADMINISTRATION

Exported On: 6/5/2013

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Alternative I-B

Ute Ladies'-tresses Orchid (Federally Threatened)

Within the 2-mile-wide corridor for Alternative I-B, approximately 1,390 acres of potential habitat for the Ute ladies'-tresses orchid has been identified based on species-specific modeling as presented in **Table 3.6-8** and illustrated in **Figure 3.6-1**. Based on species occurrence data and agency consultation, no individuals or populations have been identified within the Alternative I-B 2-mile-wide corridor. No critical habitat has been designated for this species.

Implementation of BMPs, design features, and mitigation measures and effects would be similar as presented for Alternative I-A Ute ladies'-tresses orchid conclusion; therefore, no impacts to Ute ladies'-tresses orchid species and their associated habitat are anticipated. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the corridors associated with Alternative I-B: debris milkvetch, Gibbens penstemon, and tufted cryptantha. Based on a desktop review, potential habitat has been identified for 22 BLM sensitive species within the corridors associated with Alternative I-B. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Impacts to special status plants under Alternative I-B would be the same as those described above for Alternative I-A BLM Sensitive Species.

Alternative I-C

Ute Ladies'-tresses Orchid (Federally Threatened)

Within Alternative I-C, approximately 3,082 acres of potential habitat for the Ute ladies'-tresses orchid has been identified based on species-specific modeling as presented in **Table 3.6-8** and illustrated in **Figure 3.6-1**. Based on species occurrence data and agency consultation, no individuals or populations have been identified within the corridors associated with Alternative I-C. No critical habitat has been designated for this species.

Implementation of BMPs, design features, and mitigation measures and effects would be similar as presented for Alternative I-A Ute ladies'-tresses orchid conclusion; therefore, no impacts to the Ute ladies'-tresses orchid or its habitat are anticipated.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the corridors associated with Alternative I-C: debris milkvetch, Gibbens penstemon, and tufted cryptantha. Based on a desktop review, potential habitat has been identified for 20 BLM sensitive species within the corridors associated with Alternative I-C. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Impacts would be the same as described above for Alternative I-A BLM Sensitive Species.

Alternative I-D (Agency Preferred)

Ute Ladies'-tresses Orchid (Federally Threatened)

Within Alternative I-D, approximately 1,876 acres of potential habitat for the Ute ladies'-tresses orchid has been identified based on species-specific modeling as presented in **Table 3.6-8** and illustrated in **Figure 3.6-1**. Based on species occurrence data and agency consultation, no individuals or populations have been identified within the corridors associated with Alternative I-D. No critical habitat has been designated for this species.

Implementation of BMPs, design features, and mitigation measures and effects would be similar as presented for Alternative I-A; therefore, no impacts to Ute ladies'-tresses orchid species and their associated habitat are anticipated.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the 2-mile-wide corridors associated with Alternative I-D: debris milkvetch, Gibbens penstemon, and tufted cryptantha. Based on a desktop review, potential habitat has been identified for 22 BLM sensitive species within the Alternative I-D 2-mile-wide corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts would be the same as those described above for Alternative I-A BLM Sensitive Species.

Along Alternative I-D, three micro-siting options exist in the area of the Tuttle Easement. The only federal species identified as having potential habitat in the micro-siting area is the Ute ladies'-tresses orchid. The micro-siting options do not differ from each other or the comparable portion of Alternative I-D in their effects on the Ute ladies'-tresses orchid's potential habitat.

Alternative Connectors in Region I

Table 3.6-9 summarizes the impacts and advantages/disadvantages associated with the four alternative connectors in Region I based on known occurrences and potential habitat identified within the 2-mile transmission line corridors.

Table 3.6-9 Summary of Region I Alternative Connector Impacts for Special Status Plant Species

Alternative Connector	Analysis	Impact Conclusion
Fivemile Point North Alternative Connector	One BLM sensitive species (Gibbens penstemon) is known to occur within the 2-mile transmission line corridor and could be impacted by Project-related activities. Potential habitat for one federally listed species (Ute ladies'-tresses orchid) [approximately 9 acres] is located within the 2-mile transmission corridor, and could be impacted by Project–related activities. Potential habitat for six BLM sensitive species (meadow pussytoes, Trelease's milkvetch, Ownbey's thistle, Gibbens penstemon, Beaver Rim phlox, and tufted twinpod) is located within the 2-mile transmission line corridor and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential loss of individuals of one BLM sensitive species; and habitat disturbance to one federally listed species and six BLM sensitive species.
Fivemile Point South Alternative Connector	One BLM sensitive species (Gibbens penstemon) is known to occur within the 2-mile transmission line corridor and could be impacted by Project-related activities. Potential habitat for one federally listed species (Ute ladies'-tresses orchid [approximately 18 acres]) is located within the 2-mile transmission corridor, and could be impacted by Project–related activities. Potential habitat for six BLM sensitive species (meadow pussytoes, Trelease's milkvetch, Ownbey's thistle, Gibbens penstemon, Beaver Rim phlox, and tufted twinpod) is located within the 2-mile transmission line corridor and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential loss of individuals of one BLM sensitive species; and habitat disturbance to one federally listed species and six BLM sensitive species.
Mexican Flats Alternative Connector	Potential habitat for one federally listed species (Ute ladies'-tresses orchid [approximately 196 acres]) is located within the 2-mile transmission corridor, and could be impacted by Project–related activities. Potential habitat for six BLM sensitive species (meadow pussytoes, Trelease's milkvetch, Ownbey's thistle, Cedar Rim thistle, Beaver Rim phlox, and tufted twinpod) is located within the 2-mile transmission line corridor and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to one federally listed species and six BLM sensitive species.

Table 3.6-9 Summary of Region I Alternative Connector Impacts for Special Status Plant Species

Alternative Connector	Analysis	Impact Conclusion
Baggs Alternative Connector	One BLM sensitive species, (Gibbens penstemon is known to occur within the 2-mile transmission line corridor and could be impacted by Project-related activities. This population of Gibbens penstemon is the largest known population of the species in Wyoming (BLM 2012b). Potential habitat for one federally listed species (Ute ladies'-tresses orchid [approximately 650 acres]) is located within the 2-mile transmission corridor, and could be impacted by Project–related activities. Potential habitat for eight BLM sensitive species (Meadow pussytoes, meadow milkvetch, Trelease's milkvetch, Ownbey's thistle, Cedar Rim thistle, Gibbens penstemon, Beaver Rim phlox, and tufted twinpod) is located within the 2-mile transmission line corridor and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential loss of individuals of one BLM sensitive species' and habitat disturbance to one federally listed species and eight BLM sensitive species.

Alternative Ground Electrode Systems in Region I

The northern alternative ground electrode system would be required within 100 miles of the northern terminal, which is based on the conceptual locations and connections to the alternative routes. **Table 3.6-10** provides a comparison of impact parameters associated with the alternative ground electrode systems in Region I based on known occurrences and potential habitat identified within the ground electrode system siting areas. Based on species occurrence information and habitat associations, 17 special status plant species may be impacted by construction and operation of the ground electrode systems in Region I including 16 BLM sensitive species and one federally listed species (Ute ladies'-tresses orchid).

Table 3.6-10 Summary of Region I Alternative Ground Electrode System Impacts for Special Status Plant Species

Alternative Ground Electrode System Locations	Analysis
Separation Flat – All Alternative Routes	• No impacts to federally listed species would occur based on lack of documented occurrences. Potential habitat for one federally listed species (Ute ladies'-tresses orchid [approximately 48 acres]) is located within the ground electrode system siting area and could be impacted by Project-related activities. • Potential habitat for six BLM sensitive species (meadow pussytoes, meadow milkvetch, Trelease's milkvetch, Ownbey's thistle, Beaver Rim phlox, and tufted twinpod) is located within this ground electrode system siting area and could be impacted by Project-related activities.
Shell Creek (Alternatives I-A, I-B, and I-D)	• No impacts to federally listed species would occur based on lack of documented occurrences. Potential habitat for one federally listed species (Ute ladies'-tresses orchid [approximately 1 acre]) is located within the ground electrode system siting area and could be impacted by Project–related activities. • Potential habitat for nine BLM sensitive species (meadow pussytoes, meadow milkvetch, Trelease's milkvetch, Ownbey's thistle, Cedar Rim thistle, stemless beardtongue, Gibbens penstemon, Beaver Rim phlox, and tufted twinpod) is located within this ground electrode system siting area, and could be impacted by Project-related activities.

Table 3.6-10 Summary of Region I Alternative Ground Electrode System Impacts for Special Status Plant Species

Alternative Ground Electrode System Locations	Analysis
Little Snake East (Alternatives I-A, I-B, and I-D)	• No impacts to federally listed species and their associated habitats would occur based on lack of documented occurrences and suitable habitat. • Potential habitat for seven BLM sensitive species (cushion milkvetch, Duchesne milkvetch, starvling milkvetch, tufted cryptantha, single stemmed wild buckwheat, Nuttall sandwort, and matted fiddleleaf) is located within the 2-mile transmission line corridor and could be impacted by Project-related activities.
Little Snake West (Alternatives I-A, I-B, and I-D)	• No impacts to federally listed species would occur based on lack of documented occurrences. Potential habitat for one federally listed species (Ute ladies'-tresses orchid [approximately 7 acres]) is located within the ground electrode system siting area and could be impacted by Project–related activities. • Potential habitat for seven BLM sensitive species (cushion milkvetch, Duchesne milkvetch, starvling milkvetch, tufted cryptantha, single-stemmed wild buckwheat, Nuttall sandwort, and matted fiddleleaf) is located within this ground electrode system siting area, and could be impacted by Project-related activities.
Eight Mile Basin (All Alternative Routes)	• No impacts to federally listed species and their associated habitats would occur based on lack of documented occurrences and suitable habitat. • Potential habitat for six BLM sensitive species (meadow pussytoes, meadow milkvetch, Trelease's milkvetch, Ownbey's thistle, Beaver Rim phlox, and tufted twinpod) is located within this ground electrode system siting area and could be impacted by Project-related activities.
Separation Creek (All Alternative Routes)	• No impacts to federally listed species would occur based on lack of documented occurrences. Potential habitat for one federally listed species (Ute ladies'-tresses orchid [approximately 0.2 acre]) is located within this ground electrode system siting area and could be impacted by Project-related activities. • Potential habitat for six BLM sensitive species (meadow pussytoes, meadow milkvetch, Trelease's milkvetch, Ownbey's thistle, Beaver Rim phlox, and tufted twinpod) is located within this ground electrode system siting area and could be impacted by Project-related activities.

Region I Conclusion

Within Region I, only potential habitat for one federally listed species is found in the 2-mile-wide corridor for Alternatives I-B and I-D. Based on the implementation of proposed mitigation measure **SS-2**, which would avoid surface disturbance in all potential modeled habitat, no impacts to Ute ladies'-tresses orchid and its associated habitat are anticipated. Impacts to BLM species would be similar between the various alternatives. There would be no impacts to USFS species within any of the Alternatives.

3.6.6.4 Region II

Table 3.6-11 provides a comparison of impact parameters for special status plant species associated with the alternative routes in Region II based on known occurrences and potential habitat identified within the 2-mile transmission line corridor. Based on species occurrence information and habitat associations, the special status plant species that may be impacted by the Project in Region II include 62 BLM sensitive species, 18 USFS sensitive species, and 14 federally listed species. To determine the locations and spatial extents of potentially suitable habitats for federally listed species and USFS sensitive species within the 2-mile transmission line corridor alternatives, a detailed habitat assessment was conducted using ArcGIS and best available GIS datasets based on species-specific habitat parameters. Selected datasets and species parameters are detailed within the Special Status Species Survey Plan. Species occurrence and associated habitats in Region II are summarized in **Appendix G**, **Table G-1**.

Table 3.6-11 Summary of Region II Alternative Route Impacts for Special Status Plant Species

Parameter	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F
Federally Listed Species						
Number of species with known occurrences impacted	2	1	2	3	4	5
Number of species with potential habitat impacted	6	8	9	6	5	8
Acreage of critical habitat impacted	N/A	N/A	N/A	N/A	N/A	N/A
Acreage of Barneby Ridgecress potential habitat impacted	4,112	0	0	0	0	0
Acreage of Clay Phacelia potential habitat impacted	226	0	0	0	2,645	2,645
Acreage of Clay Reed-mustard potential habitat impacted	0	0	0	3,607	0	3,607
Acreage of Colorado Hookless Cactus potential habitat impacted	0	5,338	5,338	0	0	0
Acreage of Deseret Milkvetch potential habitat impacted	785	0	0	0	785	785
Acreage of Graham's Penstemon potential habitat impacted	694	1,713	1,713	9,077	15,080	18,622
Acreage of Jones Cycladenia potential habitat impacted	0	17	1,004	0	0	0
Acreage of Last Chance Townsendia potential habitat impacted	0	383	8,068	0	0	0
Acreage of San Rafael Cactus potential habitat impacted	0	0	868	0	0	0
Acreage of Shrubby Reed-mustard potential habitat impacted	0	0	0	108	0	108
Acreage of Uinta Basin Hookless Cactus potential habitat impacted	0	0	0	54,839	0	54,839
Acreage of Ute ladies'-tresses Orchid potential habitat impacted	3,357	892	692	1,167	3,900	2,228
Acreage of Winkler Cactus potential habitat impacted	0	5,320	3,665	0	0	0
Acreage of White River Beardtongue potential habitat impacted	34	3,058	3,058	403	343	403
Acreage of Wright Fishhook Cactus potential habitat impacted	0	44,995	50,421	0	0	0
BLM Sensitive Species						
Number of species with known occurrences impacted	6	12	17	9	11	10
Number of species with potential habitat impacted	29	36	43	32	32	34

Table 3.6-11 Summary of Region II Alternative Route Impacts for Special Status Plant Species

Parameter	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F
USFS Sensitive Species[1]						
Number of species with known occurrences impacted	0	1	2	2	2	2
Number of species with potential habitat impacted	3	7	7	7	6	9
Acreage of Arizona Willow potential habitat impacted	0	0	5,478	0	0	0
Acreage of Bicknell Milkvetch potential habitat impacted	0	0	3,182	0	0	0
Acreage of Canyon Sweetvetch potential habitat impacted	0	1,433	0	4	0	0
Acreage of Carrington Daisy potential habitat impacted	0	172	0	0	0	0
Acreage of Dainty Moonwort potential habitat impacted	91	0	0	3	3	7
Acreage of Duchesne Greenthread potential habitat impacted	0	0	0	3,513	9,593	3,528
Acreage of Elsinore Buckwheat potential habitat impacted	0	0	3,299	0	0	0
Acreage of Goodrich Blazingstar potential habitat impacted	0	0	0	731	7,219	1,158
Acreage of Link Trail Columbine potential habitat impacted	0	321	0	0	0	0
Acreage of Maguire Campion potential habitat impacted	0	4,312	3,709	6,509	0	0
Acreage of Nevada Willowherb potential habitat impacted	0	561	2,158	0	0	561
Acreage of Sigurd Townsendia potential habitat impacted	0	975	4,520	0	0	975
Acreage of Slender Moonwort potential habitat impacted	1,812	0	0	0	152	608
Acreage of Untermann's Daisy potential habitat impacted	0	0	0	3,556	11,284	3,766
Acreage of Ward Beardtongue potential habitat impacted	0	1,322	20,825	0	0	1,322
Acreage of Wasatch Jamesia potential habitat impacted	6,582	0	0	4	343	343

[1] Although carried forward in detailed analysis due to their status as BLM sensitive species, potential habitat for the Creutzfeldt-flower (USFS-Manti-La Sal NF) and the Maguire daisy (USFS-Fishlake NF) on USFS-administered lands was not identified.

Alternative II-A (Applicant Proposed)

Deseret Milkvetch (Federally Threatened)

As presented in **Table 3.6-11** and illustrated in **Figure 3.6-2**, approximately 785 acres of potential habitat for the Deseret milkvetch would be impacted under Alternative II-A in the 2-mile-wide corridor. In addition, the only population of the Deseret milkvetch is located within the 2-mile transmission line corridor. Currently, the USFWS is reviewing a proposal to delist the species due to lack of the threats (USFWS 2011a). Implementation of Alternative II-A potentially would represent a new threat to the species that may result in the USFWS making the determination to not delist the species (USFWS 2012b).

To mitigate Project-related impacts to the Deseret milkvetch, the following proposed mitigation measure would be implemented:

SS-8*: (Avoidance of Deseret Milkvetch Species and Habitat) - Known individuals and populations and areas identified as ground-truthed suitable habitat would be spanned by the transmission line. Surface disturbance associated with facilities, access roads, and other Project-related construction activities would not occur within a 984-foot (300-meter) buffer around the areas identified as having known occurrences or suitable habitat. Presence of species would be assumed for development of USFWS conservation measures as appropriate.*

Effectiveness: WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to avoid, minimize, and mitigate any potential impacts to the Deseret milkvetch. In this area, the 2-mile transmission line corridor has been widened to allow for the 250-foot-wide transmission line ROW to be routed around the Deseret milkvetch. With the implementation of proposed mitigation measure **SS-8** in addition to the BMPs, design features, and TWE's applicant-committed measures, no impacts to the desert milkvetch and its associated habitat would be anticipated.

Indirect impacts would be mitigated through implementation of mitigation measures **SS-5**, **SS-6**, and **SS-7**. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

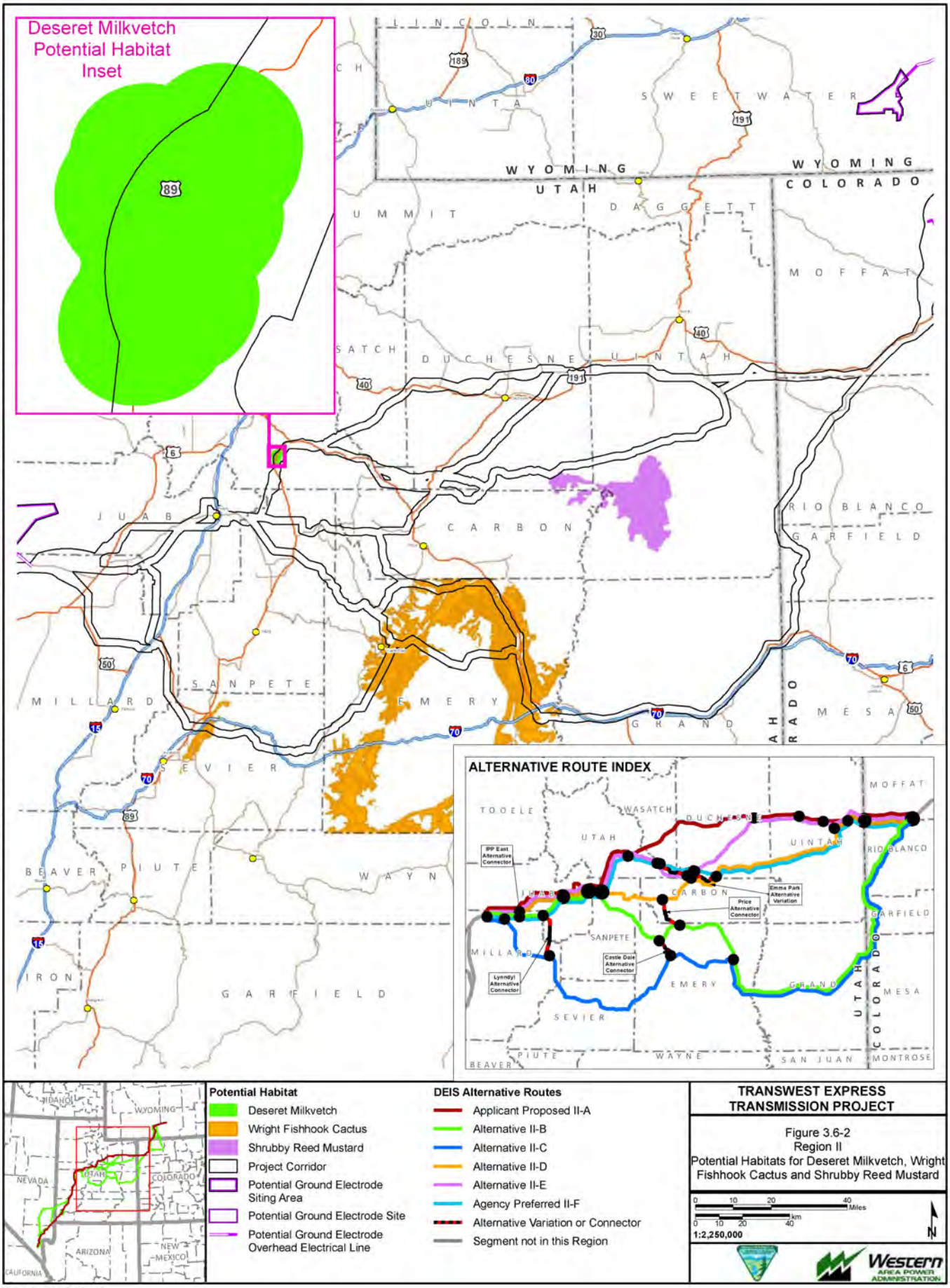
Ute Ladies'-tresses Orchid (Federally Threatened)

As presented in **Table 3.6-11** and illustrated in **Figure 3.6-1**, within the Alternative II-A 2-mile-wide corridor there are approximately 3,357 acres of potential habitat for the Ute ladies'-tresses orchid and the orchid has been documented within this corridor. No critical habitat has been designated for this species.

BMPs, design features, mitigation measures and their effects would be similar to those presented for Alternative I-A Ute ladies'-tresses orchid conclusion; therefore, no impacts to Ute ladies'-tresses orchid and its associated habitat is anticipated.

Federal Species Identified as having Potential Habitat

Within the 2-mile-wide corridor for Alternative II-A, there is potential habitat identified for Barneby ridgecress, clay phacelia, Graham's penstemon, and White River beardtongue (**Table 3.6-11**, **Figures 3.6-3**, **3.6-4**, and **3.6-5**). Based on species occurrence data and agency consultation, no individuals or populations of these species have been documented within Alternative II-A corridor. Additionally, no critical habitat has been designated for these species.


Deseret Milkvetch
Potential Habitat
Inset
ALTERNATIVE ROUTE INDEX
Potential Habitat
Deseret Milkvetch
Wright Fishhook Cactus
Shrubby Reed Mustard
Project Corridor
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
DEIS Alternative Routes
Applicant Proposed II-A
Alternative II-B
Alternative II-C
Alternative II-D
Alternative II-E
Agency Preferred II-F
Alternative Variation or Connector
Segment not in this Region
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-2
Region II
Potential Habitats for Deseret Milkvetch, Wright Fishhook Cactus and Shrubby Reed Mustard
1:2,250,000
Western AREA POWER ADMINISTRATION
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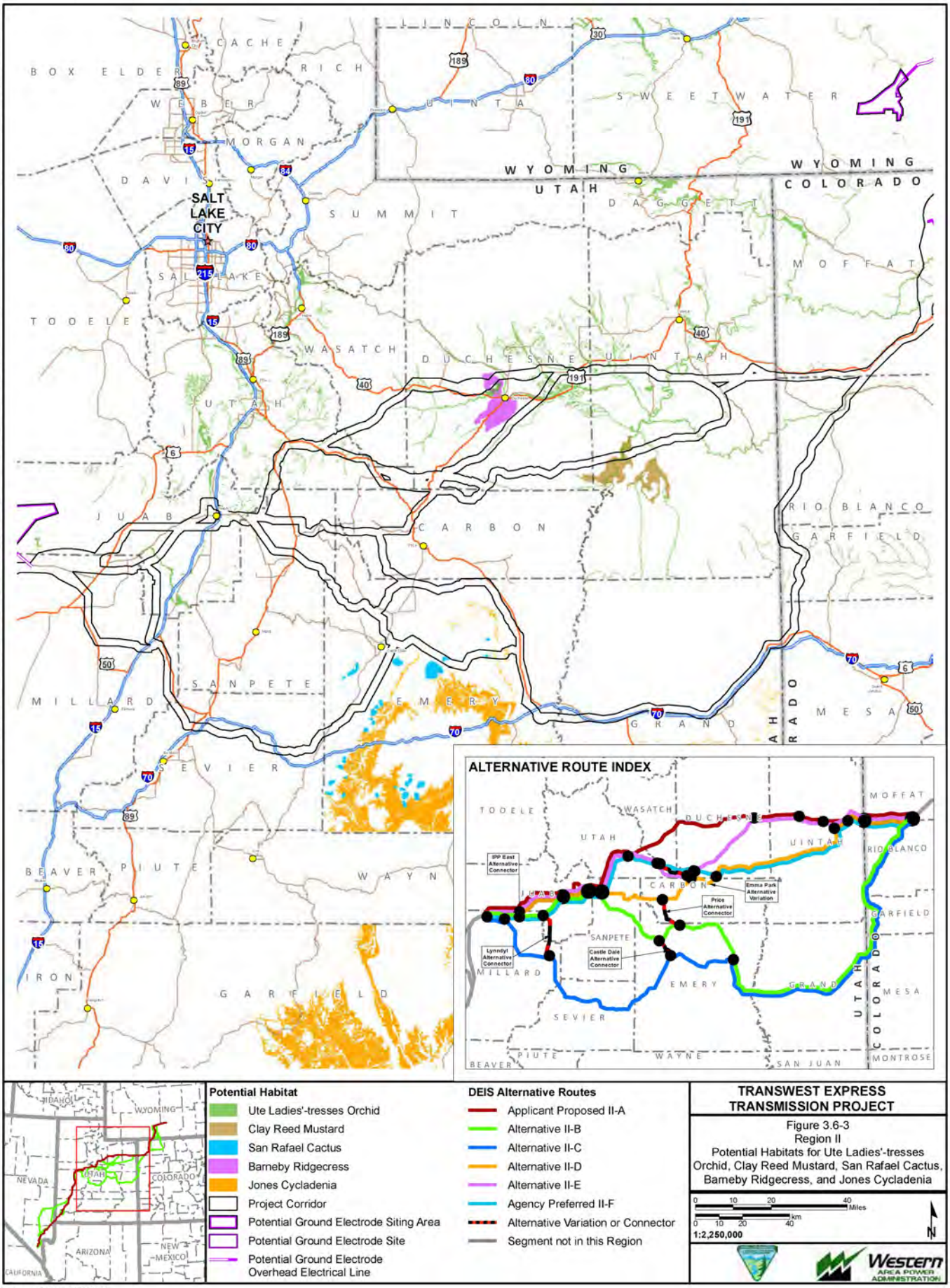

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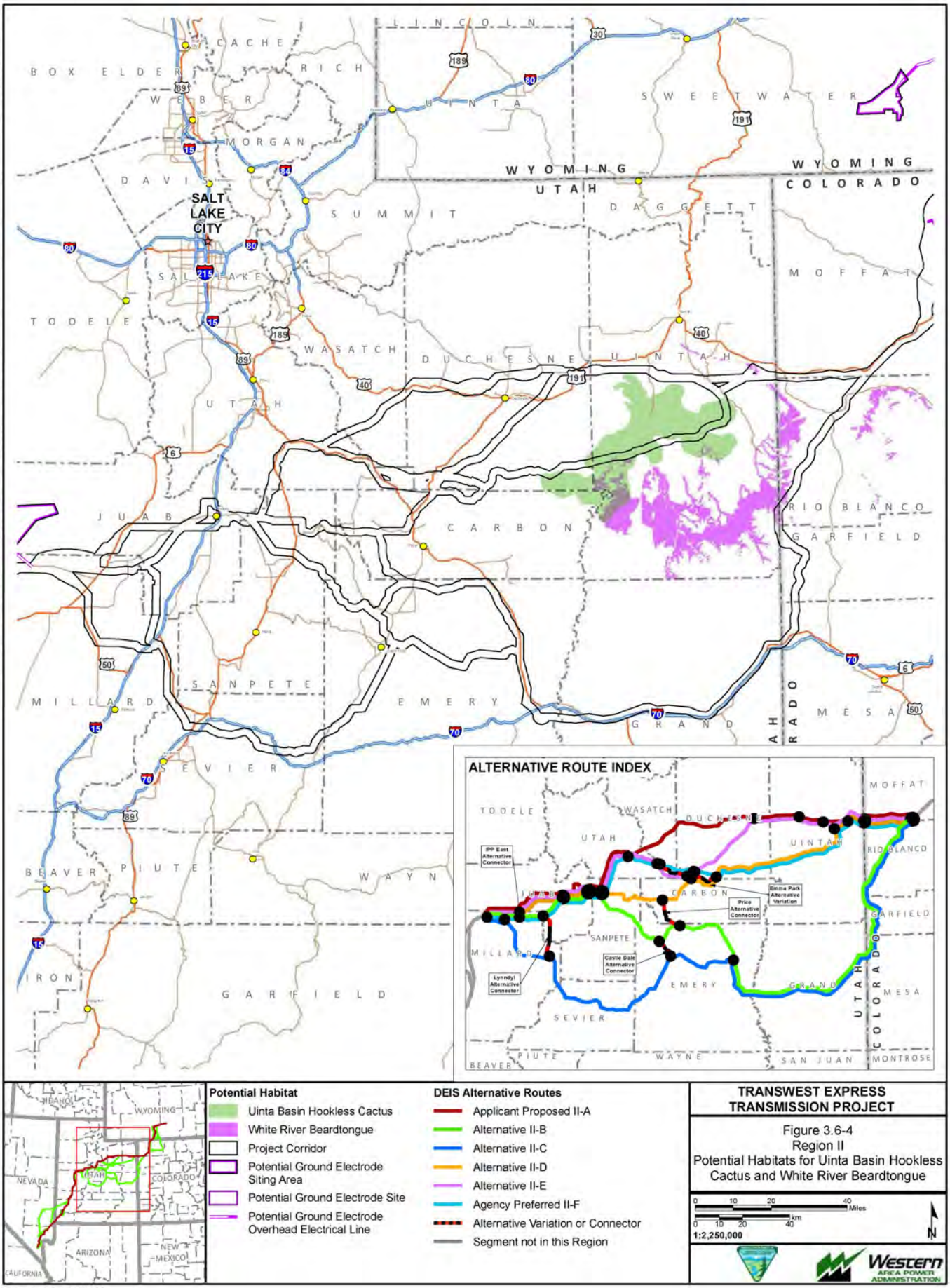
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SWEETWATER
WYOMING
UTAH
WYOMING
COLORADO
DAGGETT
MOFFAT
DUCHESNE
UINTAH
JUAB
CARBON
RIO BLANCO
GARFIELD
MILLARD
SANPETE
EMERY
GRAND
MESA
SEVIER
BEAVER
PIUTE
WAYNE
IRON
GARFIELD
ALTERNATIVE ROUTE INDEX
IPP East Alternative Connector
Emma Park Alternative Variation
Price Alternative Connector
Castle Dale Alternative Connector
Lynndyl Alternative Connector
MONTROSE
SAN JUAN
IDAHO
WYOMING
NEVADA
UTAH
COLORADO
ARIZONA
NEW MEXICO
CALIFORNIA
Potential Habitat
Uinta Basin Hookless Cactus
White River Beardtongue
Project Corridor
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
DEIS Alternative Routes
Applicant Proposed II-A
Alternative II-B
Alternative II-C
Alternative II-D
Alternative II-E
Agency Preferred II-F
Alternative Variation or Connector
Segment not in this Region
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-4
Region II
Potential Habitats for Uinta Basin Hookless Cactus and White River Beardtongue
0 10 20 40 Miles
0 10 20 40 km
1:2,250,000
N
Western AREA POWER ADMINISTRATION
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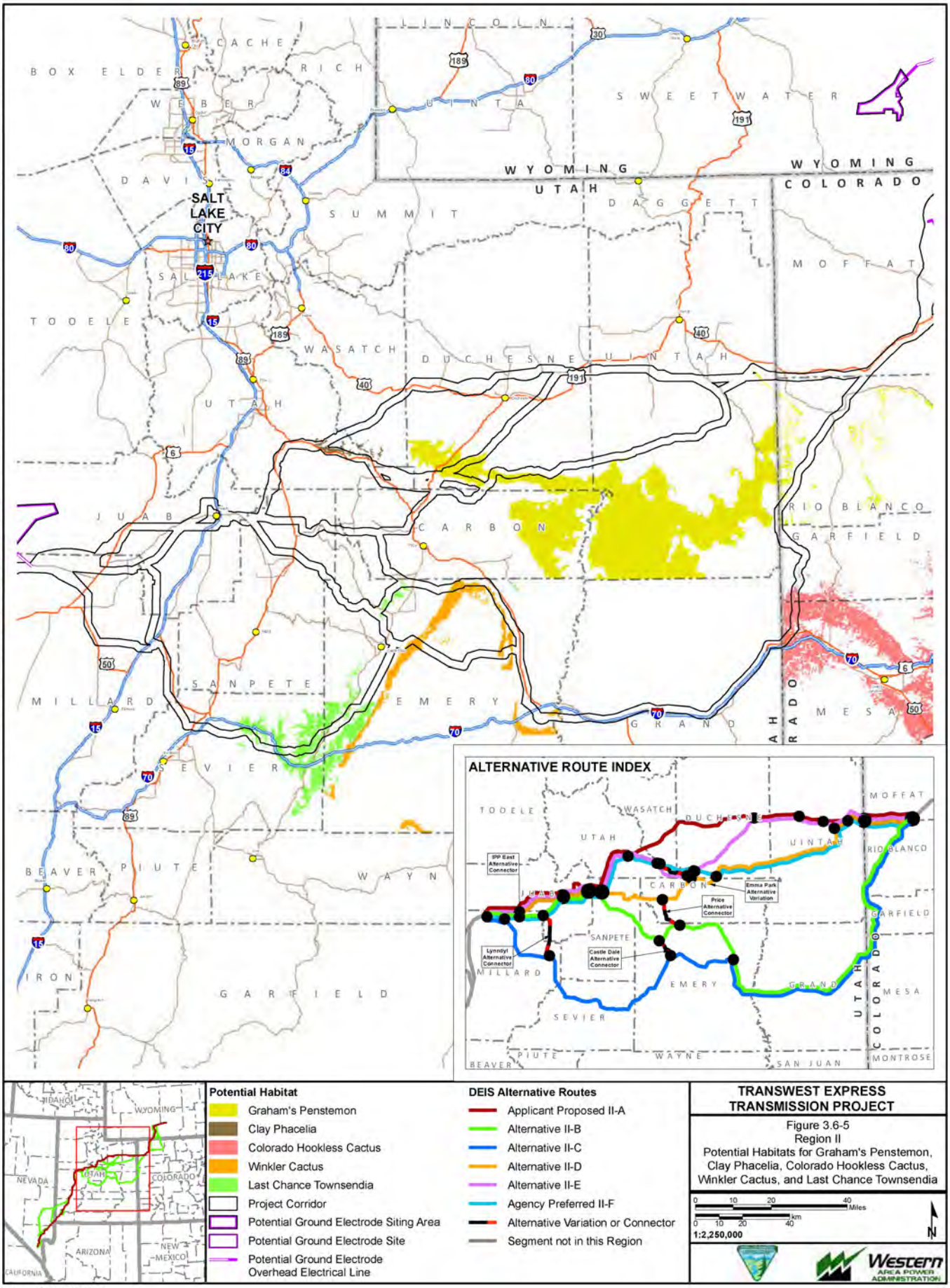
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EMERY
GRAND
CARBON
DUCHESNE
UINTAH
LINCOLN
SWEETWATER
WYOMING
UTAH
COLORADO
DAGGETT
MOFFAT
RIO BLANCO
GARFIELD
MESA
ALTERNATIVE ROUTE INDEX
IPP East Alternative Connector
Emma Park Alternative Variation
Price Alternative Connector
Lynndyl Alternative Connector
Castle Dale Alternative Connector
MONTROSE
SAN JUAN
IDAHO
NEVADA
ARIZONA
NEW MEXICO
CALIFORNIA
Potential Habitat
Graham's Penstemon
Clay Phacelia
Colorado Hookless Cactus
Winkler Cactus
Last Chance Townsendia
Project Corridor
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
DEIS Alternative Routes
Applicant Proposed II-A
Alternative II-B
Alternative II-C
Alternative II-D
Alternative II-E
Agency Preferred II-F
Alternative Variation or Connector
Segment not in this Region
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-5
Region II
Potential Habitats for Graham's Penstemon, Clay Phacelia, Colorado Hookless Cactus, Winkler Cactus, and Last Chance Townsendia
Miles
km
1:2,250,000
N
Western AREA POWER ADMINISTRATION
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Approximately 4,112 acres of potential habitat was identified for the Barneby ridgecress and approximately 226 acres of potential habitat was identified for clay phacelia within the 2-mile transmission line corridor. Less than 1,000 acres of potential habitat for the Graham's penstemon and White River beardtongue was modeled within the 2-mile transmission line corridor.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2 Impacts Common to All Alternative Routes and Associated Components, would be implemented to avoid, minimize, and mitigate any potential impacts to special status species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation measures **SS-3** and **SS-4**.

Based on the small area of potential habitat that was identified for the species and the distribution of the habitat in the 2-mile-wide corridor, allowing the habitat to be only spanned by the transmission line, no impacts to this species under Alternative II-A is anticipated. If species or habitat avoidance is deemed infeasible based on physical, other biological, or engineering constraints, impacts would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. At such time, impact minimization and additional mitigation measures would be developed in consultation with the BLM and Western prior to construction.

The limited range of clay phacelia is located predominantly within the 2-mile transmission line corridor. Also located in the 2-mile transmission line corridor, are relocation areas for the species. Known occurrences of the species are found along the 2-mile transmission line corridor on steep slopes on fine textured soil and fragmented shale derived from the Green River Formation. As the species grows on barren, precipitous hillsides, and fine textured soil, it is extremely susceptible to erosion and sedimentation. Reclamation of the habitat for this species is difficult due to the steep slopes of its habitat. The known occurrences are located near the main highway in the corridor. The habitat for the species is found throughout the corridor in the area. Based on the current reference line, the known locations for the species would be avoided; however, the species could be impacted by erosion from construction activities based on its proximity between the main highway and the potential locations for the proposed transmission line.

To mitigate Project-related impacts to clay phacelia, the following mitigation measures are proposed:

SS-9*: (Avoidance of Clay Phacelia and minimization of indirect impacts) – Known individuals and populations would be spanned by the transmission line. Surface disturbance associated with facilities, access roads, and other Project-related construction activities would not occur within a 984-foot (300-meter) buffer around areas identified as having known occurrences. Additional site-specific erosion control measures would be developed with the USFWS and implemented during construction to minimize erosion in areas near known clay phacelia populations. Site-specific construction techniques developed in consultation with the USFWS, BLM, and USFS would be used to minimize the amount of surface disturbance (such as installing structures with helicopter).*

SS-10*: (Avoidance of High Quality Habitats) – In instances where complete habitat avoidance is not possible (due to, for example, topographical, biological, or engineering constraints), all "high quality" habitats as determined during site- and species-specific surveys would be avoided by all direct disturbances during construction and operational activities. High quality habitat are defined as areas that are within the geographic range of the species, have been field verified as having the majority of required habitat characteristics; and/or the species has been observed in the area or near vicinity.*

Effectiveness: Upon completion of Mitigation Measure **SS-1**, the spatial extent of suitable habitats, in addition to a quantification of habitat quality based on species-specific habitat parameters, would be

identified for each federally listed species. Implementation of **SS-6** and **SS-9** would prevent direct impacts to clay phacelia individuals and minimize indirect impacts from erosion resulting from surface-disturbing activities. Total avoidance of clay phacelia habitat is unlikely in this corridor; however, with implementation of mitigation measure **SS-9** and **SS-10**, in conjunction with mitigation measure **SS-1** and **SS-3**, WWEC BMPs and TWE's design features, impacts to high quality habitats would be avoided. The areas not avoided would result in loss of suitable habitat for the species. Loss of suitable habitat or direct and indirect impacts to clay phacelia individuals likely would result in a decision of jeopardy for the species. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following BLM-listed sensitive species have been identified within the Alternative II-A 2-mile- transmission line corridor: Neese narrowleaf penstemon, debris milkvetch, giant fourwing saltbush, Graham's penstemon, horseshoe milkvetch, and narrowstem gilia. Based on a desktop review, potential habitat has been identified for 29 BLM sensitive species within the Alternative II-A corridor. Associated species' ranges and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

Under this alternative, impacts to BLM-listed sensitive species would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. The BLM sensitive species with known locations and habitat within the Alternative II-A corridor include species that are found across a wide range of habitats as well as those that are only found on very specific soil and vegetation combinations. The habitats include dunes, barren, sparsely vegetated areas, shrub and juniper communities, rocky ridge tops, and desert shrublands. Two species (the cushion milkvetch and strigose Easter daisy) do not have available habitat information; therefore, a conservative analysis was applied for these species, which were carried forward through the impact analysis. Impacts to species in low reclamation-potential habitats such as rocky ridgetops, sandy soils, and barren, sparsely vegetated areas would be greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and woodland communities may take longer due to the timeframe needed to restore woody communities.

The WWEC BMPs, and TWE's design features presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented to minimize and mitigate any potential impacts to BLM sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-3**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species avoidance of BLM sensitive species is not feasible, impacts would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that are avoided based on implementation of the WWEC BMPs, applicant-committed design features, and proposed mitigation measures, direct and indirect impacts are not anticipated under Alternative II-A.

USFS Sensitive Species

Based on species occurrence data and agency consultation, there are no USFS-listed sensitive species that have been identified within the Alternative II-A 2-mile-transmission line corridor. Based on a desktop review, potential habitat has been identified for the following three USFS sensitive species within the Alternative II-A corridor: dainty moonwort, slender moonwort, and Wasatch jamesia. The dainty moonwort and slender moonwort are listed in the Ashley and Uinta-Wasatch-Cache national forests; the Wasatch jamesia is listed in the Uinta-Wasatch-Cache National Forest. Associated species range and

habitat descriptions for these species are provided in **Appendix G, Table G-1**. Potential habitats for the aforementioned species are shown in **Figures 3.6-6**, **3.6-7**, and **3.6-8**.

Potential habitat for the dainty moonwort totals approximately 91 acres within and adjacent to the two forests within the analysis area. The dainty moonwort is found in wet, marshy, and spring areas around 8,000 feet amsl. Potential habitat for the slender moonwort totals approximately 1,812 acres within the Uinta National Forest. Within the analysis area, the slender moonwort is found above 9,000 feet amsl in riparian and wet areas. Potential habitat for the Wasatch jamesia totals approximately 6,582 acres within the Uinta National Forest. For all three species, all known occurrences are located outside of the 2-mile transmission line corridors.

Since no individuals or populations of USFS-listed sensitive species were identified within the 2-mile transmission line corridor, direct impacts to these species are not anticipated. If USFS sensitive species are identified during site-specific surveys, impacts would be avoided as per mitigation measure **SS-2**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components and impact minimization and mitigation measures would be developed in consultation with the USFS, and Western prior to construction.

To minimize and mitigate impacts to all potential habitats within the 2-mile transmission line corridors, WWEC BMPs, design features, and proposed mitigation, as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation measures **SS-5** and **SS-6**. Based on the limited amount of potential habitat identified for the dainty and slender moonworts, it is anticipated that potential habitat avoidance would be feasible. Given the spatial extent of potential habitat identified for the Wasatch jamesia, complete habitat avoidance may not be possible. To minimize impacts to Wasatch jamesia habitat, mitigation measure **SS-10** would be applied; however, the areas not avoided would result in loss of potential habitat for the species. In these areas, direct and indirect impacts to the species would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

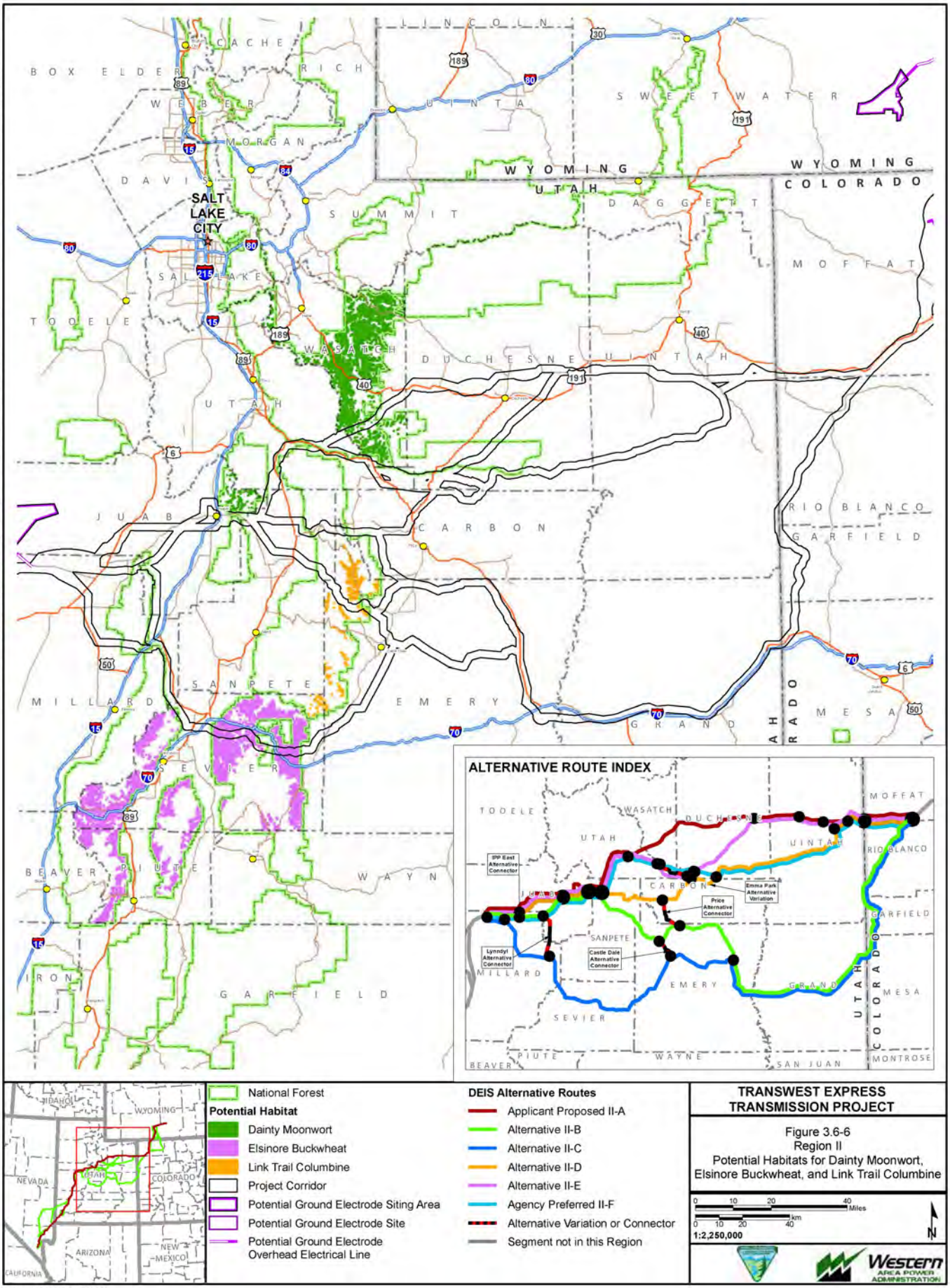
The Strawberry IRA and Cedar Creek Knoll IRA micro-siting options all have similar impacts to special status plant species as the comparable section of Alternative II-A.

Alternative II-B

Colorado Hookless Cactus (Federally Threatened)

Within the Alternative II-B 2-mile transmission line corridor, approximately 5,338 acres of potential habitat has been identified for the Colorado hookless cactus (**Table 3.6-11**, **Figure 3.6-5**). Based on species occurrence data and agency consultation, Colorado hookless cactus individuals or populations have been identified within the Alternative II-B corridor. No critical habitat has been designated for this species.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to special status species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4, and proposed mitigation **SS-5** and **SS-6**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative


SALT LAKE CITY
BOX ELDER
CACHE
RICH
WEBER
MORGAN
DAVIS
SALT LAKE
TOOELE
SUMMIT
WASATCH
DUCHESNE
UINTAH
UTAH
DAGGETT
SWEETWATER
LINCOLN
WYOMING
COLORADO
MOFFAT
RIO BLANCO
GARFIELD
MESA
GRAND
EMERY
CARBON
SANPETE
SEVIER
JUAB
MILLARD
BEAVER
PIUTE
WAYNE
IRON
ALTERNATIVE ROUTE INDEX
IPP East Alternative Connector
Emma Park Alternative Variation
Price Alternative Connector
Lynndyl Alternative Connector
Castle Dale Alternative Connector
SAN JUAN
MONTROSE
IDAHO
NEVADA
ARIZONA
NEW MEXICO
CALIFORNIA
National Forest
Potential Habitat
Dainty Moonwort
Elsinore Buckwheat
Link Trail Columbine
Project Corridor
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
DEIS Alternative Routes
Applicant Proposed II-A
Alternative II-B
Alternative II-C
Alternative II-D
Alternative II-E
Agency Preferred II-F
Alternative Variation or Connector
Segment not in this Region
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-6
Region II
Potential Habitats for Dainty Moonwort, Elsinore Buckwheat, and Link Trail Columbine
Miles
km
1:2,250,000
N
Western AREA POWER ADMINISTRATION
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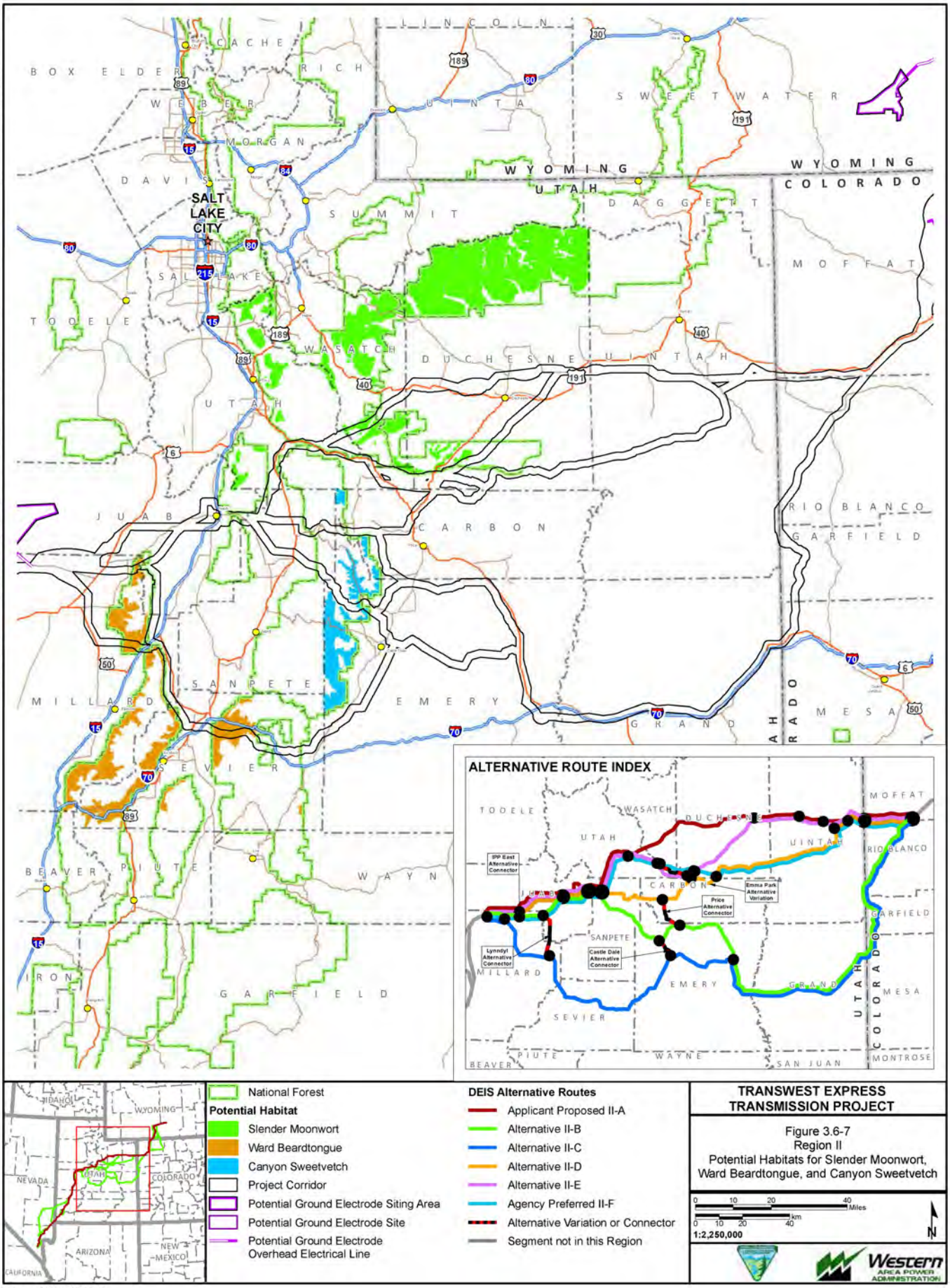

TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 3.6-7
Region II
Potential Habitats for Slender Moonwort, Ward Beardtongue, and Canyon Sweetvetch

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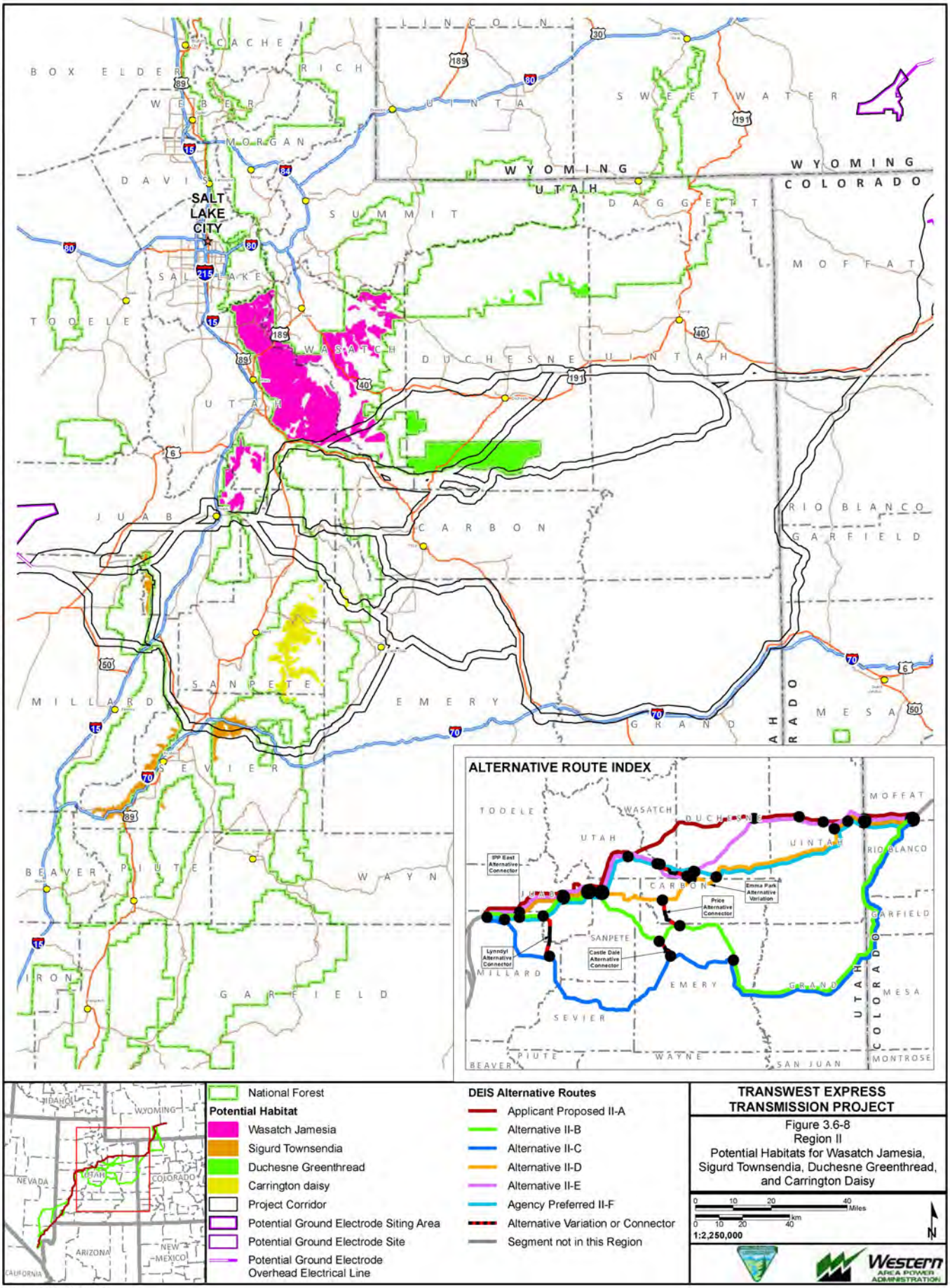
SALT LAKE CITY
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CARBON
MILLARD
SANPETE
EMERY
SEVIER
BEAVER
PIUTE
WAYNE
IRON
GARFIELD
GRAND
LINCOLN
SWEETWATER
WYOMING
COLORADO
DAGGETT
MOFFAT
RIO BLANCO
GARFIELD
MESA
ALTERNATIVE ROUTE INDEX
TOOELE
WASATCH
DUCHESNE
MOFFAT
UTAH
UINTAH
RIO BLANCO
JUAB
CARBON
GARFIELD
SANPETE
MILLARD
EMERY
GRAND
MESA
SEVIER
BEAVER
PIUTE
WAYNE
SAN JUAN
MONTROSE
IPP East Alternative Connector
Emma Park Alternative Variation
Price Alternative Connector
Lynndyl Alternative Connector
Castle Dale Alternative Connector
IDAHO
WYOMING
NEVADA
UTAH
COLORADO
ARIZONA
NEW MEXICO
CALIFORNIA
National Forest
Potential Habitat
Wasatch Jamesia
Sigurd Townsendia
Duchesne Greenthread
Carrington daisy
Project Corridor
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
DEIS Alternative Routes
Applicant Proposed II-A
Alternative II-B
Alternative II-C
Alternative II-D
Alternative II-E
Agency Preferred II-F
Alternative Variation or Connector
Segment not in this Region
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-8
Region II
Potential Habitats for Wasatch Jamesia, Sigurd Townsendia, Duchesne Greenthread, and Carrington Daisy
0 10 20 40 Miles
0 10 20 40 km
1:2,250,000
N
Western AREA POWER ADMINISTRATION
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Routes and Associated Components. Based on the substantial amount of potential habitat identified within the 2-mile transmission line corridor, and the occurrence of known locations in Alternative II-B, total avoidance of potential habitat for Colorado hookless cactus may not be feasible. To minimize impacts to Colorado hookless cactus habitat, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of potential habitat for the species. In these areas, direct and indirect impacts to the species would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

Federal Species Identified as having Potential Habitat

Within Alternative II-B, potential habitat was identified for the Graham's penstemon, Jones cycladenia, Last Chance townsendia, Ute ladies'-tresses orchid, Winkler cactus, White River beardtongue, and Wright fishhook cactus, as presented in **Table 3.6-11** and illustrated in **Figures 3.6-2**, **3.6-3**, **3.6-4**, and **3.6-5**. Based on species occurrence data and agency consultation, no individuals or populations of these species have been identified within the Alternative II-B 2-mile transmission line corridor. No critical habitat has been designated for these species. Alternative II-B crosses the San Rafael Swell, which would be difficult to reclaim due to soil reclamation constraints, and low regional annual precipitation rates.

Potential habitat for the Graham's penstemon, Jones cycladenia, Last Chance townsendia, and Ute ladies'-tresses orchid each total less than 2,000 acres, and for some, less than 100 acres. Potential habitats for the Winkler cactus and White River beardtongue total approximately 5,320 and 3,058 acres, respectively, but are found in limited locations within the 2-mile transmission line corridor. Potential habitat for the Wright fishhook cactus extends over 40,000 acres within the 2-mile transmission line corridor.

Since no individuals or populations were identified within the 2-mile transmission line corridor, direct impacts to the aforementioned species are not anticipated. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. If species are identified during site-specific surveys, impacts would be avoided as per mitigation measure **SS-1**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Species-specific impact minimization and mitigation measures would be developed in consultation with the appropriate management agencies prior to construction.

To minimize and mitigate impacts to all potential habitats within the 2-mile transmission line corridors, WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented.

With implementation of mitigation measure **SS-4**, no impacts to Ute ladies'-tresses orchid habitat is anticipated. Based on the limited acreage of potential habitat identified within the 2-mile transmission line corridor for the Graham's penstemon, Jones cycladenia, and Last Chance townsendia, no impacts are anticipated for these species within Alternative II-B. As potential habitats for Winkler cactus and White River beardtongue are only found in isolated locations within the 2-mile transmission line corridor, no impacts are anticipated for these species within Alternative II-B. Given the contiguous spatial extent of potential habitat identified for the Wright fishhook cactus, complete avoidance may not be feasible. To minimize impacts to suitable habitat for the Wright fishhook cactus, mitigation measure **SS-10** would be applied. Reclamation in the habitats associated with the Wright fishhook cactus may be difficult and long-term due to the desert environment where the Wright fishhook is found. See Section 3.5,

Vegetation, for more detail on reclamation. Lack of reclamation success would result in greater loss of suitable habitat for this species.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the Alternative II-B 2-mile-wide corridor: Neese narrowleaf penstemon, Cisco milkvetch, debris milkvetch, Duchesne milkvetch, Ferron milkvetch, giant fourwing saltbush, grand buckwheat, Jones' blue star, Jones indigo-bush, narrowstem gilia, Rollins' cryptantha, and Uinta Basin springparsley. Based on a desktop review, potential habitat has been identified for 36 BLM sensitive species within the Alternative II-B 2-mile transmission line corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Alternative II-B crosses the San Rafael Swell, which would be difficult to reclaim due to soil reclamation constraints, and low regional annual precipitation rates.

The BLM sensitive species with known locations and habitat within the corridors are predominantly found in desert shrublands, rocky, barren areas, sand dunes, and shrub and pinyon-juniper communities. Impacts to species in low reclamation habitats such as rocky barren areas, sand dunes, and desert shrublands would be greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and woodland communities may take longer due to the timeframe needed to restore woody communities.

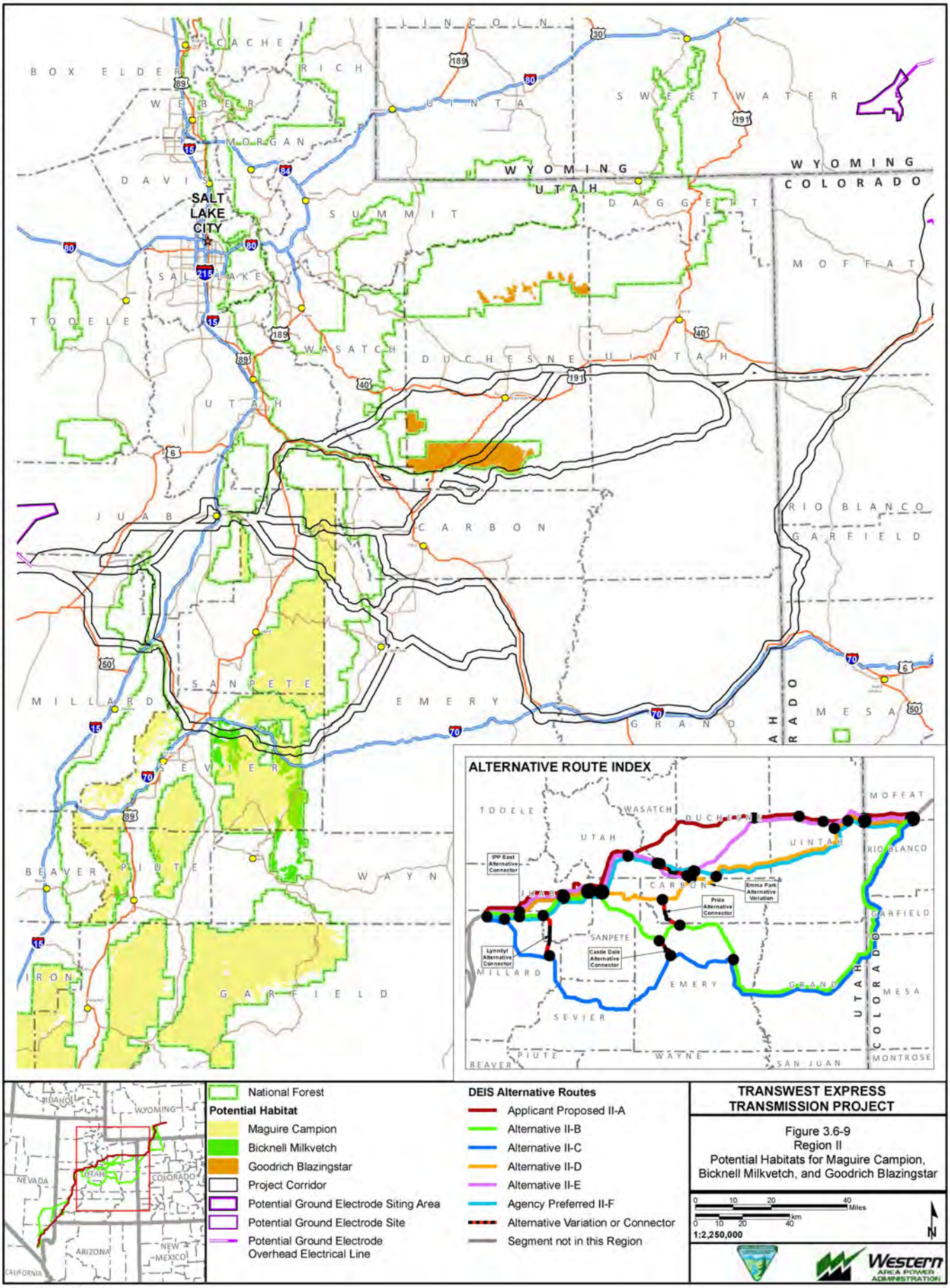
The WWEC BMPs, design features, and proposed mitigation presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate potential impacts to BLM sensitive species habitat.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-3**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. In such cases, additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that are avoided through implementation of the BMPs, applicant-committed design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

USFS Sensitive Species

Based on species occurrence data and agency consultation, one species, the Carrington daisy, has been identified within the Alternative II-B 2-mile transmission line corridor. Within Alternative II-B, potential habitat has been identified for the following USFS sensitive species: canyon sweetvetch, Carrington daisy, Link Trail columbine, Maguire campion, Nevada willowherb, Sigurd townsendia, and Ward beardtongue. The canyon sweetvetch, Carrington daisy, Link Trail columbine, and Maguire campion are protected in the USFS-Manti-La Sal National Forest. The Maguire campion also is listed in the Dixie and Fishlake national forests. The Nevada willowherb, Sigurd townsendia, and Ward beardtongue are listed in the Fishlake National Forest. Species ranges and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Potential habitats for these species are illustrated in **Figures 3.6-6**, **3.6-7**, **3.6-8**, **3.6-9**, and **3.6-10**.

The majority of the known occurrences for Carrington Daisy are located south of the analysis area within the Manti-La Sal National Forest. The known occurrence within the 2-mile transmission line corridors is also within the Manti-La Sal National Forest. Link Trail columbine, Nevada willowherb, and Sigurd townsendia, have less than 1,000 acres of potential habitat identified within the corridors. Link Trail



TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 3.6-9
Region II
Potential Habitats for Maguire Campion, Bicknell Milkvetch, and Goodrich Blazingstar

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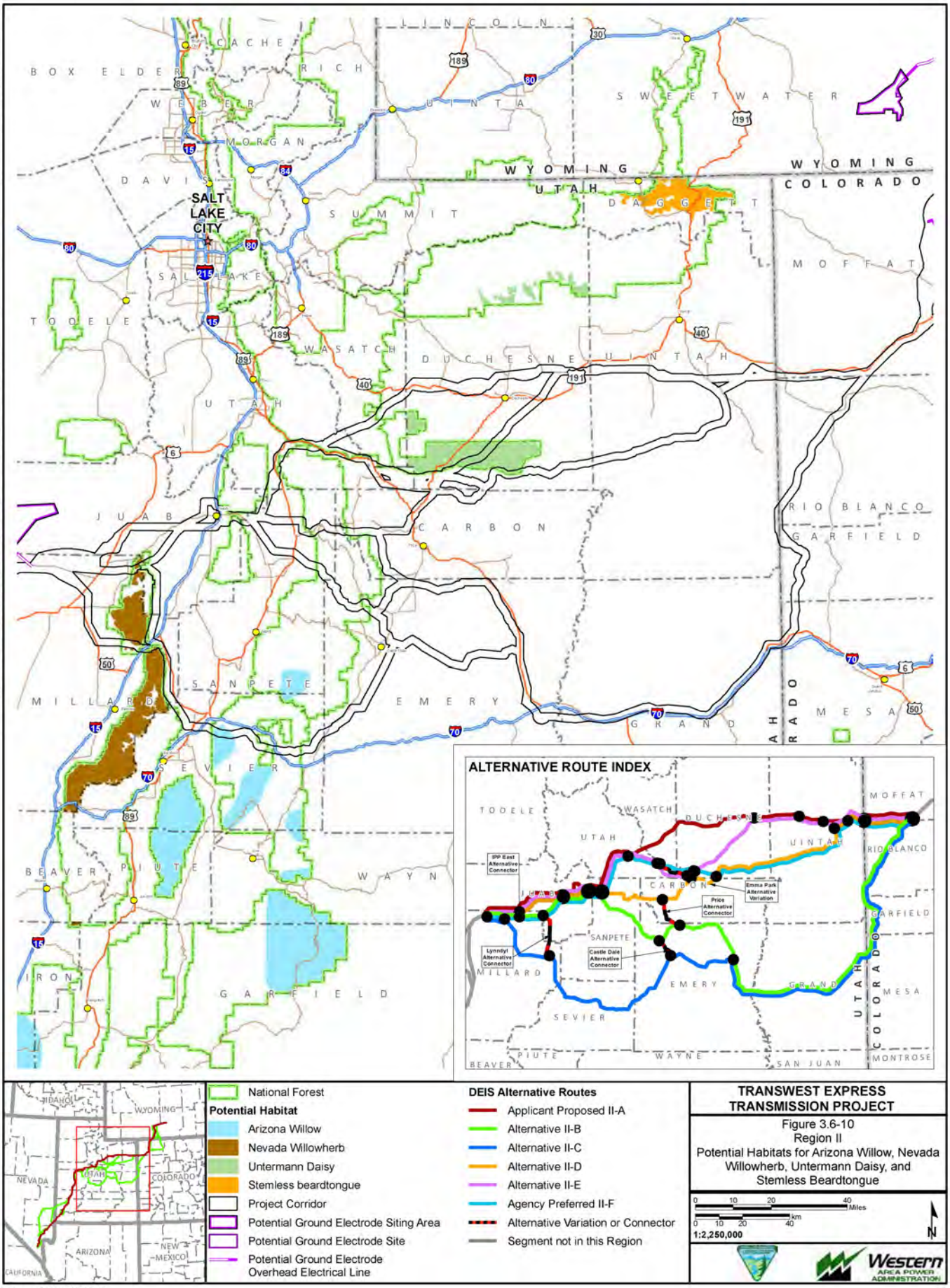
SALT LAKE CITY
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UINTA
LINCOLN
SWEETWATER
WYOMING
UTAH
COLORADO
DAGGETT
MOFFAT
RIO BLANCO
GARFIELD
MESA
GRAND
EMERY
CARBON
JUAB
SANPETE
MILLARD
SEVIER
BEAVER
PIUTE
WAYNE
IRON
ALTERNATIVE ROUTE INDEX
IPP East Alternative Connector
Emma Park Alternative Variation
Price Alternative Connector
Lynndyl Alternative Connector
Castle Dale Alternative Connector
MONTROSE
SAN JUAN
IDAHO
NEVADA
ARIZONA
NEW MEXICO
CALIFORNIA
National Forest
Potential Habitat
Arizona Willow
Nevada Willowherb
Untermann Daisy
Stemless beardtongue
Project Corridor
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
DEIS Alternative Routes
Applicant Proposed II-A
Alternative II-B
Alternative II-C
Alternative II-D
Alternative II-E
Agency Preferred II-F
Alternative Variation or Connector
Segment not in this Region
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-10
Region II
Potential Habitats for Arizona Willow, Nevada Willowherb, Untermann Daisy, and Stemless Beardtongue
Miles
km
1:2,250,000
N
Western AREA POWER ADMINISTRATION
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columbine is found in the analysis area in Manti-La Sal and Fishlake National Forests. Nevada willowherb is located completely in the analysis area in Fishlake National Forest. Ward beardtongue has approximately 1,300 acres of fairly contiguous potential habitat. Sigurd townsendia and Ward beardtongue are found within and outside the analysis area in Fishlake National Forest. The canyon sweetvetch has approximately 1,400 acres of potential habitat located in small units within the 2-mile transmission line corridor. The majority of canyon sweetvetch occurrences are found outside of the analysis area. Within the 2-mile corridor of Alternative II-B, the Maguire campion has approximately 4,300 acres of fairly contiguous potential habitat. Although not within the 2-mile transmission line corridor, most of the known Maguire campion occurrences are found within the analysis area in the Manti-La Sal National Forest.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM, USFS, and Western prior to construction. For the species that are avoided based on the implementation of the WWEC BMPs, design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented to minimize and mitigate any potential impacts to USFS sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4, and proposed mitigation **SS-5** and **SS-6**. For the species with limited and dispersed potential habitat (canyon sweetvetch, Carrington Daisy, Link Trail columbine, Nevada willowherb, and Sigurd townsendia), impacts to suitable habitats are not anticipated. For the species with linear stretches of contiguous habitat paralleling the corridors (Maguire campion and Ward beardtongue), total avoidance of habitat may not be feasible. To minimize impacts to Maguire campion and Ward beardtongue suitable habitats, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Impacts in these areas would be as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

<u>Alternative II-C</u>

Colorado Hookless Cactus (Federally Threatened)

As Alternative II-C coincides with Alternative II-B through Colorado hookless cactus habitat, the acreage and occurrence data for Colorado hookless cactus under Alternative II-C is the same as that described for Alternative II-B.

As Alternative II-C coincides with Alternative II-B in this area, impacts to Colorado hookless cactus would be the same under Alternative II-C as described above for Alternative II-B.

San Rafael Cactus (Federally Endangered)

Within Alternative II-C, there is approximately 868 acres of potential habitat for the San Rafael cactus (**Table 3.6-11**, **Figure 3.6-3**). Based on species occurrence data and agency consultation, San Rafael cactus individuals or populations have been identified within the Alternative II-C corridor. No critical habitat has been designated for this species.

WWEC BMPs, TWE's design features and proposed mitigation presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented to minimize and mitigate any potential impacts to sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. Based on the limited acreage of potential habitat and limited number of known locations in the Alternative II-C corridor, no impacts are anticipated for this species and associated habitat.

Federally Listed Species Identified as having Potential Habitat

Within the Alternative II-C 2-mile transmission line corridor, there is potential habitat identified for Graham's penstemon, Jones cycladenia, Last Chance townsendia, Ute ladies'-tresses orchid, White River beardtongue (White River penstemon), Winkler cactus, and Wright fishhook cactus, as presented in **Table 3.6-11** and illustrated in **Figures 3.6-2**, **3.6-3**, **3.6-4**, and **3.6-5**. Based on species occurrence data and agency consultation, no individuals or populations of these species have been identified within the Alternative II-C corridor. No critical habitat has been designated for these species. Habitat descriptions are similar to those described for Alternative II-B.

Based on the similar vegetation communities, list of federally listed species, and similar acres of potential habitat, impacts to federally listed species under Alternative II-C would be similar to those described above for Alternative II-B, except for Last Chance townsendia. Within Alternative II-C, 8,068 acres of fairly contiguous potential habitat for Last Chance townsendia falls within the 2-mile transmission line corridor.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4, and proposed mitigation **SS-5** and **SS-6**. For the linear stretches of contiguous Last Chance townsendia habitat in the corridor, total avoidance of habitat may not be feasible. To minimize impacts to Last Chance townsendia suitable habitats, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Impacts in these areas would be as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within Alternative II-C 2-mile-wide corridor: Neese narrowleaf penstemon, Cisco milkvetch, debris milkvetch, Duchesne milkvetch, Ferron milkvetch, Grand buckwheat, Jones' blue star, Jones indigo-bush, loa milkvetch, Maguire daisy, narrowstem gilia, Pioche blazingstar, Rollins cryptantha, Sigurd townsendia, Uinta Basin springparsely, Utah phacelia, and Ward beardtongue. Based on a desktop review, potential habitat has been identified for 43 BLM sensitive species within the Alternative II-C corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

Impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. The BLM sensitive species with known locations and habitat within the corridors range from species that are found across a wide variety of habitats to those that are only found

on very specific soil and vegetation combinations. The habitats in this alternative are composed predominantly of various sandy, rocky, gravelly, and volcanic substrates that are located on outcrops, barren areas, desert, or in shrub and woodland communities such as pinyon-juniper and sagebrush communities, and desert shrublands. A few species are located in riparian and wet areas. Impacts to species in habitats with low reclamation potential such as sandy soils, cliffs, deserts, and barren, sparsely vegetated areas would be greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and woodland communities may take longer due to the longer time-frame to restore woody communities.

The BMPs and design features presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to BLM sensitive species habitats. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-3**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species or habitat avoidance of BLM sensitive species is not feasible, impacts would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that are avoided based on the implementation of the WWEC BMPs, applicant-committed design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

USFS Sensitive Species

Based on species occurrence data and agency consultation, two species, Sigurd townsendia and Ward beardtongue have been identified within the Alternative II-C 2-mile transmission line corridor. Based on a desktop review, potential habitat has been identified for the following USFS sensitive species within this corridor: Arizona willow, Bicknell milkvetch, Elsinore buckwheat, Maguire campion, Nevada willowherb, Sigurd townsendia, and Ward beardtongue. All the species are listed in the Fishlake National Forest; Arizona willow and Maguire campion are also listed in Dixie and Manti-La Sal national forests. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Potential habitats for the aforementioned species are illustrated in **Figures 3.6-6**, **3.6-7**, **3.6-8**, **3.6-9**, and **3.6-10**.

Potential habitat for Sigurd townsendia totals 4,520 acres of scattered habitat within Fishlake National Forest. Two of the areas identified as potential habitat are fairly long contiguous sections. The species is found in several locations within the analysis area and the 2-mile transmission line corridor associated with this alternative. Sigurd townsendia is found within and outside the analysis area in Fishlake National Forest. Potential habitat for the Ward beardtongue totals approximately 20,825 acres of fairly contiguous habitat within the Fishlake National Forest. Known occurrences for Ward beardtongue are found within and outside the analysis area in Fishlake National Forest.

Potential habitat for Arizona willow covers a large portion of the corridor where it crosses the Fishlake National Forest. Arizona willow is located within the analysis area in Manti-La Sal National Forest. Potential habitat for Bicknell milkvetch is located in the 2-mile transmission line corridor in the Fishlake National Forest. The potential habitat is scattered within the corridor. The majority of known occurrences of Bicknell milkvetch are located predominantly outside the analysis area. Potential habitat for Elsinore buckwheat is located in Fishlake National Forest and is found in scattered locations within the corridor, with some sections that are fairly contiguous. Documented Elsinore buckwheat occurrences are located predominantly outside the analysis area. Potential habitat for Maguire campion totals approximately, 3,700 acres and is scattered within the 2-mile transmission line corridors in Alternative II-C. The majority of the Maguire campion occurrences are found within the analysis area within Manti-La Sal National Forest. Potential habitat for Nevada willowherb totals approximately 2,100 acres of potential habitat

identified within the Alternative II-C 2-mile transmission line corridor. The species is located completely in the analysis area in Fishlake National Forest.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM, USFS, and Western prior to construction. For the species that are avoided based on the implementation of the BMPs, applicant-committed design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

The WWEC BMPs, and TWE's design features as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to USFS sensitive species habitats. Species-specific surveys within suitable habitats, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Impacts are not anticipated for the species with limited and dispersed potential habitat (Bicknell milkvetch, Maguire campion, and Nevada willowherb). For the species with linear stretches of contiguous habitat paralleling the corridors (Arizona willow, Elsinore buckwheat, Sigurd townsendia, and Ward beardtongue), total avoidance of habitat may not be feasible. To minimize impacts to suitable habitats for Arizona willow, Elsinore buckwheat, Sigurd townsendia, and Ward beardtongue, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

Alternative II-D

Clay Reed-Mustard (Federally Threatened)

Within Alternative II-D 2-mile corridor, there is approximately 3,607 acres of potential habitat for the clay reed-mustard (**Table 3.6-11**, **Figure 3.6-3**). Based on species occurrence data and agency consultation, clay reed-mustard individuals or populations have been identified within the Alternative II-D corridors. No critical habitat has been designated for this species.

BMPs and design features presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate any potential impacts to sensitive species habitat. TWE's applicant-committed protection measures ECO-1 and ECO-4 indicate suitable habitat avoidance as the primary consideration during Project design and implementation. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the limited number of known clay reed-mustard locations in the 2-mile transmission line corridor for Alternative II-D, no direct impacts to this species are anticipated. Total avoidance of potential habitat for this species may not be feasible based on the length of contiguous potential habitat with the corridor. To minimize impacts to suitable habitat, mitigation measure **SS-10** would be applied.

Graham's Penstemon

Within Alternative II-D, there is approximately 9,077 acres of potential habitat for the Graham's penstemon (**Table 3.6-11**, **Figure 3.6-5**). Based on species occurrence data and agency consultation, Graham's penstemon individuals or populations have been identified within the corridors within Alternative II-D 2-mile transmission line corridor. No critical habitat has been designated for this species.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Based on the limited number of known locations in the 2-mile transmission line corridors for Alternative II-D, no direct impacts to the Graham's penstemon are anticipated. Total avoidance of potential habitat for this species may not be feasible based on the length of contiguous potential habitat with the 2-mile transmission line corridors. To minimize impacts to suitable habitat, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Impacts would be as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

Uinta Basin Hookless Cactus

Within Alternative II-D, there is approximately 54,839 acres of potential habitat for the Uinta Basin hookless cactus as presented in **Table 3.6-11** and illustrated in **Figure 3.6-4**. Based on species occurrence data and agency consultation, Uinta Basin hookless cactus individuals or populations have been identified within the corridors within Alternative II-D 2-mile transmission line corridor. Alternative II-D crosses Uinta Basin hookless cactus Level 1 and Level 2 core conservation areas. Disturbance in a Level 1 core conservation area may require formal consultation with the USFWS. No critical habitat has been designated for this species. Any surface disturbance within 300 feet of Uinta Basin hookless cactus would require formal consultation with the USFWS.

Based on the extent of the potential habitat, and known locations within the 2-mile corridor, total avoidance of this species and its habitat is unlikely. If avoidance is not feasible, impacts to the Uinta Basin hookless cactus would be the same as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Specific impacts of concern to the Uinta Basin hookless cactus include potential increases in illegal collection of the Uinta Basin hookless cactus, habitat fragmentation, the introduction and spread of invasive species, the loss of pollinators, fugitive dust impacts, and increased sedimentation. Reclamation in the habitats associated Uinta Basin hookless cactus may be difficult due to poor soils, invasive and noxious weeds, and low precipitation. See Section 3.5, Vegetation, for more detail on reclamation.

To mitigate Project-related impacts to Uinta Basin hookless cactus, the following mitigation measure is proposed:

SS-11: *(Uinta Basin Hookless Cactus Core Conservation Area Mitigation Measures) – Construction within Uinta Basin Hookless Cactus Level 1 and Level 2 Core Conservation areas will follow the Draft Energy Development Management Guidelines for Sclerocactus wetlandicus and Sclerocactus brevispinus Core Conservation Areas as appropriate. These include limited to no surface disturbance in core conservation areas and having an on-site botanist during construction activities. If these measures are not implemented, mitigation measures will need to be developed in consultation with the BLM and USFWS.*

Effectiveness: Implementation of mitigation measure **SS-10**, in addition to WWEC BMPs, TWE's design features and proposed mitigation presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would minimize direct and indirect impacts to the Uinta Basin hookless cactus within the Core Conservation Areas. Based on the large number of known locations and large amount of potential habitat in the 2-mile transmission line corridor for Alternative II-D, total avoidance of known locations and

potential habitat for this species is unlikely. To minimize impacts to suitable habitat, mitigation measure **SS-10** would be applied. To minimize impacts to Core Conservation Areas, mitigation measure **SS-11**, would be applied. If the Level 1 Core Conservation Areas cannot be avoided, it could result in a loss of individuals and suitable habitat and formal consultation with the USFWS would be required. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

Federal Species Identified as having Potential Habitat

Within Alternative II-D, potential habitat was modeled for the shrubby reed-mustard, Ute ladies'-tresses orchid, and White River beardtongue (**Table 3.6-11** and **Figures 3.6-2**, **3.6-3**, and **3.6-4**). Based on species occurrence data and agency consultation, no individuals or populations of these species have been identified within the Alternative II-D corridor. No critical habitat has been designated for these species.

Modeled potentially suitable habitat for shrubby reed-mustard within the Alternative II-D corridor totals around 108 acres. Potential habitat for White River beardtongue totals less than 500 acres and modeled habitat for Ute ladies'-tresses orchid totals around 1,170 acres.

Since no individuals or populations were identified within the 2-mile transmission line corridor, direct impacts to the aforementioned species are not anticipated. If species are identified during species-specific surveys, species avoidance would be conducted based on mitigation measure **SS-1**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, and impact minimization and mitigation measures would be developed in consultation with the USFS, and Western prior to construction.

To minimize and mitigate impacts to all potential habitats within the 2-mile transmission line corridor, the WWEC BMPs, and TWE's design features as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**.

Based on the limited acreage of potential habitat that has been modeled in the 2-mile transmission corridor for shrubby reed-mustard, no impacts are anticipated for shrubby reed-mustard under Alternative II-D.

Given the small amount of potential habitat for White River beardtongue, no impacts are anticipated for this species within Alternative II-D. Reclamation in the habitats associated with clay reed-mustard, Uinta Basin Hookless Cactus, and shrubby reed-mustard may be difficult due to soils with low reclamation potential, invasive and noxious weeds, and low precipitation. See Section 3.5, Vegetation, for more detail on reclamation. With implementation of mitigation measure **SS-4**, no impacts to Ute ladies'-tresses orchid habitat is anticipated.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the Alternative II-D 2-mile-wide corridor: Barneby's catseye, Neese narrowleaf penstemon, debris milkvetch, Duchesne greenthread, giant fourwing saltbush, Goodrich blazingstar, Graham's penstemon, horseshoe milkvetch, and narrowstem gilia. Based on a desktop review, potential habitat has been identified for 32 BLM sensitive species within the Alternative II-D corridor. Associated ranges and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-3**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the BLM sensitive species that are avoided based on the implementation of the BMPs, applicant-committed design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

The BLM sensitive species with known locations and habitat within the corridors range from species that are found across a wide variety of habitats to those that are only found on very specific soil and vegetation combinations. The habitats include dunes, clay substrates, ridge tops, barren, sparsely, vegetated areas; shrub and juniper communities, coniferous communities, chaparral, mountain, and mixed and desert shrublands. Two species do not have available habitat information: the cushion milkvetch and strigose Easter daisy. A conservative analysis was applied for these species and they were carried forward for detailed analysis. Impacts to species in habitats with low reclamation potential such as rocky ridgetops, sandy soils, and barren, sparsely vegetated areas would be greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and woodland communities may take longer due to the longer time-frame needed to restore woody communities. The WWEC BMPs, and TWE's design features as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented to minimize and mitigate any potential impacts to BLM sensitive species habitat.

USFS Sensitive Species

Based on species occurrence data and agency consultation, Duchesne greenthread and Goodrich blazingstar have been identified within the Alternative II-D corridor. Within this corridor, potential habitat has been identified for the following USFS sensitive species: canyon sweetvetch, dainty moonwort, Duchesne greenthread, Goodrich blazingstar, Maguire campion, Untermann daisy, and Wasatch jamesia. Canyon sweetvetch and Maguire campion are listed as sensitive in the Manti-La Sal National Forest. Maguire campion also is listed in the Dixie and Fishlake national forests. Dainty moonwort, Duchesne greenthread, Goodrich blazingstar, and Untermann daisy are listed as sensitive in the Ashley National Forest. Dainty moonwort is also listed in the Uinta-Wasatch-Cache National Forest along with the Wasatch jamesia. Associated species ranges and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Potential habitats for the aforementioned species are illustrated in **Figures 3.6-6**, **3.6-7**, **3.6-8**, **3.6-9**, and **3.6-10**.

The majority of the known occurrences for Duchesne greenthread and Goodrich blazingstar are located almost entirely in the analysis area within the Ashley National Forest. The known occurrences for both species within the Alternative II-D corridor also are within the Ashley National Forest and potential habitats for both are quite extensive.

Canyon sweetvetch, dainty moonwort, and Wasatch jamesia each have less than 5 acres of potential habitat identified within this corridor. All known occurrences of these three species are located outside of the 2-mile transmission line corridor and, for the most part, outside of the analysis area. Maguire campion has approximately 6,500 acres of fairly contiguous potential habitat within the 2-mile transmission line corridor of Alternative II-D. The majority of the Maguire campion occurrences found within the analysis area are within the Manti-La Sal National Forest. Untermann daisy is located within Ashley National Forest in the analysis area, and the potential habitat for this species covers a large portion of the Alternative II-D route where it crosses Ashley National Forest.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. If species avoidance is not feasible,

impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM, USFS, and Western prior to construction. For the species that are avoided based on the implementation of the WWEC BMPs, and TWE's design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

The WWEC BMPs, and TWE's design features as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented to minimize and mitigate any potential impacts to USFS sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**.

For the species with limited and dispersed potential habitat (canyon sweetvetch, dainty moonwort, and Wasatch jamesia), impacts are not anticipated. For the species with linear stretches of contiguous habitat paralleling the corridors (Duchesne greenthread, Goodrich blazingstar, Maguire campion, and Untermann daisy), complete avoidance of habitat is not likely. To minimize impacts to suitable habitats for these species, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Impacts would be as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

Alternative II-E

Clay Phacelia

Within Alternative II-E, there are approximately 2,645 acres of potential habitat for the clay phacelia (**Table 3.6-11** and **Figure 3.6-5**). Based on species occurrence data and agency consultation, clay phacelia individuals or populations have been identified within the Alternative II-E corridor. No critical habitat has been designated for this species. Impacts to the species would be the similar as described for Alternative II-A.

As Alternative II-E coincides with Alternative II-A in this area, potential Project-related impacts to clay phacelia would be the same as those described above for Alternative II-A.

Deseret Milkvetch

As Alternative II-E coincides with Alternative II-A through this species' range, the acreage and occurrence data for Deseret milkvetch are the same as those described for Alternative II-A. Potential Project-related impacts to Deseret milkvetch would be the same as those described above for Alternative II-A.

Graham's Penstemon

Within Alternative II-E, there are approximately 15,080 acres of potential habitat for the Graham's penstemon (**Table 3.6-11** and **Figure 3.6-5**). Based on species occurrence data and agency consultation, Graham's penstemon individuals or populations have been identified within the Alternative II-E corridor. No critical habitat has been designated for this species.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to special status species habitat. Species-specific surveys within suitable habitat, and subsequent species

avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Based on the limited number of known locations in the Alternative II-E corridor, no direct impacts to Graham's penstemon are anticipated. Total avoidance of potential habitat for this species may not be feasible based on the length of contiguous potential habitat within the 2-mile-wide corridors. To minimize impacts to suitable habitat, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

Ute Ladies'-tresses Orchid

Within Alternative II-E, there are approximately 3,900 acres of potential habitat for the Ute ladies'-tresses orchid as presented in **Table 3.6-8** and illustrated in **Figure 3.6-1**. Based on species occurrence data and agency consultation, Ute ladies'-tresses orchid individuals or populations have been identified within the Alternative II-E corridor. No critical habitat has been designated for this species.

BMPs, design features, and mitigation measures and effects would be similar to those presented for the Alternative I-A Ute ladies'-tresses orchid conclusion; therefore, no impacts to the Ute ladies'-tresses orchid and its associated habitat are anticipated.

Federal Species Identified as having Potential Habitat

Within Alternative II-E, there is potential habitat identified for White River beardtongue, as presented in **Table 3.6-11** and illustrated in **Figure 3.6-4**. Based on species occurrence data and agency consultation, no individuals or populations of these species have been identified within the Alternative II-E corridor. No critical habitat has been designated for these species.

Approximately 343 acres of potential habitat for White River beardtongue has been identified within the 2-mile transmission line corridor.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to special status species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Based on the small amount of potential habitat for White River beardtongue, impacts associated with Alternative II-E are not anticipated for this species.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the Alternative II-E 2-mile transmission line corridor: Argyle Canyon phacelia, Barneby's catseye, Neese narrowleaf penstemon, debris milkvetch, giant fourwing saltbush, Goodrich blazingstar, Graham's penstemon, horseshoe milkvetch, narrowstem gilia, Untermann daisy, and Utah columbine. Based on a desktop review, potential habitat has been identified for 32 BLM sensitive species within the Alternative II-A corridor. Associated species range and habitat are provided in **Appendix G, Table G-1**.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4, and proposed mitigation **SS-5** and **SS-6**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and

Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that can be avoided based on the implementation of the WWEC BMPs, TWE's design features and proposed mitigation, direct and indirect impacts are not anticipated.

The BLM sensitive species with known locations and habitat within the Alternative II-E corridor range from species that are found across a wide variety of habitats to those that are only found on very specific soil and vegetation combinations. The habitats include sandy and clay substrates, ridge tops, badlands, steep slopes, barren, and sparsely vegetated areas; shrub and juniper communities, coniferous communities, chaparral, mountain, and mixed and desert shrublands. Two species do not have available habitat information: the cushion milkvetch and strigose Easter daisy. A conservative analysis was applied for these species and they were carried forward for detailed analysis. Impacts to species in habitats with low reclamation potential such as rocky ridgetops, sandy soils, and barren or sparsely vegetated areas would greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and woodland communities may take longer due to the longer time-frame needed to restore woody communities.

The BMPs and design features presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to BLM sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species or habitat avoidance is not infeasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. In such cases, impact minimization and additional mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that are avoided based on the implementation of the BMPs, applicant-committed design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

USFS Sensitive Species

Based on species occurrence data and agency consultation, Goodrich blazingstar and Untermann daisy have been identified within the Alternative II-E 2-mile transmission line corridor. Within this corridor, potential habitat has been identified for the following USFS sensitive species: dainty moonwort, Duchesne greenthread, Goodrich blazingstar, slender moonwort, Untermann daisy, and Wasatch jamesia. The dainty moonwort, Duchesne greenthread, Goodrich blazingstar, and Untermann daisy are listed in the Ashley National Forest. Dainty moonwort is also listed in the Uinta-Wasatch-Cache National Forest along with the Wasatch jamesia. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Potential habitat for the aforementioned species are illustrated in **Figures 3.6-6**, **3.6-7**, **3.6-8**, **3.6-9**, and **3.6-10**.

The majority of the known occurrences for Goodrich blazingstar (Goodrich stickleaf) and Untermann daisy are located almost entirely in the analysis area within the Ashley National Forest. The known occurrences for both species within the 2-mile transmission line corridor are also within the Ashley National Forest and potential habitats for both are quite extensive. Dainty moonwort has only three acres of potential habitat identified within the corridors. Within the analysis area, dainty moonwort is found in wet, marshy, and spring areas around 8,000 feet. The majority of the known occurrences for Duchesne greenthread are located almost entirely in the analysis area within the Ashley National Forest. For Duchesne greenthread, there is approximately 9,500 acres of potential habitat that is extensive in the Alternative II-E 2-mile corridors within the Ashley National Forest. Slender moonwort has 152 acres of potential habitat within the Ashley National Forest. Within the analysis area, slender moonwort is

found above 9,000 feet in riparian and wet areas. Wasatch jamesia has 343 acres of potential habitat identified in the Uinta National Forest. The species occurrences for Wasatch jamesia are located outside of the analysis area.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM, USFS, and Western prior to construction. For the species that are avoided based on the implementation of the WWEC BMPs, and TWE's design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

The WWEC BMPs, and TWE's design features presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to USFS sensitive species habitats. Species-specific surveys within suitable habitats, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-3**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. For the species with limited and dispersed potential habitat (dainty moonwort, slender moonwort, and Wasatch jamesia), impacts are not anticipated. For the species with linear stretches of contiguous habitat paralleling the corridors (Duchesne greenthread, Goodrich blazingstar, and Untermann daisy), total avoidance of habitat is not likely. To minimize impacts to Duchesne greenthread, Goodrich blazingstar, Maguire campion, and Untermann daisy suitable habitats, mitigation measure **SS-10** would be applied. For the areas that cannot be avoided, there would be a loss of suitable habitat for the species. For these species, impacts would be as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

Alternative II-F (Agency Preferred)

Clay Phacelia

Within Alternative II-F 2-mile corridor, there are approximately 2,645 acres of potential habitat for the clay phacelia (**Table 3.6-11** and **Figure 3.6-5**). Based on species occurrence data and agency consultation, clay phacelia individuals or populations have been identified within the Alternative II-F corridor. No critical habitat has been designated for this species. Impacts to the species would be similar as those described for Alternative II-A.

As Alternative II-F coincides with Alternative II-E in this area, potential Project-related impacts to clay phacelia would be the same as those described above for Alternative II-E.

Desert Milkvetch

As Alternative II-F coincides with Alternative II-A through this species' range, the acreage and occurrence data for Deseret milkvetch are the same as those described for Alternative II-A. Potential Project-related impacts to Deseret milkvetch would be the same as those described above for Alternative II-A.

Graham's Penstemon

Within Alternative II-F, there are approximately 18,622 acres of potential habitat for the Graham's penstemon (**Table 3.6-11** and **Figure 3.6-5**). Based on species occurrence data and agency

consultation, Graham's penstemon individuals or populations have been identified within the Alternative II-F corridor. No critical habitat has been designated for this species.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to special status species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (Appendix C), and proposed mitigation **SS-5** and **SS-6**. Based on the limited number of known locations in the Alternative II-F corridor, no direct impacts to Graham's penstemon are anticipated. Total avoidance of potential habitat for this species may not be feasible based on the length of contiguous potential habitat within the 2-mile wide corridors. To minimize impacts to suitable habitat, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Avoidance of the known occurrences and suitable habitat would be difficult if another transmission line was routed in the same corridor as the TWE proposed Project.

Clay Reed-mustard

As Alternative II-F coincides with Alternative II-D through this species' range, the acreage and occurrence data for the clay reed-mustard are the same as those described for Alternative II-D. Potential Project-related impacts to the clay reed-mustard would be the same as those described above for Alternative II-D.

Uinta Basin Hookless Cactus

As Alternative II-F coincides with Alternative II-D through this species' range, the acreage and occurrence data for the Uinta Basin hookless cactus are the same as those described for Alternative II-D. Potential Project-related impacts to the Uinta Basin hookless cactus would be the same as those described above for Alternative II-D.

Federal Species Identified as having Potential Habitat

Within Alternative II-F 2-mile corridor, there is potential habitat identified for shrubby reed-mustard, Ute ladies'-tresses orchid, and White River beardtongue, as presented in **Table 3.6-11** and illustrated in **Figures 3.6-2**, **3.6-3**, and **3.6-4**. Based on species occurrence data and agency consultation, no individuals or populations of these species have been identified within the Alternative II-F corridor. No critical habitat has been designated for these species.

Approximately 108 acres of potential habitat for shrubby reed-mustard; 2,228 acres of potential habitat for Ute ladies'-tresses orchid; and 400 acres of potential habitat for the White River beardtongue were identified within the 2-mile transmission line corridor.

WWEC BMPs, TWE's design features and proposed mitigation presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to special status species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**.

BMP's design features, mitigation measures, and their effects would be similar to those presented for Alternative I-A conclusion; therefore, no impacts to Ute ladies'-tresses orchid and its habitat are anticipated. Reclamation in the habitats associated with shrubby reed-mustard may be difficult due to low reclamation soils, invasive and noxious weeds, and low precipitation. See Section 3.5, Vegetation,

for more detail on reclamation. Based on the small amount of potential habitat for White River beardtongue and shrubby reed-mustard, impacts associated with Alternative II-F are not anticipated for these species.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the Alternative II-F corridor: debris milkvetch, narrowstem gilia, Argyle Canyon phacelia, Barneby's catseye, Neese narrowleaf penstemon, giant fourwing saltbush, Goodrich blazingstar, Graham's penstemon, horseshoe milkvetch, and Duchesne greenthread. Based on a desktop review, potential habitat has been identified for 34 BLM sensitive species within the Alternative II-F corridor. Associated species range and habitat are provided in **Appendix G, Table G-1**.

The BLM sensitive species with known locations and habitat within the Alternative II-F corridor range from species that are found across a wide variety of habitats to those that are only found on very specific soil and vegetation combinations. The habitats include sandy and clay substrates, ridge tops, badlands, steep slopes, barren, and sparsely vegetated areas; shrub and juniper communities, coniferous communities, chaparral, mountain, and mixed and desert shrublands. Impacts to species in habitats with low reclamation potential such as rocky ridgetops, sandy soils, and barren or sparsely vegetated areas, would be greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and woodland communities may take longer due to the longer time-frame needed to restore woody communities.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented to minimize and mitigate any potential impacts to special status species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that can be avoided based on the implementation of the WWEC BMPs, TWE's design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

USFS Sensitive Species

Based on species occurrence data and agency consultation, the Goodrich blazingstar and Duchesne greenthread have been identified within the Alternative II-F 2-mile transmission line corridor. Within this corridor, potential habitat has been identified for the following nine USFS sensitive species: Nevada willowherb, dainty moonwort, slender moonwort, Duchesne greenthread, Goodrich blazingstar, Untermann daisy, Wasatch jamesia, Ward beardtongue, and Sigurd townsendia. The dainty moonwort, Duchesne greenthread, Goodrich blazingstar, and Untermann daisy are listed as sensitive in the Ashley National Forest. Dainty moonwort also is listed as sensitive in the Uinta-Wasatch-Cache National Forest along with the Wasatch jamesia. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Potential habitat for the aforementioned species are illustrated in **Figures 3.6-6**, **3.6-7**, **3.6-8**, **3.6-9**, and **3.6-10**.

The majority of the known occurrences for Goodrich blazingstar (Goodrich stickleaf) and Untermann daisy are located almost entirely in the analysis area within the Ashley National Forest. The known occurrences for both species within the 2-mile transmission line corridor also are within the Ashley National Forest and potential habitats for both species are quite extensive. Dainty moonwort has only 7 acres of potential habitat identified within the corridors. Within the analysis area, dainty moonwort is

found in wet, marshy, and spring areas around 8,000 feet amsl. The majority of the known occurrences for Duchesne greenthread are located almost entirely in the analysis area within the Ashley National Forest. For Duchesne greenthread, there is approximately 3,500 acres of potential habitat in the Alternative II-F 2-mile corridor within the Ashley and Uinta national forests. Slender moonwort has 608 acres of potential habitat within the Ashley National Forest. Within the analysis area, slender moonwort is found above 9,000 feet in riparian and wet areas. Wasatch jamesia has 343 acres of potential habitat identified in the Uinta National Forest. The species occurrences for Wasatch jamesia are located outside of the analysis area. Ward beardtongue has approximately 1,300 acres of fairly contiguous potential habitat in the 2-mile corridor.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to USFS sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation measures **SS-5** and **SS-6**. For the species with limited and dispersed potential habitat (dainty moonwort, slender moonwort, Nevada willowherb, Sigurd townsendia, and Wasatch jamesia), impacts are not anticipated. For the species with linear stretches of contiguous habitat paralleling the corridors (Duchesne greenthread, Untermann daisy, and Ward beardtongue), total avoidance of habitat is not likely. To minimize impacts to Duchesne greenthread, Untermann daisy, and Ward beardtongue suitable habitats, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Impacts would be as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

Along Alternative II-A, three micro-siting options exist in the area of the Strawberry IRA. There are three Federal Species identified as having potential habitat in the micro-siting area, including Barneby ridecress, clay phacelia, and Ute ladies'-tresses orchid. The micro-siting options do not differ from each other or the comparable portion of Alternative II-A in their effects on the three Federal Species' potential habitat. There are also three USFS Sensitive Species identified as having potential habitat in the micro-siting area, including dainty moonwort, slender moonwort, and Wasatch jamesia. The micro-siting options do not differ from each other or the comparable portion of Alternative II-A in their effects on the three USFS Sensitive Species' potential habitat.

Alternative Variation in Region II

Emma Park Alternative Variation

The Emma Park Alternative Variation would reduce impacts on special status species potential habitat compared to Alternative II-F. The Emma Park Alternative Variation would avoid the portions of Alternative II-F that run along the Ashley and Uinta National Forests, therefore completely avoiding potential habitat for five USFS Sensitive Species, including Duchesne greenthread, Goodrich blazingstar, dainty moonwort, slender moonwort, and Untermann daisy, while reducing the acreage impacted for Wasatch jamesia from 77 acres to 18 acres. The Emma Park Alternative Variation would also completely avoid potential habitat for the Federally Listed Graham's penstemon, which intersects 9,545 acres of Alternative II-F.

Alternative Connectors in Region II

Table 3.6-12 summarizes the impacts and advantages/disadvantages associated with the four alternative connectors in Region II based on known occurrences and potential habitat identification within the 2-mile transmission line corridors.

Table 3.6-12 Summary of Region II Alternative Connector Impacts for Special Status Plant Species

Alternative Connector	Analysis	Advantage
Highway 191 Alternative Connector	No known populations or potential habitat for special status plant species.	The advantage of using this alternative connector would include avoidance of special status plant species.
Price Alternative Connector	Potential habitat for two federally listed species (i.e., Wright fishhook cactus [approx. 13 acres] and Last Chance townsendia [approximately 12 acres]) is located within the 2-mile transmission line corridor, and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to two federally listed species.
Castle Dale Alternative Connector	Potential habitat for two federally listed species (i.e., Wright fishhook cactus [approx. 1,450 acres] and Last Chance townsendia [approximately 32 acres]) and seven BLM sensitive species (Creutzfeldt flower, entrada rushpink, Horse Canyon stickleaf, trotter oreoxis, Jones indigo-bush, psoralea globemallow, and Thompson talinum) is located within the 2-mile transmission line corridor, and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to two federally listed species and seven BLM sensitive species.
Lynndyl Alternative Connector	Potential habitat for one federally listed species (i.e., Ute ladies'-tresses orchid [approximately 1 acre]; three USFS sensitive species (i.e., Nevada willowherb [approximately 194 acres], Ward beardtongue [approximately 885 acres], Sigurd townsendia [approximately 344 acres]), and seven BLM sensitive species (*Arabis goodrichii,* Nevada willowherb, giant saltbush, ibex buckwheat, Neese narrowleaf penstemon, Ward beardtongue, and Sigurd townsendia) is located within the 2-mile transmission line corridor, and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to one federally listed species, three USFS sensitive species, and seven BLM sensitive species.
IPP East Alternative Connector	Known populations of the giant fourwing saltbush (BLM sensitive species) are located within the 2-mile transmission line corridor, and could be impacted by Project-related activities. Potential habitat for four BLM sensitive species (*Arabis goodrichii,* giant saltbush, ibex buckwheat, Neese narrowleaf penstemon) is located within the 2-mile transmission line corridor, and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential loss of individuals of one BLM sensitive species and potential habitat disturbance to four BLM sensitive species.

Region II Conclusion

The only known population of Deseret milkvetch is located along the 2-mile corridors for Alternatives II-A, II-E, and II-F. Implementation of **SS-8** would avoid impacts to Deseret milkvetch within the ROW. Indirect impacts to the species could potentially result from fugitive dust and noxious weed impacts. Within the Alternatives II-A, II-E, and II-F 2-mile corridors are located the majority of the known occurrences of clay phacelia. Based on the current reference line, the known locations for the species would be avoided; however, species could be impacted by erosion from construction activities based on its proximity between the main highway and the potential locations for the proposed transmission line. Direct impacts to clay phacelia could occur, especially if another second transmission line is located within the corridor. Predominately, indirect impacts to the species could predominantly result from erosion and sedimentation. Implementation of **SS-5** and **SS-10** would mitigate impacts to the species

through avoidance of known populations of high quality habitat and the implementation of stringent erosion controls.

Within Region II, Alternative II-F has the highest number of known occurrences of federally listed species, while the number of federally listed species with potential habitat is greatest in Alternative II-D and Alternative II-F impact the greatest acreage of potential habitat for federally listed species. Alternative II-C impacts the greatest number of BLM species. Alternative II-A impacts the least number of USFS species and potential habitat.

For species in along Alternatives II-B and II-C, within the San Rafael Swell, reclamation would be difficult and impacts potentially long-term based on the desert environment and poor soils characteristics of the San Rafael Swell.

3.6.6.5 Region III

Table 3.6-13 provides a comparison of impact parameters associated with the alternative routes in Region III based on known occurrences and potential habitat identified within the 2-mile transmission line corridors for special status plant species. Based on species occurrence information and habitat associations, 51 special status plant species may be impacted by the Project in Region III including 46 BLM sensitive species, 2 Forest sensitive species, 5 Nevada state listed species, and 4 federally listed species. To determine the location and spatial extent of potentially suitable habitat for federally listed species within the 2-mile transmission line corridors, a habitat assessment was conducted using ArcGIS and best available GIS datasets based on the habitat characteristics associated with individual species. Selected datasets and species parameters are detailed within the Special Status Species Survey Plan under development. Species occurrence and associated habitats in Region III are provided in **Appendix G**, **Table G-1**.

Table 3.6-13 Summary of Region III Alternative Route Impacts for Special Status Plant Species

Parameter	Alternative III-A	Alternative III-B	Alternative III-C
Federally Listed Species			
Number of species with known occurrences impacted	1	1	1
Number of species with potential habitat impacted	3	2	2
Acreage of critical habitat impacted	--	--	--
Acreage of Las Vegas Buckwheat potential habitat impacted	11,591	4,442	7,088
Acreage of Shivwitz Milkvetch potential habitat impacted	195	0	0
Acreage of Siler Pincushion Cactus potential habitat impacted	2,904	0	0
Acreage of Ute ladies'-tresses orchid potential habitat impacted	0	18	977
BLM Sensitive Species			
Number of species with known occurrences impacted	9	9	7
Number of species with potential habitat impacted	31	38	38
USFS Sensitive Species			
Number of species with known occurrences impacted	1	0	0
Number of species with potential habitat impacted	2	0	0
Acreage of Pinyon Penstemon potential habitat impacted	15,573	0	0
Nevada State Listed Species			
Number of species with known occurrences impacted	3	3	1
Number of species with potential habitat impacted	4	6	6

Alternative III-A (Applicant Proposed)

Las Vegas Buckwheat (Federal Candidate)

Within Alternative III-A, there is approximately 11,591 acres of potential habitat for the Las Vegas buckwheat as presented in **Table 3.6-13** and illustrated in **Figure 3.6-11**. Based on species occurrence data and agency consultation, Las Vegas buckwheat individuals or populations have been identified within the Alternative III-A corridor. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

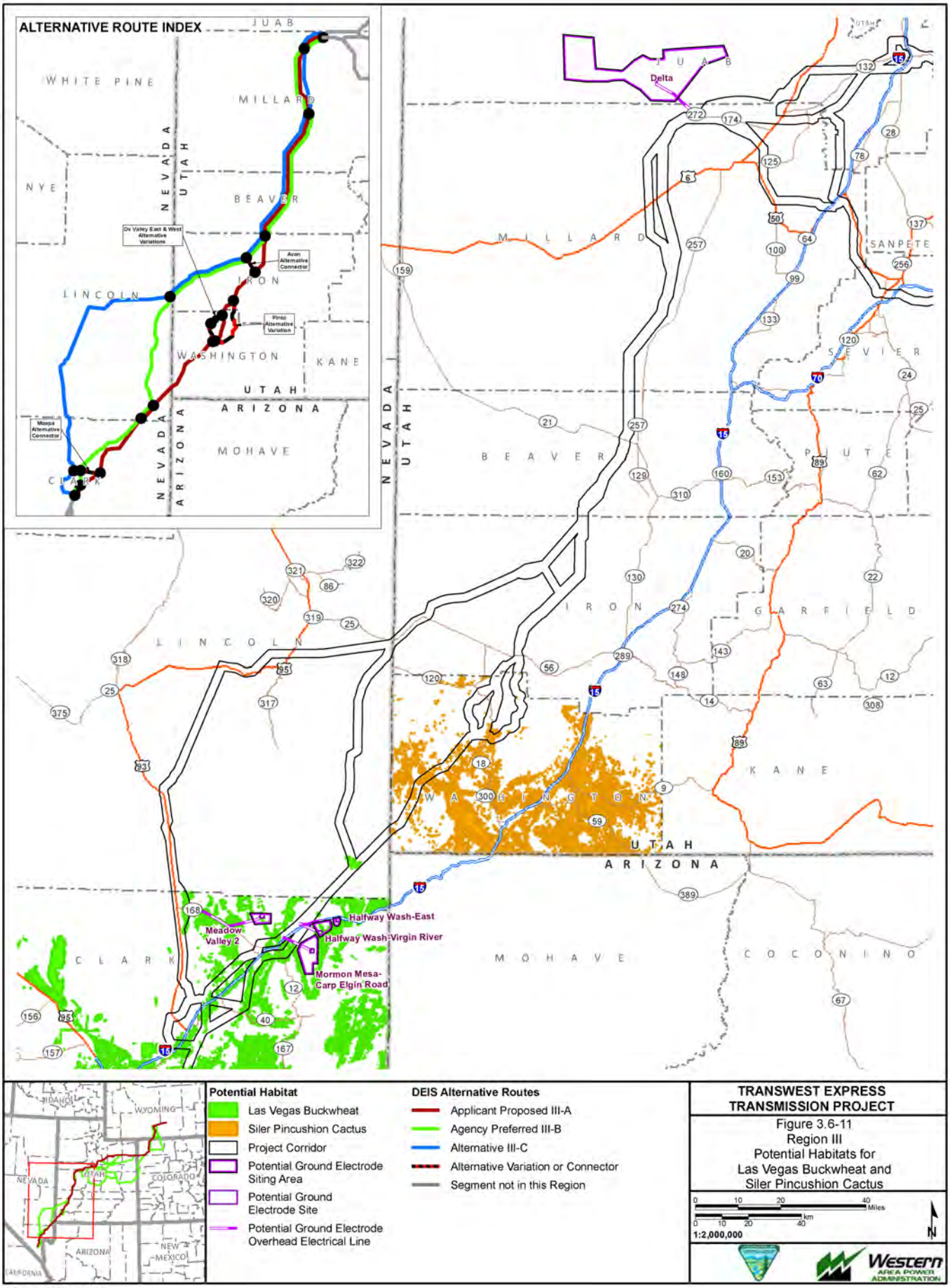
WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4, and proposed mitigation **SS-5** and **SS-6**. Based on the limited occurrence of known locations in Alternative III-A, direct impacts to this species are not anticipated, but the extensive area of potential habitat makes total avoidance of Las Vegas buckwheat habitat unlikely. With implementation of mitigation measures **SS-5** and **SS-10**, in conjunction with mitigation measures **SS-1** and **SS-3**, WWEC BMP's, and TWE's design features, impacts to high quality habitats would be avoided. The areas not avoided would result in loss of suitable habitat for the species. For these areas, impacts would be as described in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

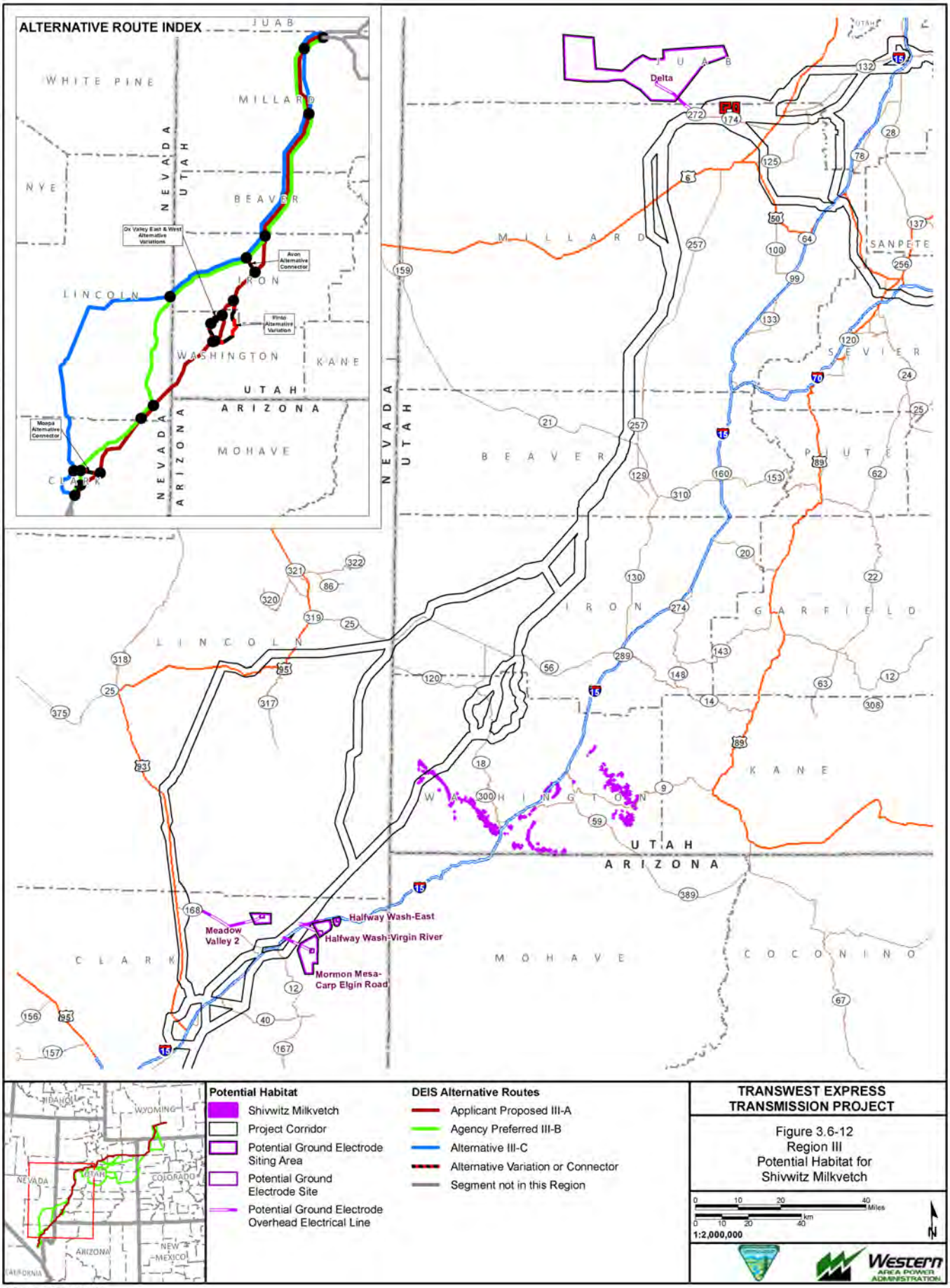
Federal Species Identified as having Potential Habitat

Within Alternative III-A 2-mile corridor, there is potential habitat identified for Shivwitz milkvetch and Siler pincushion cactus as presented in **Table 3.6-13** and illustrated in **Figures 3.6-11** and **3.6-12**. Based on species occurrence data and agency consultation, no individuals or populations of these species have been identified within the Alternative III-A corridor. No critical habitat has been designated for Siler pincushion cactus. Although critical habitat has been designated for the Shivwitz milkvetch, the corridor is located approximately five miles northwest of the closest critical habitat location.

Since no individuals or populations were identified within the 2-mile transmission line corridor, direct impacts to the aforementioned species are not anticipated. If these species are identified during site-specific surveys, impacts would be avoided based on mitigation measure **SS-1**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, and impact minimization and mitigation measures would be developed in consultation with the USFWS, BLM, and Western prior to construction.

To minimize and mitigate impacts to all potential sensitive plant species habitats within the 2-mile transmission line corridors, WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Based on the limited range of both species, and the amount of acreage potential habitat identified for them, no impacts are anticipated for these species under Alternative III-A.


ALTERNATIVE ROUTE INDEX
JUAB
WHITE PINE
MILLARD
NYE
NEVADA
UTAH
BEAVER
Dry Valley East & West Alternative Variations
Avon Alternative Connector
IRON
LINCOLN
Pinto Alternative Variation
WASHINGTON
KANE
UTAH
ARIZONA
Moapa Alternative Connector
MOHAVE
CLARK
Delta
SANPETE
SEVIER
PIUTE
GARFIELD
Halfway Wash-East
Halfway Wash-Virgin River
Meadow Valley 2
Mormon Mesa-Carp Elgin Road
COCONINO
IDAHO
WYOMING
COLORADO
NEW MEXICO
CALIFORNIA
Potential Habitat
Las Vegas Buckwheat
Siler Pincushion Cactus
Project Corridor
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
DEIS Alternative Routes
Applicant Proposed III-A
Agency Preferred III-B
Alternative III-C
Alternative Variation or Connector
Segment not in this Region
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-11
Region III
Potential Habitats for
Las Vegas Buckwheat and
Siler Pincushion Cactus
Miles
km
1:2,000,000
N
Western AREA POWER ADMINISTRATION
Exported On: 6/5/2013



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BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the corridors associated with Alternative III-A: Beaver Dam breadroot, Jones' globemallow, Las Vegas buckwheat, rosy twotone beardtongue, silverleaf sunray, sticky buckwheat, sticky ringstem, pinyon penstemon, and threecorner milkvetch. Based on a desktop review, potential habitat has been identified for 31 BLM sensitive species within the Alternative III-A corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

The BLM sensitive species with known locations and habitat within the corridors vary from species that are found across a wide range of habitats to those that are only found on very specific soil and vegetation combinations. The habitats include wetland and riparian areas, shrub and pinyon-juniper communities, sandy soils, barren, rocky, sparsely vegetated areas, shrub-steppe communities, mountain and mixed desert shrub communities, grasslands, bluffs, cliffs, canyons, dry washes, and volcanic substrates. Impacts to species in habitats with low reclamation potential such as sandy soils, and barren or sparsely vegetated areas, would be greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and pinyon-juniper communities may take longer due to the longer time-frame to restore woody communities.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented to minimize and mitigate any potential impacts to BLM sensitive species habitat.

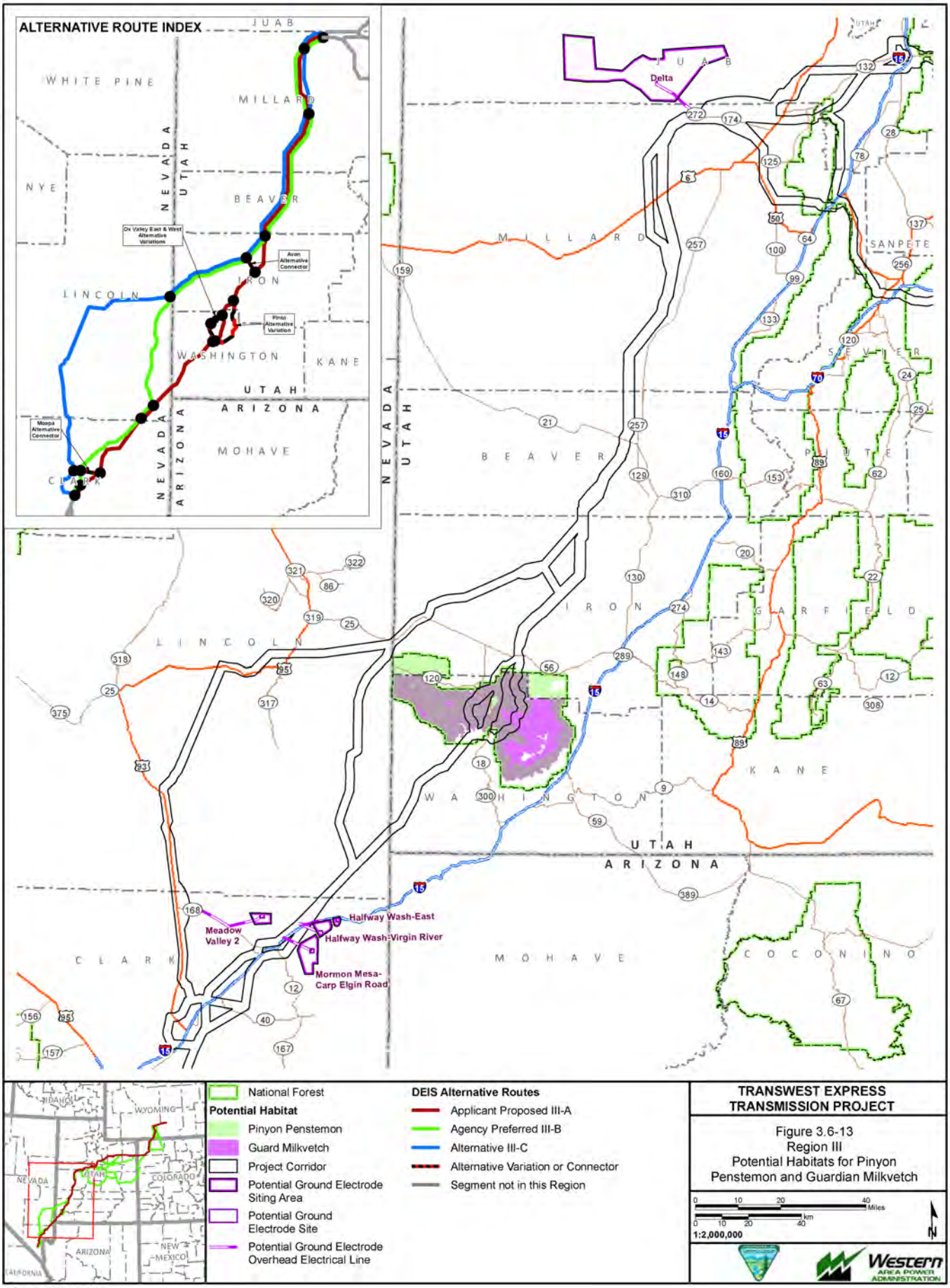
Site- and species-specific surveys within suitable habitat, and subsequent avoidance of documented occurrences, would be conducted through the implementation of mitigation measure **SS-2**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that are avoided based on the implementation of the BMPs, applicant-committed design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

USFS Sensitive Species

Based on species occurrence data and agency consultation, one species, the pinyon penstemon, has been identified within the Alternative III-A corridor. Within Alternative III-A, potential habitat has been identified for pinyon penstemon. Pinyon penstemon is listed in the Dixie National Forest. Associated species range and habitat descriptions for this species is provided in **Appendix G**, **Table G-1**. Potential habitats are illustrated in **Figure 3.6-13**.

Within the analysis area, pinyon penstemon is found entirely in Dixie National Forest. The potential habitat of 15,573 acres is found extensively in large contiguous sections through the corridor for this alternative.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-3**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM, USFS, and Western prior to construction. For the species that are avoided based on the implementation of the BMPs, design features, applicant-committed protection measures, and proposed mitigation measures, direct and indirect impacts are not anticipated.


ALTERNATIVE ROUTE INDEX
WHITE PINE
NYE
MILLARD
BEAVER
LINCOLN
IRON
WASHINGTON
KANE
UTAH
ARIZONA
MOHAVE
CLARK
NEVADA
Dix Valley East & West Alternative Variations
Avon Alternative Connector
Pinto Alternative Variation
Moapa Alternative Connector
Delta
SANPETE
SEVIER
PIUTE
GARFIELD
COCONINO
Meadow Valley 2
Halfway Wash-East
Halfway Wash-Virgin River
Mormon Mesa-Carp Elgin Road
IDAHO
WYOMING
COLORADO
NEW MEXICO
CALIFORNIA
National Forest
Potential Habitat
Pinyon Penstemon
Guard Milkvetch
Project Corridor
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
DEIS Alternative Routes
Applicant Proposed III-A
Agency Preferred III-B
Alternative III-C
Alternative Variation or Connector
Segment not in this Region
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-13
Region III
Potential Habitats for Pinyon Penstemon and Guardian Milkvetch
Miles
km
1:2,000,000
N
Western AREA POWER ADMINISTRATION
Exported On: 6/5/2013

The WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented to minimize and mitigate any potential impacts to USFS sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-3**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. For both species, total avoidance of habitat may not be feasible based on the extensive coverage of the potential habitat within the corridor associated with this Alternative. To minimize impacts to suitable habitats, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species.

Nevada State Listed Species

Based on species occurrence data and agency consultation, the following three Nevada state listed species have been identified within the Alternative III-A corridor: threecorner milkvetch, Las Vegas buckwheat, and sticky buckwheat. Based on a desktop review, potential habitat within the Alternative III-A 2-mile corridor has been identified for the following four Nevada state listed species: Las Vegas bearpoppy, threecorner milkvetch, Las Vegas buckwheat, and sticky buckwheat. Associated species ranges and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

Potential Project-related impacts to State of Nevada-listed sensitive species would be the same as described above for Alternative III-A Las Vegas Buckwheat and Alternative III-A BLM Sensitive Species.

<u>Alternative III-B (Agency Preferred)</u>

Las Vegas Buckwheat (Federal Candidate)

Within Alternative III-B 2-mile corridor, there are approximately 4,442 acres of potential habitat for the Las Vegas buckwheat as presented in **Table 3.6-13** and illustrated in **Figure 3.6-11**. Based on species occurrence data and agency consultation, Las Vegas buckwheat individuals or populations have been identified within the Alternative III-B corridor. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented to minimize and mitigate any potential impacts to sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Based on the location of the potential habitat identified in the corridor for this alternative, and the occurrence of known locations in Alternative II-B, total avoidance of potential habitat for this species may not be feasible. To minimize impacts to suitable habitat, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Impacts would be as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

Federal Species Identified as having Potential Habitat

Within Alternative III-B 2-mile corridor, there is potential habitat identified for Ute ladies'-tresses orchid as presented in **Table 3.6-13**. Based on species occurrence data and agency consultation, no individuals or populations of this species have been identified within the Alternative III-B corridor. No critical habitat has been designated for Ute ladies'-tresses orchid.

Since no individuals or populations were identified within the 2-mile transmission line corridor, direct impacts to the Ute ladies'-tresses are not anticipated. If this species is identified during site-specific

surveys, impacts would be avoided based on mitigation measure **SS-1**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, and impact minimization and mitigation measures would be developed in consultation with the USFS, and Western prior to construction.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the Alternative III-B corridor: Beaver Dam breadroot, Las Vegas buckwheat, pink egg milkvetch, yellow twotone beardtongue, sticky buckwheat, sticky ringstem, threecorner milkvetch, straw milkvetch, and Veyo milkvetch. Based on a desktop review, potential habitat has been identified for 38 BLM sensitive species within the Alternative III-B corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

The BLM sensitive species with known locations and habitat within the Alternative III-B corridor vary from species that are found across a wide range of habitats to those that are only found on very specific soil and vegetation combinations. The habitats include wetland and riparian areas, shrub and conifer communities, sandy soils, barren, rocky, sparsely vegetated areas, badlands, mountain and mixed desert shrub communities, grasslands, bluffs, cliffs, canyons, dry washes, and volcanic substrates. Impacts to species in habitats with low reclamation potential such as sandy soils, and barren or sparsely vegetated areas would be greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and pinyon-juniper communities may take longer due to the longer time-frame to restore woody communities.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to BLM sensitive species habitats.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that are avoided based on the implementation of the WWEC BMPs, design features, and proposed mitigation, direct and indirect impacts are not anticipated.

Nevada State Listed Species

Based on species occurrence data and agency consultation, the following three Nevada state listed species have been identified within the Alternative III-B corridor: Las Vegas buckwheat, pink egg milkvetch, and Veyo milkvetch. Based on a desktop review, potential habitat has been identified in the Alternative III-B 2-mile corridor for the following Nevada state-listed species: Las Vegas bearpoppy, Las Vegas buckwheat, sand cholla, pink egg milkvetch, Ute ladies'-tresses orchid, and Veyo milkvetch, within the Alternative III-B corridor. Sand cholla is protected in the State of Nevada as a Cacti, Yucca, or Christmas Tree species. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Impacts to state-sensitive species under Alternative III-B would be the same as those described above for Alternative III-A for Las Vegas Buckwheat and Alternative III-A for BLM Sensitive Species.

Alternative III-C

Las Vegas Buckwheat (Federal Candidate)

Within Alternative III-C, there are approximately 7,088 acres of potential habitat for the Las Vegas buckwheat as presented in **Table 3.6-13** and illustrated in **Figure 3.6-11**. Based on species occurrence data and agency consultation, Las Vegas buckwheat individuals or populations have been identified within the Alternative III-C corridor. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

To minimize and mitigate impacts to potential habitat WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components would be implemented. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Based on the location of the potential habitat identified in the corridor for this alternative, and the occurrence of known locations in Alternative II-B, total avoidance of potential habitat for this species may not be feasible. To minimize impacts to suitable habitat, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Impacts would be as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

Ute Ladies'-Tresses Orchid (Federally Threatened)

Within Alternative III-C, approximately 977 acres of potential habitat for the Ute ladies'-tresses orchid has been identified based on species-specific modeling as presented in **Table 3.6-13**. Based on species occurrence data and agency consultation, no individuals or populations of this species have been identified within the Alternative III-C corridor. No critical habitat has been designated for Ute ladies'-tresses orchid. Implementation of BMPs, design features, and mitigation measures and associated effects would be similar as presented for Alternative I-A; therefore, no impacts to Ute ladies'-tresses orchid and its associated habitat are anticipated.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following seven species have been identified within the Alternative III-C 2-mile corridor: Las Vegas buckwheat, Needle Mountains milkvetch, pink egg milkvetch, rosy twotone beardtongue, silverleaf sunray, white bearpoppy, and White River catseye. Based on a desktop review, potential habitat has been identified for 38 BLM sensitive species within the Alternative III-C corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

The BLM sensitive species with known locations and habitat within the Alternative III-C 2-mile corridor vary from species that are found across a wide range of habitats to those that are only found on very specific soil and vegetation combinations. The habitats include wetland and riparian areas, shrub and conifer communities, sandy soils, barren, rocky, sparsely vegetated areas, badlands, mountain and mixed desert shrub communities, grasslands, bluffs, cliffs, canyons, dry washes, and volcanic substrates. Impacts to species in habitats with low reclamation potential such as sandy soils, and barren or sparsely vegetated areas would be greater due to the difficulties in reclaiming these areas to pre-disturbance conditions. Reclamation in shrub and pinyon-juniper communities may take longer due to the longer time-frame to restore woody communities.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to BLM sensitive species habitats.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that are avoided based on the implementation of the WWEC BMPs, design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

Nevada State Listed Species

Based on species occurrence data and agency consultation, the only Nevada state listed species that has been identified within the Alternative III-C 2-mile corridor is the Las Vegas buckwheat. Based on a desktop review, potential habitat has been identified in the Alternative III-C 2-mile corridor for the following six Nevada state listed species: Las Vegas bearpoppy, Las Vegas buckwheat, sand cholla, sticky buckwheat, Ute ladies'-tresses orchid, and threecorner milkvetch. Sand cholla is protected in the State of Nevada as a Cacti, Yucca, or Christmas Tree species. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

Potential Project-related impacts would be the same as those described above under Alternative III-A for Las Vegas Buckwheat and under Alternative III-A for BLM Sensitive Species.

Alternative Variations in Region III

Table 3.6-14 provides a comparison of impact parameters associated with the alternative variations in Region III based on known occurrences and potential habitat identification within the 2-mile transmission line corridors. Based on species occurrence information and habitat associations, five special status plant species may be impacted by the Project in Region III including three BLM sensitive species, one Forest sensitive species, and one federally listed species. **Figures 3.6-11** and **3.6-13** illustrate the potential habitats for the one federally listed and one Forest sensitive species associated with the Region III alternative variations.

Table 3.6-14 Summary of Region III Alternative Variation Impacts for Special Status Plant Species

Parameter	Ox Valley East Alternative Variation (Alternative III-A)	Comparable Portions of Alternative III-A	Ox Valley West Alternative Variation (Alternative III-A)	Comparable Portions of Alternative III-A	Pinto Alternative Variation (Alternative III-A)	Comparable Portions of Alternative III-A
Federally Listed Species						
Number of species with known occurrences impacted[1]	0	0	0	0	0	0
Number of species with potential habitat impacted [1]	0	1	0	1	1	1
Acreage of critical habitat impacted	N/A	N/A	N/A	N/A	N/A	N/A
Acreage of Siler Pincushion Cactus potential habitat impacted[1]	0	60	0	60	407	60

Table 3.6-14 Summary of Region III Alternative Variation Impacts for Special Status Plant Species

Parameter	Ox Valley East Alternative Variation (Alternative III-A)	Comparable Portions of Alternative III-A	Ox Valley West Alternative Variation (Alternative III-A)	Comparable Portions of Alternative III-A	Pinto Alternative Variation (Alternative III-A)	Comparable Portions of Alternative III-A
BLM Sensitive Species						
Number of species with known occurrences impacted[1]	0	0	0	0	0	1
Number of species with potential habitat impacted[1]	2	2	2	2	3	3
USFS Sensitive Species						
Number of species with known occurrences impacted[1]	0	0	0	0	0	1
Number of species with potential habitat impacted	1	1	1	1	1	1
Acreage of Pinyon Penstemon potential habitat impacted	9,140	12,115	5,404	12,115	16,650	15,373
Nevada State Listed Species						
Number of species with known occurrences impacted	0	0	0	0	0	0
Number of species with potential habitat impacted	0	0	0	0	0	0

Alternative Connectors in Region III

Table 3.6-15 summarizes the impacts and advantages/disadvantages associated with the two alternative connectors in Region III based on known occurrences and potential habitat identification within the 2-mile transmission line corridors.

Alternative Ground Electrode Systems in Region III

The southern electrode system would be required within 100 miles of the southern terminal, which is based on the conceptual locations and connections to the alternative routes. **Table 3.6-16** provides a comparison of impact parameters associated with the alternative ground electrodes in Region III based on known occurrences and potential habitat identification within the ground electrode system siting areas. Based on species occurrence information and habitat associations, 15 BLM sensitive species and three Nevada state listed species may be impacted by the Project in Region III.

Table 3.6-15 Summary of Region III Alternative Connector Impacts for Special Status Plant Species

Alternative Connector	Analysis	Advantage
Avon Alternative Connector	No special status plant species or their associated habitats are present within the 2-mile transmission line corridor.	No impacts to special status plant species or their associated habitats are anticipated.

Table 3.6-15 Summary of Region III Alternative Connector Impacts for Special Status Plant Species

Alternative Connector	Analysis	Advantage
Moapa Alternative Connector	• Known populations of the threecorner milkvetch (BLM sensitive and NV-State listed), silverleaf sunray (BLM sensitive), sticky buckwheat (BLM sensitive and Nevada state listed), and Schlesser pincushion (BLM sensitive) are located within the 2-mile transmission line corridor, and could be impacted by Project- related activities. • Potential habitat for one federally listed species (Las Vegas buckwheat [approximately 1,472 acres]); fourteen BLM sensitive species (Las Vegas buckwheat, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, straw milkvetch, white bearpoppy, black woollypod, threecorner milkvetch, alkali mariposa lily, Gold Butte moss, sticky buckwheat, rosy twotone beardtongue, parish phacelia, and Schlesser pincushion); and four Nevada state listed species (Las Vegas buckwheat, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) are located within the 2-mile transmission line corridor, and could be impacted by Project-related activities. **Figure 3.6-11** illustrates the potential habitat for the Las Vegas buckwheat.	The disadvantage of using this alternative connector would include potential loss of individuals of four BLM sensitive species and two Nevada state listed species and potential habitat disturbance to one federally listed species, fourteen BLM sensitive species, and four Nevada state listed species.

Table 3.6-16 Summary of Region III Alternative Ground Electrode Impacts for Special Status Plant Species

Alternative Ground Electrode System Locations	Analysis
Mormon Mesa-Carp Elgin Rd (Alternatives III-A and III-B)	• No impacts to federally listed species and their associated habitats would occur based on lack of documented occurrences and suitable habitat. • Known populations of the Beaver Dam breadroot (BLM sensitive species) and the threecorner milkvetch (BLM sensitive species and State listed species) are located within the ground electrode system siting areas, and could be impacted by Project-related activities. • Potential habitat for 15 BLM sensitive species (sticky ringstem, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, straw milkvetch, white bearpoppy, black woollypod, threecorner milkvetch, Mokiak milkvetch, alkali mariposa lily, Gold Butte moss, sticky buckwheat, yellow twotone beardtongue, rosy twotone beardtongue, and parish phacelia) and three Nevada state listed species (Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) is located within the ground electrode system siting areas, and could be impacted by Project-related activities.

Table 3.6-16 Summary of Region III Alternative Ground Electrode Impacts for Special Status Plant Species

Alternative Ground Electrode System Locations	Analysis
Halfway Wash-Virgin River (Alternatives III-A and III-B)	• No impacts to federally listed species and their associated habitats would occur based on lack of documented occurrences and suitable habitat. • No impacts to BLM sensitive and Nevada state listed species would occur based on lack of documented occurrences. • Potential habitat for 15 BLM sensitive species (sticky ringstem, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, straw milkvetch, white bearpoppy, black woollypod, threecorner milkvetch, Mokiak milkvetch, alkali mariposa lily, Gold Butte moss, sticky buckwheat, yellow twotone beardtongue, rosy twotone beardtongue, and parish phacelia) and 3 Nevada state listed species (Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) is located within the ground electrode system siting areas, and could be impacted by Project-related activities.
Halfway Wash East (Alternatives III-A and III-B)	• No impacts to federally listed species and their associated habitats would occur based on lack of documented occurrences and suitable habitat. • No impacts to BLM sensitive and Nevada state listed species would occur based on lack of documented occurrences. • Potential habitat for 15 BLM sensitive species (sticky ringstem, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, straw milkvetch, white bearpoppy, black woollypod, threecorner milkvetch, Mokiak milkvetch, alkali mariposa lily, Gold Butte moss, sticky buckwheat, yellow twotone beardtongue, rosy twotone beardtongue, and parish phacelia) and 3 Nevada state listed species (Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) is located within the ground electrode system siting areas, and could be impacted by Project-related activities.
Meadow Valley 2 (Alternative III-C)	• No impacts to federally listed species and their associated habitats would occur based on lack of documented occurrences and suitable habitat. • No impacts to BLM sensitive and Nevada state listed species would occur based on lack of documented occurrences. • Potential habitat for 15 BLM sensitive species (sticky ringstem, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, straw milkvetch, white bearpoppy, black woollypod, threecorner milkvetch, Mokiak milkvetch, alkali mariposa lily, Gold Butte moss, sticky buckwheat, yellow twotone beardtongue, rosy twotone beardtongue, and parish phacelia) and 3 Nevada state listed species (Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) is located within the ground electrode system siting areas, and could be impacted by Project-related activities.
Delta (Design Option 2) (All Alternatives)	• No impacts to federally listed species and their associated habitats would occur based on lack of documented occurrences and suitable habitat. • Known populations of the ibex buckwheat (BLM sensitive species) are located within the ground electrode system siting area, and could be impacted by Project-related activities. • Potential habitat for four BLM sensitive species (Arabis goodrichii, giant fourwing saltbush, ibex buckwheat, and Neese narrowleaf penstemon is located within the ground electrode system siting area, and could be impacted by Project-related activities.

Region III Conclusion

Within Region III, Alternative III-A would impact the greatest amount of potential habitat for federally listed species and all alternatives would impact known federally listed species populations equally. Alternatives III-B and III-C would impact the greatest number of BLM species; Alternative III-A would impact the greatest number of USFS species and potential habitat. Alternatives III-B and III-C do not have any impacts to USFS species. Alternative III-B impacts the greatest number of Nevada state-listed species populations.

3.6.6.6 Region IV

Table 3.6-17 provides a comparison of impact parameters associated with the alternative routes in Region IV based on known occurrences and potential habitat identified within the 2-mile transmission line corridors for special status plant species. Based on species occurrence information and habitat associations, 20 special status plant species may be impacted by the Project in Region IV including 18 BLM sensitive species, five Nevada state listed species, 8 NPS-Lake Mead NRA sensitive species, and one federally listed species. To determine the location and spatial extent of potentially suitable habitat for federally listed species within the 2-mile transmission line corridors, a habitat assessment was conducted using ArcGIS and best available GIS datasets based on the habitat characteristics associated with individual species. Selected datasets and species parameters are detailed within the Special Status Species Survey Plan under development. Species occurrence and associated habitats in Region IV are provided in **Appendix G**, **Table G-1**.

Table 3.6-17 Summary of Region IV Alternative Route Impacts for Special Status Plant Species

Parameter	Alternative IV-A	Alternative IV-B	Alternative IV-C
Federally Listed Species			
Number of species with known occurrences impacted	0	0	0
Number of species with potential habitat impacted	1	1	1
Acreage of critical habitat impacted	--	--	--
Acreage of Las Vegas Buckwheat potential habitat impacted	7,308	2,636	6,569
BLM Sensitive Species			
Number of species with known occurrences impacted	4	3	2
Number of species with potential habitat impacted	19	18	16
NPS Lake Mead NRA Sensitive Species			
Number of species with known occurrences impacted	0	2	2
Number of species with potential habitat impacted	0	2	2
Nevada State Listed Species			
Number of species with known occurrences impacted	1	1	1
Number of species with potential habitat impacted	5	5	5

Alternative IV-A (Applicant Proposed and Agency Preferred)

Las Vegas Buckwheat (Federal Candidate)

Within Alternative IV-A, there is approximately 7,308 acres of potential habitat for the Las Vegas buckwheat as presented in **Table 3.6-17** and illustrated in **Figure 3.6-14**. Based on species occurrence data and agency consultation, no Las Vegas buckwheat individuals or populations have been identified within the Alternative IV-A corridor. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

WWEC BMPs, TWE design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Because Alternative IV-A parallels sensitive species habitat, total avoidance of this species may not be feasible. To minimize impacts to suitable habitat, mitigation measure **SS-10** would be applied. The areas not avoided would result in loss of suitable habitat for the species. Impacts would be as described in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

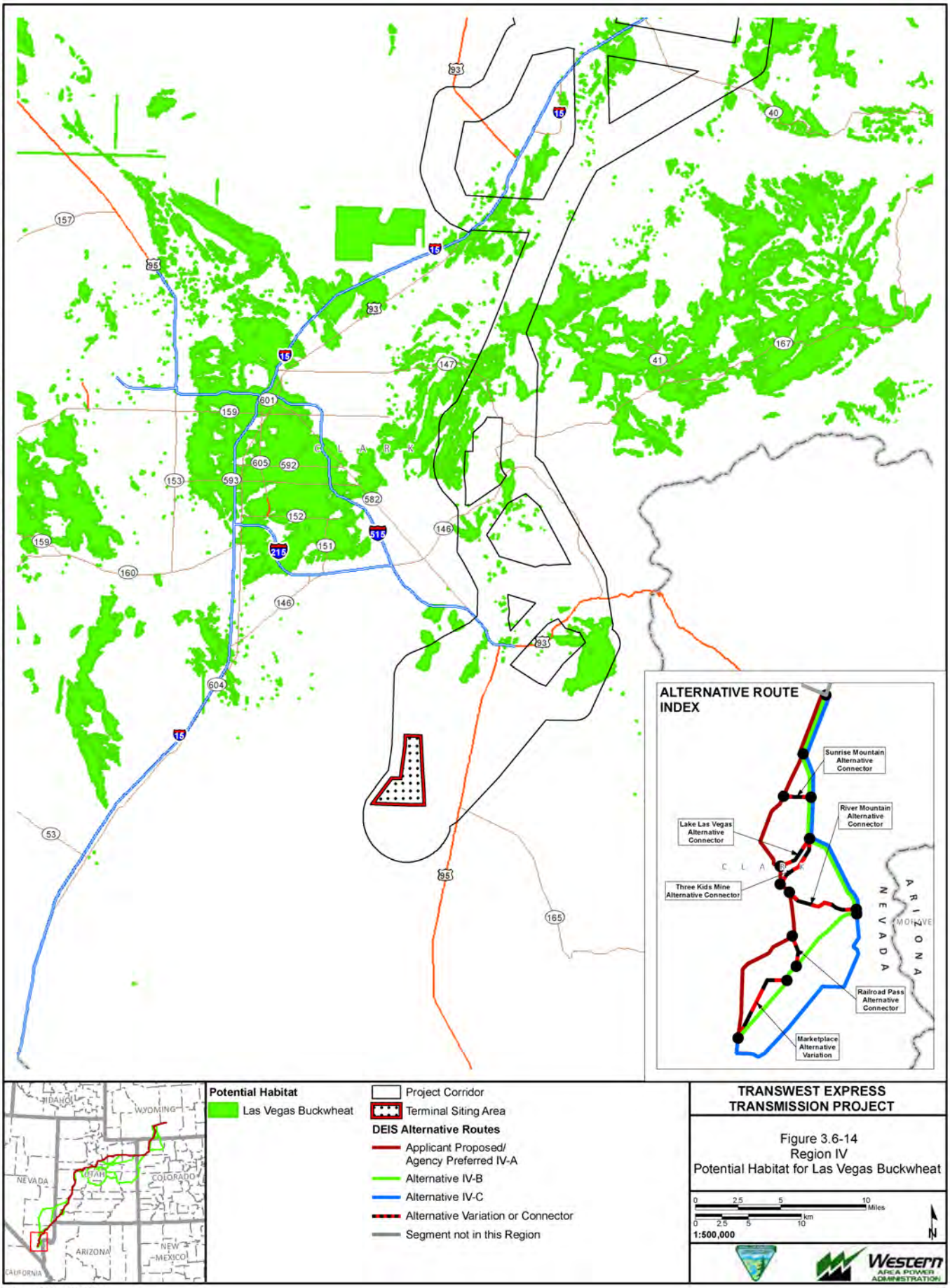
BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the Alternative IV-A corridor: Las Vegas bearpoppy, silverleaf sunray, sticky ringstem, and rosy twotone beardtongue. Based on a desktop review, potential habitat has been identified for 19 BLM sensitive species within the corridors associated with Alternative IV-A. Associated species ranges and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**.

The BLM sensitive species with known locations and habitat within the Alternative IV-A 2-mile corridor range from species that are found across a wide variety of habitats to those that are only found on very specific soil and vegetation combinations. The habitats include wetland and riparian areas, sandy soils, barren, rocky, sparsely vegetated areas, badlands, bluffs, cliffs, canyons, dry washes, and volcanic substrates. Impacts to species in habitats with low reclamation potential such as sandy soils, and barren, sparsely vegetated areas would be greater due to the difficulties in reclaiming these areas to pre-disturbance conditions.

WWEC BMPs, design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to BLM sensitive species habitat.

Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. If species avoidance is not feasible, impacts would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. Additional impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction. For the species that are avoided based on the implementation of the WWEC BMPs, design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.



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Nevada State Listed Species

Based on species occurrence data and agency consultation, one Nevada State-listed sensitive species, the Las Vegas bearpoppy, has been identified within the Alternative IV-A corridor. Potential habitat has been identified in the Alternative IV-A 2-mile corridor for the following five Nevada state-listed species: Las Vegas bearpoppy, Las Vegas buckwheat, Las Vegas catseye, sticky buckwheat, and threecorner milkvetch. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**.

Impacts to state-listed sensitive species would be the same as described under Alternative IV-A for Las Vegas Buckwheat and under Alternative IV-A for BLM Sensitive Species.

Alternative IV-B

Las Vegas Buckwheat (Federal Candidate)

Within Alternative IV-B, there are approximately 2,636 acres of potential habitat for the Las Vegas buckwheat as presented in **Table 3.6-17** and illustrated in **Figure 3.6-14**. Based on species occurrence data and agency consultation, no Las Vegas buckwheat individuals or populations have been identified within the Alternative IV-B corridor. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

The WWEC BMPs, TWE design features, and proposed mitigation as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components, would be implemented to minimize and mitigate any potential impacts to sensitive species habitat. Species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the results of the surveys, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**), and proposed mitigation **SS-5** and **SS-6**. Based on the location of the one area of potential habitat within the Alternative IV-A 2-mile corridor, impacts are not anticipated for Las Vegas buckwheat under this alternative. The areas not avoided would result in loss of suitable habitat for the species.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following species have been identified within the Alternative IV-B corridor: Las Vegas bearpoppy, rosy twotone beardtongue, and silverleaf sunray. Based on a desktop review, potential habitat has been identified for 18 BLM sensitive species within the Alternative IV-B corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Based on the similarity in vegetative communities and species impacted, potential Project-related impacts to the Las Vegas bearpoppy and silverleaf sunray would be the same as described above for Alternative IV-A.

Nevada State Listed Species

Based on species occurrence data and agency consultation, one species, the Las Vegas bearpoppy, has been identified within the Alternative IV-B corridor. Potential habitat has been identified for the following five Nevada state-listed species: Las Vegas bearpoppy, Las Vegas buckwheat, Las Vegas catseye, sticky buckwheat, and threecorner milkvetch within the Alternative IV-B corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts to state-listed sensitive species under Alternative IV-B would be the same as described above for Alternative IV-A Las Vegas Buckwheat and Alternative IV-A BLM Sensitive Species.

National Park Service Sensitive Species

Based on species occurrence data and agency consultation, two species, the Las Vegas bearpoppy, and silverleaf sunray, have been identified within the Alternative IV-B corridor. Based on a desktop

review, potential habitat has been identified for two National Park Service sensitive species within the Alternative IV-B corridor. Associated species ranges and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts to NPS-listed sensitive species under Alternative IV-B would be the same as described above for Alternative IV-A BLM Sensitive Species.

Alternative IV-C

Las Vegas Buckwheat (Federal Candidate)

Within the Alternative IV-C 2-mile corridor, there are approximately 6,569 acres of potential habitat for the Las Vegas buckwheat as presented in **Table 3.6-17** and illustrated in **Figure 3.6-14**. Based on species occurrence data and agency consultation, Las Vegas buckwheat individuals or populations have been identified within the Alternative IV-C corridor. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

The BMPs and design features presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate any potential impacts to sensitive species habitat. TWE's applicant-committed protection measures ECO-1 and ECO-4 (**Appendix C**) would avoid suitable, sensitive-species habitats during Project design and implementation. Site and species-specific surveys within suitable habitat, and subsequent species avoidance, would be conducted through the implementation of mitigation measure **SS-1**. Based on the location of the potential habitat with the corridor for this alternative, impacts to Las Vegas buckwheat are not anticipated under this alternative.

BLM Sensitive Species

Based on species occurrence data and agency consultation, two species, the Las Vegas bearpoppy and the silverleaf sunray, have been identified within Alternative IV-C corridor. Based on a desktop review, potential habitat has been identified for 16 BLM sensitive species within the Alternative IV-C corridor. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Based on the similarity in vegetative communities and species impacted, impacts to BLM-listed sensitive species would be the same as described above for Alternative IV-A.

Nevada State Listed Species

Based on species occurrence data and agency consultation, one species, the Las Vegas bearpoppy, has been identified within the Alternative IV-C 2-mile corridor. Potential habitat has been identified in this alternative for the following five Nevada state-listed species: Las Vegas bearpoppy, Las Vegas buckwheat, Las Vegas catseye, sticky buckwheat, and threecorner milkvetch. Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Impacts to Nevada state-listed sensitive species under Alternative IV-C would be the same as described above for Alternative IV-A Las Vegas Buckwheat and Alternative IV-A BLM Sensitive Species.

National Park Service Sensitive Species

Based on species occurrence data and agency consultation, two species, the Las Vegas bearpoppy and silverleaf sunray, have been identified within the Alternative IV-C corridor. Based on a desktop review, potential habitat has been identified for these two National Park Service sensitive species within the Alternative IV-C corridor. Associated range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Impacts to National Park Service sensitive species would be the same as described above for Alternative IV-A BLM Sensitive Species.

Alternative Variations in Region IV

Table 3.6-18 provides a comparison of impact parameters associated with the alternative variations in Region IV based on known occurrences and potential habitat for special status plant species identified within the 2-mile transmission line corridors. Based on species occurrence information and habitat

associations, 14 special status plant species may be impacted by the Project in Region IV including one federally listed species (Las Vegas buckwheat), 13 BLM sensitive species, and five state listed species.

Table 3.6-18 Summary of Region IV Alternative Variation Impacts for Special Status Species

Parameter	Marketplace Alternative Variation (Alternative IV-B)	Comparable Portions of Alternative IV-B
Federally Listed Species		
Number of species with known occurrences impacted	0	0
Number of species with potential habitat impacted	0	0
Acreage of critical habitat impacted	N/A	N/A
Acreage of Las Vegas buckwheat potential habitat impacted	87	0
BLM Sensitive Species		
Number of species with known occurrences impacted	0	0
Number of species with potential habitat impacted	13	13
NPS Lake Mead NRA Sensitive Species		
Number of species with known occurrences impacted	0	0
Number of species with potential habitat impacted	0	0
Nevada State Listed Species		
Number of species with known occurrences impacted	0	0
Number of species with potential habitat impacted	5	5

Alternative Connectors in Region IV

Table 3.6-19 summarizes the impacts and advantages/disadvantages associated with the five alternative connectors in Region IV based on known occurrences and potential habitat identification within the 2-mile transmission line corridors.

Table 3.6-19 Summary of Region IV Alternative Connector Impacts for Special Status Species

Alternative Connector	Analysis	Impact Conclusion
Sunrise Mountain Alternative Connector	Potential habitat for one federally listed species (Las Vegas buckwheat [approximately 240 acres]); six NPS-Lake Mead NRA sensitive species (Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, threecorner milkvetch, sticky buckwheat, and rosy twotone beardtongue); 15 BLM sensitive species (Las Vegas buckwheat, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, straw milkvetch, white bearpoppy, black woollypod, threecorner milkvetch, alkali mariposa lily, Gold Butte moss, sticky buckwheat, catchfly gentian, rosy twotone beardtongue, parish phacelia, and St. George blue-eyed grass); and five Nevada state listed species (Las Vegas buckwheat, Las Vegas bearpoppy, threecorner milkvetch, Las Vegas catseye, and sticky buckwheat) is located within the 2-mile transmission line corridor, and could be impacted by Project-related activities. **Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat. Known populations of the silverleaf sunray (NPS-Lake Mead NRA and BLM sensitive species) are located within the 2-mile transmission line corridor, and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential loss of individuals of one NPS-Lake Mead NRA sensitive species and one BLM sensitive species and potential habitat disturbance to one federally listed species, six NPS-Lake Mead NRA sensitive species, 15 BLM sensitive species, and five Nevada state listed species.

Table 3.6-19 Summary of Region IV Alternative Connector Impacts for Special Status Species

Alternative Connector	Analysis	Impact Conclusion
Lake Las Vegas Alternative Connector	Potential habitat for one federally listed species (Las Vegas buckwheat [approximately 337 acres]); five NPS-Lake Mead NRA sensitive species (Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, threecorner milkvetch, and rosy twotone beardtongue); 14 BLM sensitive species (Las Vegas buckwheat, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, straw milkvetch, white bearpoppy, black woollypod, threecorner milkvetch, alkali mariposa lily, Gold Butte moss, catchfly gentian, sticky buckwheat, rosy twotone beardtongue, and parish phacelia); and four Nevada state listed species is located within the 2-mile transmission line corridor, and could be impacted by Project-related activities. **Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat. Known populations of the silverleaf sunray (NPS-Lake Mead NRA and BLM sensitive species) and Las Vegas bearpoppy (NPS-Lake Mead NRA and BLM sensitive species, and Nevada State listed species) are located within the 2-mile transmission line corridor, and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential loss of individuals of two NPS-Lake Mead NRA sensitive species, two BLM sensitive species, and one Nevada state listed species and potential habitat disturbance to one federally listed species, five NPS-Lake Mead sensitive species, 14 BLM sensitive species, and four Nevada state listed species.
Three Kids Mine Alternative Connector	Potential habitat for one federally listed species (i.e., Las Vegas buckwheat [approximately 399 acres]); six NPS-Lake Mead NRA sensitive species (Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, threecorner milkvetch, sticky buckwheat, and rosy twotone beardtongue), 14 BLM sensitive species (Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, straw milkvetch, white bearpoppy, black woollypod, threecorner milkvetch, Las Vegas buckwheat, alkali mariposa lily, Gold Butte moss, sticky buckwheat, catchfly gentian, rosy twotone beardtongue, and parish phacelia); and five Nevada state listed species (Las Vegas bearpoppy, threecorner milkvetch, Las Vegas catseye, Las Vegas buckwheat, and sticky buckwheat) is located within the 2-mile transmission line corridor, and could be impacted by Project-related activities. **Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat. Known populations of the silverleaf sunray (NPS-Lake Mead NRA and BLM sensitive species), and Las Vegas bearpoppy (NPS-Lake Mead NRA sensitive, BLM sensitive species, and Nevada State listed species) are located within the 2-mile transmission line corridor, and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential loss of individuals from two NPS-Lake Mead NRA sensitive species, two BLM sensitive species, and one Nevada state listed species and potential habitat disturbance to one federally listed species, six NPS-Lake Mead sensitive species, 14 BLM sensitive species, and five Nevada state listed species.
River Mountain Alternative Connector	Potential habitat for one federally listed species (i.e., Las Vegas buckwheat [approximately 30 acres]); six NPS-Lake Mead NRA sensitive species (Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, threecorner milkvetch, sticky buckwheat, and rosy twotone beardtongue); 14 BLM sensitive species (Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, white bearpoppy, black woollypod, threecorner milkvetch, alkali mariposa lily, Gold Butte moss, Las Vegas buckwheat, sticky buckwheat, catchfly gentian, white-margined beardtongue, rosy twotone beardtongue, and parish phacelia); and five Nevada state listed species (Las Vegas bearpoppy, threecorner milkvetch, Las Vegas catseye, Las Vegas buckwheat, sticky buckwheat) is located within the 2-mile transmission line corridor, and could be impacted by Project-related activities. **Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat. Known populations of the rosy twotone beardtongue (BLM sensitive species) are located within the 2-mile transmission line corridor, and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential loss of individuals from one BLM sensitive species and potential habitat disturbance to one federally listed species, six NPS-Lake Mead sensitive species, 14 BLM sensitive species, and five Nevada state listed species.

Table 3.6-19 Summary of Region IV Alternative Connector Impacts for Special Status Species

Alternative Connector	Analysis	Impact Conclusion
Railroad Pass Alternative Pass	Potential habitat for one federally listed species (i.e., Las Vegas buckwheat [approximately 130 acres]); seven NPS-Lake Mead NRA sensitive species (Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, threecorner milkvetch, Mokiak milkvetch, sticky buckwheat, and rosy twotone beardtongue); 13 BLM sensitive species (Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, white bearpoppy, black woollypod, threecorner milkvetch, Mokiak milkvetch, alkali mariposa lily, Gold Butte moss, Las Vegas buckwheat, sticky buckwheat, rosy twotone beardtongue, and parish phacelia); and five Nevada state listed species (Las Vegas buckwheat, Las Vegas bearpoppy, threecorner milkvetch, Las Vegas catseye, sticky buckwheat) is located within the 2-mile corridor, and could be impacted by Project-related activities. **Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat.	The disadvantage of using this alternative connector would include potential habitat disturbance to one federally listed species, seven NPS-Lake Mead sensitive species, 13 BLM sensitive species, and five Nevada state listed species.

Region IV Conclusion

Within Region IV, impacts to federally listed, and BLM, Nevada state listed species are fairly consistent between alternatives. Impacts to Lake Mead NRA sensitive species are found only in Alternatives IV-B and IV-C.

3.6.6.7 Impacts to Special Status Plant Species from the No Action Alternative

Under the No Action Alternative, the proposed Project would not be constructed or operated. The analysis area would exist under current authorizations and land uses (e.g., livestock grazing, agriculture, energy development, mining, etc.). Therefore, impacts to special status plant species associated with the development of the Project would not occur.

3.6.6.8 Residual Impacts

If species or habitat avoidance is not feasible due to physical, biological, or engineering constraints, the loss of those species and/or habitats would be a residual impact. Residual impacts would also result from indirect impacts such as fragmentation of suitable habitats, and establishment of noxious weeds and invasive species into previously undisturbed areas as a result of permanent placement of facilities and access roads. Depending on the length of time for construction, and the reclamation success, pollinators that are also rare or specific to a certain special status plant species could be impacted by the Project.

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.

3.6.6.9 Irreversible and Irretrievable Commitment of Resources

All potential operation impacts to special status habitats within the 2-mile transmission line corridor would be irretrievable until transmission line decommissioning, after which time all land uses could be reclaimed. However, reclamation activities may have limited success in areas with poor soils, some vegetation communities would take years to reestablish, and some areas may never return to their

former vegetation cover and composition. As such, these impacts may represent an irreversible commitment of special status plant resources. Additionally, any fragmentation of native habitats and subservient establishment of noxious weeds and invasive species, resulting in the conversion of native plant communities that could not be reclaimed to pre-construction conditions after transmission line decommissioning these impacts would be considered irreversible.

3.6.6.10 Relationship Between Local Short-term Uses and Long-term Productivity

Long-term impacts to special status plant species include the disturbance of suitable habitat that may require extended time (10 to 100 years) for recovery, the potential for weedy annual species such as halogeton and cheatgrass to become established in localized areas increasing competition on special status plant species, the loss of species-specific pollinators, and the conversion of native habitats.