3.6 Special Status Plant Species

This section provides an overview of special status plant species for the Project including regulatory background, data sources, analysis area, and baseline conditions. Additionally, this section analyzes impacts from the construction, operation, maintenance, and decommissioning of the Project.

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. Species that are proposed for federal listing or candidates also are included in the analysis. In addition, there are state protected plant lists for Nevada (NAC 527.010) that include many of the BLM and Forest 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);
- 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 Project 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 HUC10 watershed boundaries (as defined in Section 3.4.3) crossed by the refined transmission corridor for all alternatives and locations of other Project components including terminals and ground electrode sites.

3.6.4 Baseline Description

In total, 281 special status plant species were evaluated for potential occurrence within the refined transmission corridors and the area in which roads or temporary work areas may be located. These species, their associated habitats, and potential for occurrence within and around the refined transmission corridors 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, 127 special status plant species have been carried forward in detailed analysis in the EIS and 154 special status plant species have been eliminated from detailed analysis in the EIS. The rationale for species eliminated from detailed analysis and species carried forward in detailed analysis is provided in **Appendix G**, **Table G-1**. 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.

For the purposes of this analysis, 'potential habitat' includes areas within the geographic range of each species that has been identified as potentially having habitat characteristics based on a desktop analysis of GIS data for the area or habitat suitability modeling. 'Suitable habitat' is defined as an area that has been field-verified to meet species-specific habitat characteristics.

3.6.4.1 Federally Listed, Candidate, and Proposed Plant Species

Shivwitz Milkvetch (*Astragalus ampullarioides*) – 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, ORV use, grazing, displacement by invasive plants, and mineral development (USFWS 2012-2010). 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 (Utah Native Plant Society [UNPS] 2015; 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, Utah. Within the analysis area, Shivwitz milkvetch is only known in two locations. The remaining known occurrences for this species are east of the analysis area. The species has been documented approximately 5 miles southeast of the refined transmission corridor for Alternative III-A in Washington County, Utah (Region III). 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 2012-2010).

Deseret Milkvetch (*Astragalus desereticus*) – Federally Threatened

The Deseret milkvetch, a perennial herb, was listed as threatened under the ESA on October 20, 1999 (USFWS 2012-2010). 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 2012-2010). 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, USFWS 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 are greater than previously thought (USFWS 2011).

The species has been documented within the refined transmission corridor for Alternatives II-A, II-E, II-F, and II-G in Utah County, Utah (Region II). 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 2012-2010). The species is found in desert shrub, 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 2015).

The Jones cycladenia is an endemic of the Chinle, Cutler, and Summerville formations within Emery, Garfield, Grand, and Kane counties, Utah (UNPS 2015). Jones cycladenia is found in the southern portions of the analysis area in Emery and Grand counties, Utah in Region II. 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, with the closest documented occurrences located approximately 10 miles southwest of the refined transmission corridor for Alternatives II-B and II-C in Emery County, Utah. Critical habitat has not been designated for this species (USFWS 2012-2010).

Las Vegas Buckwheat (*Eriogonum corymbosum* var. *nilesii*) – Former Federal Candidate; Current BLM Sensitive

The Las Vegas buckwheat, a perennial subshrub, was designated a candidate for federal listing under the ESA on December 6, 2007 (USFWS 2012-2010). It was a candidate for listing under the ESA but, in a 12-month finding published in September 2014, listing was found to be unwarranted (79 FR 57034). Although Las Vegas buckwheat is no longer a candidate species, it retains its status as a BLM-designated sensitive species. 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 in Region III. The bulk of the known occurrences are found west of the analysis area. The species has been documented within the refined transmission corridor for Alternatives III-B and III-D in Lincoln County, Nevada, and adjacent to multiple refined transmission corridors in Clark County, Nevada. Since this species is listed as a federal candidate, critical habitat has not been designated for this species (USFWS 2012-2010).

Barneby Ridgecress (*Lepidium barnebyanum*) – Federally Endangered

The Barneby ridgecress, a perennial herb, was listed as endangered under the ESA on September 28, 1990 (USFWS 2012-2010). 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 in northeastern Utah (Region II) (USFWS 1993). The species is not found outside the analysis area. This species has been documented adjacent to the refined transmission corridor for Alternatives II-A, II-E, and II-G 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, in Region II; the rest of the known occurrences are found south of the analysis area, predominantly in Emery County, Utah. The species has been documented adjacent to the refined transmission 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, ORV use, over-collection from both private and commercial interests, and trampling by grazing livestock (58 FR 68476; NatureServe 2012; Phillips 1986; USFWS 1986). 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 1986). 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 1986). 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 1986). 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 27 miles southeast of the refined transmission corridor for Alternative III-A in Washington County, Utah in Region III. 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, within Region II. The majority of the species' known locations are found south of the analysis area. The species has been documented approximately 2.5 miles east of the refined transmission corridor for Alternative II-C in Emery County, Utah. Critical habitat has not been designated for this species.

Graham's Penstemon (*Penstemon grahamii*) – Former Federally Proposed; Current BLM Sensitive

The Graham's penstemon was proposed for listing as threatened pursuant to the ESA on August 6, 2013 (78 FR 47590). On August 6, 2014, the proposed rule to list this species was withdrawn due to the USFWS conclusion that the threats to the species were not as significant as previously thought and new information regarding current and future threats and conservation efforts (79 FR 46042). Although Graham's penstemon is no longer considered a proposed threatened species, it retains its status as a BLM-designated sensitive species. 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 (USFWS 2013). 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 2015).

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 located in southern Uintah County within Region II. The species has not been documented within the refined transmission corridor for Alternatives II-A, II-B, II-C, II-D, II-E, II-F, and II-G within Uintah and Duchesne counties, Utah. On August 6, 2013, the USFWS proposed approximately 67,959 acres for designation as critical habitat for the species in Duchesne and Uintah counties, Utah, and Rio Blanco County, Colorado. The closest proposed critical habitat parcel is located within the area in which road or temporary work areas may be located associated with Alternatives II-D or II-F in Uintah County, Utah (USFWS 2013).

White River Beardtongue (*Penstemon scariosus* var. *albifluvis*) – Former Federal Proposed; Current BLM Sensitive

The White River beardtongue was proposed for listing as threatened pursuant to the ESA on August 6, 2013 (78 FR 47590). On August 6, 2014, the proposed rule to list this species was

withdrawn due to the USFWS conclusion that the threats to the species were not as significant as previously thought and new information regarding current and future threats and conservation efforts (79 FR 46042). Although White River beardtongue is no longer considered a proposed threatened species, it retains its status as a BLM-designated sensitive speciesDue 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 (USFWS 2013). Habitat loss and fragmentation has the potential to result in reduced seed and pollen dispersal leading to a reduced beardtongue population. 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 2012a,b).

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 in Region II. The species has been documented approximately 7 miles west of the refined transmission corridor for Alternatives II-B and II-C in Rio Blanco County, Colorado and approximately 5 miles southeast of the refined transmission corridor for Alternatives II-D and II-F in Uintah County, Utah. On August 6, 2013, the USFWS proposed approximately 14,914 acres for designation as critical habitat for the species in Duchesne and Uintah counties, Utah and Rio Blanco County, Colorado.

Clay Phacelia (*Phacelia argillacea*) – Federally Endangered

The clay phacelia, a biennial, was listed as endangered pursuant to the ESA on June 28, 1978 (43 FR 44810), due to effects from climactic changes and 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 in central Utah within Region II (UDWR 2012-2010). The species has been documented within, and immediately adjacent to, the refined transmission corridor for Alternatives II-A, II-E, and II-F in Utah County, Utah. Critical habitat has not been designated for this species.

Western Prairie Fringed Orchid (*Platanthera praeclara*) – Federally Threatened

Western prairie fringed orchid was listed as threatened pursuant to the ESA on September 28, 1989 (54 FR 39857 39863). The western prairie fringed orchid is a perennial orchid of the North American tall grass prairie that occurs on wet mesic sub-irrigated prairies and sedge meadows along the floodplain of the Platte River. Although this species does not occur in any of the Project regions, it is included in the analysis due to the potential effects of construction water use in Wyoming on habitat in the Platte River in Nebraska. Alterations to the peak flows of the Platte River have facilitated the

conversion of most low-lying areas near the river from grassland to intensive agriculture (Sidle and Faenes 1997). Thus, little habitat remains that is suitable for the fringed orchid along the Platte River. While the North Platte River does not provide habitat for this species, their habitat in the lower Platte River in Nebraska is sensitive to reductions in flows during critical periods as defined by the USFWS (Platte River Recovery Implementation Program 2006), and a large portion of these flows come from the North and South Platte rivers in Wyoming and Colorado.

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 development (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 2012-2010; UNPS 2015). 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 in Region II. 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 2012-2010; UNPS 2015). The species is known to occur in northeastern Utah and has been documented within, and immediately adjacent to, the refined transmission corridor for Alternatives II-D and II-F in Uintah 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 2012-2010). 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 2015). 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 2015), within the Region II analysis area. No known occurrences occur outside of the analysis area. The species has been documented approximately 1.5 miles south of the refined transmission corridor for Alternatives II-D and II-F in Duchesne County, Utah, and approximately 6 miles south of the refined transmission corridor for Alternatives II-D and II-F in Uintah County, Utah. Critical habitat has not been designated for this species (USFWS 2012-2010).

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 2010). 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 2010). 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 2010). The species has been documented within and adjacent to the refined transmission corridor in Region II for Alternatives II-B and II-C in Mesa County, Colorado. 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 2011). Populations are found between 4,500 to 6,600 feet amsl, flowering between April and 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 dense known concentrations of cacti (BLM 2012). 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 Region II 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 County, Utah, and immediately adjacent to the refined transmission 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. The species has been documented in Region II approximately 4 miles southeast of the refined transmission corridor for Alternative II-C in Emery County and approximately 6 miles south of the refined transmission 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, loss or fragmentation of habitat as a result of noxious weed species invasion, and shifts in the species-dependent 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 2012-2010). 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 2012-2010).

Habitat for Ute ladies'-tresses orchid is found in central and northeastern Utah, northwestern Colorado, eastern Nevada, and southeastern Wyoming (USFWS 2012-2010). The species has been documented in wetland and riparian areas within Alternatives II-A II-E in Duchesne and Wasatch counties, Utah. Known occurrences are within approximately 1,500 feet of the refined transmission corridor for Alternatives II-A, II-E, and II-G within Duchesne and Uintah counties. Known occurrences of the species are found within approximately 5,500 feet of the refined transmission corridor for Alternatives II-D and II-F in Uintah County. Although the species is known to occur in Nevada, neither occurances nor modelled potential habitat falls within the analysis area in Region IV. 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 and 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 and 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 I-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, 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 refined transmission corridor in Region II 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, proposed for listing, and candidate species, a total of 113 BLM sensitive, Forest sensitive, NPS sensitive, or Nevada state-listed species potentially occur within the refined transmission corridor or other Project disturbance areas. 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 Fire Warden (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
123	13	77	48	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, southwest 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 refined transmission 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]
Debris milkvetch	*Astragalus detritalis*	BLM-CO
Meadow milkvetch	*Astragalus diversifolius*	BLM-WY
Duchesne milkvetch	*Astragalus duchesnensis*	BLM-CO
Nelson's milkvetch	*Astragalus nelsonianus*	BLM-CO
Trelease's milkvetch	*Astragalus racemosus* var. *treleasei*	BLM-WY
Tufted cryptantha	*Cryptantha caespitosa*	BLM-CO
Uinta Basin springparsley	*Cymopterus duchesnensis*	BLM-CO
Single-stemmed wild buckwheat	*Eriogonum acaule*	BLM-CO
Woodside buckwheat	*Eriogonum tumulosum*	BLM-CO
Colorado feverfew	*Parthenium ligulatum*	BLM-CO
Gibbens penstemon (Gibbens beardtongue)	*Penstemon gibbensii*	BLM-WY, BLM-CO, BLM-UT

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

Common Name	Scientific Name	Status[1]
Ute ladies'-tresses orchid	*Spiranthes diluvialis*	FT (CO, UT, WY)
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 refined transmission 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
Jones' blue star	*Amsonia jonesii*	BLM-CO
Link Trail columbine	*Aquilegia flavescens* var. *rubicunda*	USFS-Manti-La Sal National Forest
Utah columbine	*Aquilegia scopulorum* var. *goodrichii*	BLM-UT
Goodrich eared rockcress	*Arabis goodrichii*	BLM-UT
Bicknell milkvetch	*Astragalus consobrinus*	USFS-Fishlake National Forest
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*	BLM-UT
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 National Forest, USFS-Uinta-Wasatch-Cache National Forest, BLM-NV
Slender moonwort	*Botrychium lineare*	USFS-Ashley National Forest, USFS-Uinta-Wasatch-Cache National Forest
Barneby's catseye	*Cryptantha barnebyi*	BLM-UT
Tufted cryptantha	*Cryptantha caespitosa*	BLM-CO
Creutzfeldt-flower	*Cryptantha creutzfeldtii*	USFS-Manti-La Sal National Forest, BLM-UT
Graham's catseye	*Cryptantha grahamii*	BLM-UT

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

Common Name	Scientific Name	Status[1]
Rollins cryptantha	*Cryptantha rollinsii*	BLM-CO
Jones cycladenia	*Cycladenia humilis* var. *jonesii (Cycladenia jonesii)*	FT (UT)
Uinta Basin springparsley	*Cymopterus duchesnensis*	BLM-CO
Nevada willowherb	*Epilobium nevadense*	USFS-Fishlake National Forest, BLM-UT, BLM-NV
Carrington daisy	*Erigeron carringtonae*	USFS-Manti-La Sal National Forest
Maguire daisy	*Erigeron maguirei*	USFS-Fishlake National Forest, BLM-UT
Untermann daisy	*Erigeron untermannii*	USFS-Ashley National Forest, BLM-UT
Single-stemmed wild buckwheat	*Eriogonum acaule*	BLM-CO
Elsinore buckwheat	*Eriogonum batemanii* var. *ostlundii*	USFS-Fishlake National Forest
Unknown	*Eriogonum brevicaule* var. *mitophyllum*	BLM-UT
Grand buckwheat	*Eriogonum contortum*	BLM-CO
Ibex buckwheat	*Eriogonum 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 stenothyrsa*	BLM-CO
Canyon sweetvetch	*Hedysarum occidentale* var. *canone*	USFS-Manti-La Sal National Forest
Wasatch jamesia	*Jamesia americana* var. *macrocalyx*	USFS-Uinta-Wasatch-Cache National Forest
Barneby ridgecress	*Lepidium barnebyanum*	FE (UT)
Entrada rushpink	*Lygodesmia entrada*	BLM-UT
Pioche blazingstar	*Mentzelia argillicola*	BLM-NV, BLM-UT
Goodrich blazingstar (Goodrich stickleaf)	*Mentzelia goodrichii*	USFS-Ashley National Forest, BLM-UT
Horse Canyon stickleaf	*Mentzelia multicaulis* var. *librina*	BLM-UT
Shultz stickleaf	*Mentzelia shultziorum*	BLM-UT
Trotter oreoxis	*Oreoxis trotteri*	BLM-UT
Colorado 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*	BLM-CO, BLM-UT
White River beardtongue (White River penstemon)	*Penstemon scariosus (Penstemon scariosus* var. *albifluvis)*	BLM-UT
Ward beardtongue	*Penstemon wardii*	BLM-UT, USFS-Fishlake National Forest
Clay phacelia	*Phacelia argillacea*	FE (UT)
Argyle Canyon phacelia	*Phacelia argylensis*	BLM-UT
Utah phacelia	*Phacelia utahensis*	BLM-UT

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

Common Name	Scientific Name	Status[1]
Jones indigo-bush	*Psorothamnus polydenius* var. *jonesii (Psorothamnus nummularious)*	BLM-UT
Arizona willow	*Salix arizonica*	USFS-Dixie National Forest, USFS-Fishlake National Forest, USFS-Manti-La Sal National Forest
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 National Forest, USFS-Fishlake National Forest, USFS-Manti-La Sal National Forest
Psoralea globemallow	*Sphaeralcea psoraloides*	BLM-UT
Ute ladies'-tresses orchid	*Spiranthes diluvialis*	FT (CO, UT, WY, BLM-NV, NV State CE
Thompson talinum	*Phemeranthus thompsonii*	BLM-UT
Duchesne greenthread (Caespitose greenthread)	*Thelesperma caespitosum (Thelesperma caespitosa)*	USFS-Ashley National Forest, BLM-UT
Last Chance townsendia	*Townsendia aprica*	FT (UT)
Sigurd townsendia (Sevier townsendia)	*Townsendia jonesii* var. *lutea*	BLM-UT, USFS-Fishlake National Forest
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; FP – Federally Proposed; BLM = BLM Sensitive; USFS = Forest Sensitive; NV State CE = NV State Critically Endangered.

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 becoming 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 refined transmission 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
Goodrich eared rockcress	*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
Shivwitz milkvetch	*Astragalus ampullarioides*	FE (UT)
Torrey milkvetch	*Astragalus calycosus* var. *monophyllidius*	BLM-NV

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

Common Name	Scientific Name	Status[1]
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. *hemigyrus*	BLM-NV
Mokiak milkvetch	*Astragalus mokiacensis*	NPS-Lake Mead NRA, BLM-NV
Pink egg milkvetch (Long-calyx eggvetch)	*Astragalus oophorus* var. *lonchocalyx*	BLM-UT
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
Gold Butte moss	*Didymodon nevadensis*	BLM-NV
Silverleaf sunray	*Enceliopsis argophlla*	NPS-Lake Mead NRA, BLM-NV
Nevada willowherb	*Epilobium nevadense*	USFS–Fishlake National Forest; BLM UT
Antelope Canyon goldenbush	*Ericameria cervina*	BLM-NV
Las Vegas buckwheat	*Eriogonum corymbosum* var. *nilesii*	BLM-NV, NV State CE#
Ibex buckwheat	*Eriogonum 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
Pioche blazingstar	*Mentzelia argillicola*	BLM-NV, BLM-UT
Polished blazingstar	*Mentzelia polita*	BLM-NV
Sand cholla	*Opuntia pulchella (Grusonia pulchella)*	BLM-NV, 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, NV State CE#
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
Pinyon penstemon	*Penstemon pinorum*	USFS-Dixie National Forest, BLM-UT
Parry petalonyx	*Petalonyx parryi*	BLM-UT
Parish phacelia	*Phacelia parishii*	BLM-NV
Blaine pincushion	*Sclerocactus blainei*	BLM-NV
Schlesser pincushion	*Sclerocactus schlesseri*	BLM-NV
St. George blue-eyed grass	*Sisyrinchium radicatum*	BLM-NV

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

Common Name	Scientific Name	Status[1]
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 refined transmission 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
Threecorner milkvetch	*Astragalus geyeri* var. *triquetrus*	NPS-Lake Mead NRA, NV State CE, BLM-NV
Straw milkvetch	*Astragalus lentiginosus* var. *stramineus*	BLM-NV
Halfring milkvetch	*Astragalus mohavensis* var. *hemigyrus*	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*	BLM-NV, NV State CE#
Sticky buckwheat	*Eriogonu m viscidulum*	NPS-Lake Mead NRA, NV State CE, BLM-NV
Polished blazingstar	*Mentzelia polita*	BLM-NV
Beaver Dam breadroot	*Pediomelum castoreum*	NPS-Lake Mead NRA, BLM-NV
White-margined beardtongue	*Penstemon albomarginatus*	BLM-NV, NV State CE#
Yellow twotone beardtongue	*Penstemon bicolor* ssp. *bicolor*	BLM-NV
Rosy twotone beardtongue	*Penstemon bicolor* ssp. *roseus*	NPS-Lake Mead NRA, BLM-NV
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 HUC10 watershed boundaries crossed by the refined transmission corridor. For the impacts discussion, the focus is on the impacts resulting from construction and operation activities that would occur within the refined transmission corridor and temporary work areas. The 250-foot-wide transmission line ROW would be located within the refined transmission corridor. Associated access roads would be located within the ROW and the refined transmission corridor wherever possible. Some temporary construction facilities and temporary and permanent access roads may be located outside of the refined transmission corridor; however, they would be the only surface disturbing activities that would occur there and they would be confined to within approximately 1 mile from each side of the preliminary engineered alignment (see **Figure 2-8**). Exact locations have not been defined at this time; however, conservative estimates of impacts for these facilities and access roads are disclosed for individual habitat areas. Locations for any other permanent surface facilities located outside of the 1-mile distance from the alignment, including terminals and electrode beds, are identified by component and impacts.

Occurrence potential for federally listed and USFS Sensitive Species was determined based on habitat models either provided by the regulatory agencies or developed based on species required habitat characteristics. All habitat models used for the impact analysis were approved by the appropriate regulatory agencies. For BLM Sensitive Species, NPS sensitive, or Nevada state-listed species, occurrence potential within the analysis area was evaluated for each plant species based on habitat requirements (including associated geological formations, soil substrates, vegetation communities, and elevation range) and known distribution. Selected datasets and species parameters are detailed within the Final Special Status Species Survey Plan. Special status plant species that were identified as potentially occurring within the analysis area were carried forward for impact analysis.

The USFS has a 15 percent impact threshold for any Forest Sensitive plant species. If a footprint of a project were to affect more than 15 percent of individuals for Forest Sensitive or MIS, it would trigger implementation of design features and/or special construction techniques, micro-siting, and/or minor reroutes that would reduce impacts below the 15 percent threshold. Impacts to each Forest Sensitive potential habitat per Forest is discussed in the following sections.

The special status plant species carried forward in this analysis include the following: 19 federally listed species, 98 BLM sensitive species, 19 Forest sensitive species, 7 NPS-Lake Mead NRA sensitive species, and 8 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 analysis area are listed in **Table 3.6-6**. To evaluate impacts on special status species, potential impacts were identified based on the locations of these resources in relation to the proposed surface disturbance areas. To determine acres of federally listed and USFS Sensitive Species habitat disturbed by the Project, the known locations of proposed surface disturbances have been overlain on the habitat areas to determine the amount of acreage disturbed for each species using GIS as described in the introduction to Chapter 3.0. For terminal and ground electrode facilities, 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 included 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 evaluated impacts in the context of the range of the species within the refined transmission corridors, facility footprints, and the area in which road or temporary work areas may be located.

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 evaluated 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 evaluated 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 evaluated 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 evaluated 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 evaluated 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 evaluated indirect effects associated with potential loss of pollinators due to fugitive dust emissions, herbicide application and drift, loss of alternative pollen/nectar plants, 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 habitat suitability modeling results) within the analysis area for federally listed and Forest sensitive plant species potentially impacted by the Project.
- Acreage of critical habitat within the analysis area for federally listed species potentially impacted by the Project.
- The presence of known individuals or populations within the analysis area for all special status plant species carried forward in detailed analysis that could be potentially impacted by the Project.
- The presence of potential habitat (based on preliminary desktop analysis) within the analysis area for BLM sensitive, NPS-Lake Mead NRA sensitive, and Nevada state-listed plant species potentially impacted by the Project.
- Presence of species whose range is limited to within or directly adjacent to the refined transmission 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 impacts of concern remain after application of BMPs and design features, additional mitigation measures are recommended to reduce impacts.

The impacts analysis for special status plant species assumes that the USFWS will continue to have jurisdiction over the management of federally endangered, threatened, and proposed 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 FSM 2670. The NPS will continue to manage NPS sensitive species in accordance with the Lake Mead General Management Plan (NPS 1986) and the Lake Mead NRA Lake Management Plan

(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. The habitat analysis is presented herein using the methodology approach described in Chapter 3.0, given that site-specific disturbance locations and exact locations of suitable habitat (i.e., ground-verified potential habitat locations) are unknown.

Northern Terminal

Direct 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. 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. Potential habitat exists for one BLM Sensitive Species.

Based on species-specific habitat associations, potentially suitable habitats could be directly impacted as a result of construction. 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.

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)**
Trelease's milkvetch	*Astragalus racemosus* var. *treleasei*	BLM-WY	N	Y	N	N

[1] Status: BLM = BLM Sensitive.

[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 Alternate Site would be located.

Indirect effects associated with construction of the Northern Terminal 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 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 TransWest's POD (**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-6 – Implementation of an Access Road Plan;
- TWE-12 – Minimization of surface disturbance in areas where soils and vegetation are sensitive to disturbance;
- TWE-13 – Restoration of temporary work areas;
- TWE-14 – Construction of borrow pits;
- TWE-19 – Implementation of an Erosion Control Plan;
- TWE-26 – Implementation of a Vegetation Management Plan and Noxious Weed Management Plan;
- TWE-29 – Implementation of a Biological Protection Plan; and
- TWE-47 – Implementation of a Dust Control and Air Quality 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, 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; VEG-3 – Pesticide use stipulations; SOIL-1 – Topsoil salvage;
- SOIL-2 – Minimize the creation of excessive slopes;
- WAT-10 – Minimize stream crossings;
- WAT-11 – Implement erosion controls at drainage crossings; and
- REST-1 – Topsoil salvage, seeding with weed-free, native seeds, and restoring pre-development contours.

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. Examples 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 or 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) – Species requiring surveys would be identified by the BLM and Western in consultation with the appropriate agency. For the species that are identified as requiring surveys, site- and species-specific surveys would be conducted. The timing and methodology of the surveys would be determined by the BLM in consultation with the appropriate agency and the Applicant. Surveys would be conducted in areas identified as potential habitat through models developed for the EIS or from agency-provided models for specific species. 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 be developed in consultation with the appropriate agency and BLM. Species-specific mitigation may include compensatory mitigation and transplanting of individuals. For federally listed species, the species-specific mitigation would be identified as conservation measures in the BA. For USFS Sensitive species, field surveys of sensitive plant species may be required to delineate the entire contiguous patch or population of species intersected by the 250-foot-wide transmission line ROW (not just those plants that fall within the 250-foot-wide transmission line ROW) and species-specific mitigation would be described in the BE.*

SS-2*: (Avoidance of Ute Ladies'-tresses Orchid Species and Habitat) – Known individuals and populations and areas identified as suitable 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 suitable habitat or as having known occurrences. A minimum 300-foot buffer distance would be incorporated between known occurrences and surface disturbance. Presence of species in modeled habitat would be assumed for ESA Section 7 consultation purposes. If potential habitat cannot be avoided, 2 years of surveys in potential habitat would be required and formal consultation may be necessary.*

SS-3*: Construction would occur downslope of special status plants and populations where feasible. If surface disturbance must be sited upslope, 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. Additional buffer distances greater than the minimum 300-foot buffer distance described in measure* ***SS-4*** *may be required.*

SS-4*: A minimum 300-foot buffer distance would be established between federally listed individuals, field verified suitable habitat, populations and surface disturbance. Avoidance areas would be visible during construction through fencing, signing, rebar, etc. Construction and operation traffic would stay on designated routes and other cleared or approved areas.*

SS-5*: The Dust Control and Air Quality Plan would include dust abatement measures to minimize impacts to special status plant species, including use of slower speed limits on unpaved roads, gravel on roads in occupied habitat and avoidance areas, and the application of water for dust abatement.*

Effectiveness: With implementation of mitigation measure **SS-1**, in addition to TransWest'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 infeasible, 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-2**, which would avoid surface disturbance in Ute ladies'-tresses orchid modeled habitat, in addition to WWEC BMPs and Project design features, no impacts to Ute ladies'-tresses orchid individuals or their associated habitats would be anticipated. With implementation of mitigation measure **SS-3**, erosion and sedimentation impacts to special status species would be minimized through Project design, avoidance buffers, and erosion controls. Implementation of mitigation measure **SS-4** would minimize impacts to federally listed individuals and populations through the use

of avoidance buffers. Implementation of mitigation measure **SS-5** would mitigate impacts to special status species resulting from fugitive dust.

Southern Terminal

There are two sites proposed for the Southern Terminal (Southern Terminal and Southern Terminal Alternate). 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 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, the ground electrode system, and the series compensation station would be similar to impacts described in Section 3.6.6.1, Impacts from Terminal Construction and Operation.

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, refined transmission corridors, ancillary facility footprints, and the area in which road or temporary work areas may be located. Within the 250-foot-wide transmission line ROW and refined transmission corridors, surface disturbances would consist of ROW clearing in preparation for transmission structure installation and vegetation removal and blading to facilitate the construction of temporary and permanent aboveground and belowground ancillary facilities. Surface-disturbing activities outside of the refined transmission corridors would be limited to development and maintenance of access roads and temporary work areas.

Surface disturbances resulting from construction activities 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 analyses are presented herein using the methodology approach described in Chapter 3.0. Further, it is assumed that any known occurrences or potential habitat crossed by the refined transmission corridors 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 stream 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 also can affect upland special status plant species. Erosion and sedimentation effects could affect special status species outside the refined transmission corridors 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 pathways (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 refined transmission 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, 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 TransWest's POD (**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, soil 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 limited revegetation potential soils in this area.

The implementation of BMPs and design features would be the same as described under Section 3.6.6.1, Impacts from Terminal Construction and Operation.

Operation Impacts

The discussion of operation impacts includes maintenance activities for the transmission line. Direct 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 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, pollinator host plant species, and activities such as mowing and trimming of woody vegetation. All vegetation management BMPs concerning herbicide application and Special Status Plant Species would be followed per land management agency (such as the USFS's requirement of no aerial application within 500 feet of known plant sites with hand-only application methods allowed). 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. In addition, the following mitigation measure for special status plant species is proposed:

SS-6*: Prior to vegetation management activities, including vegetation removal, herbicide use, and ORV access, within federally listed occupied habitat, the applicant will coordinate with the USFWS and BLM to minimize impacts to federally listed and candidate species.*

Effectiveness: Implementation of mitigation measure **SS-6** would mitigate impacts to special status species resulting from vegetation management.

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

Based on species occurrence information and habitat associations, the special status plant species that may be impacted by the Project in Region I include 1 federally listed species and 12 BLM sensitive species (**Table 3.6-2**). Species occurrence, range, and habitat information in Region I is provided in **Appendix G**, **Table G-1**. **Table 3.6-8** summarizes disturbance acreages of Ute ladies'-

tresses orchid modelled habitat impacted in Region I. This disturbance is less than 1 percent across all alternatives. **Table 3.6-9** provides known occurrence and potential habitat qualification of BLM sensitive species analyzed in Region I.The western prairie fringed orchid occurs in the lower Platte River system in Nebraska. This area is located a considerable distance downstream of any construction or operation disturbance areas in Wyoming, and so these activities would not have a direct effect on this species. Compliance with the Platte River Recovery Implementation Program (PRRIP) would require that water use in the Platte River Basin be evaluated to determine the potential effects of water depletions on Platte River federally listed species and their critical habitats. If the proposed water-related activity would deplete more than 0.1 acre-feet in the Platte River system and would rely on surface water or hydrologically connected groundwater, an evaluation is required by the Wyoming State Engineer to determine whether the water use is a new or existing activity. If the activity is considered an existing water-related activity, the State Coordinator would determine whether any further action is required to be covered by the PRRIP. If further actions are required, a Wyoming Platte River Recovery Agreement would be executed between the water user and the Wyoming State Engineer.

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

Table 3.6-8 provides acreages of federally listed plant species potentially impacted by the alternative routes in Region I. To determine the locations and spatial extent of potentially suitable habitats for BLM sensitive species within Region I, a desktop habitat assessment was conducted based on species-specific habitat parameters. **Table 3.6-9** provides known occurrence and qualification of potential habitat of BLM sensitive species potentially impacted by Region I.

Table 3.6-8 Summary of Region I Alternative Route Impacts for Federally Listed Plant Species

Species	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
Ute ladies'-tresses orchid: 51,334 acres *				
Clearing/Trampling (acres)	11	11	52	25
Construction Disturbance (acres)	8	8	37	17
Species Total (acres)	**19**	**19**	**89**	**42**
Operation Disturbance (acres)	2	2	9	4

* This number represents the amount in acres of modeled potential habitat within the analysis area of Region I.

Table 3.6-9 Summary of Region I Alternative Route Impacts for BLM Sensitive Species

Parameter	Alternative I-A	Alternative I-B	Alternative I-C	Alternative I-D
BLM Sensitive Species				
Number of species with known occurrences impacted	2	2	2	2
Number of species with potential habitat impacted	11	12	9	12

Alternative I-A (Applicant Proposed)

Ute Ladies'-tresses Orchid (Federally Threatened)

Alternative I-A would cause approximately 19 acres of construction disturbance to potential habitat identified for Ute ladies'-tresses orchid (**Table 3.6-8** and **Figure 3.6-1**). Based on species occurrence data and agency consultation, no individuals or populations have been identified within Alternative I-A; therefore, no species level impacts are anticipated. Additionally, no critical habitat has been designated for this species; therefore, no impacts to critical habitat are anticipated.

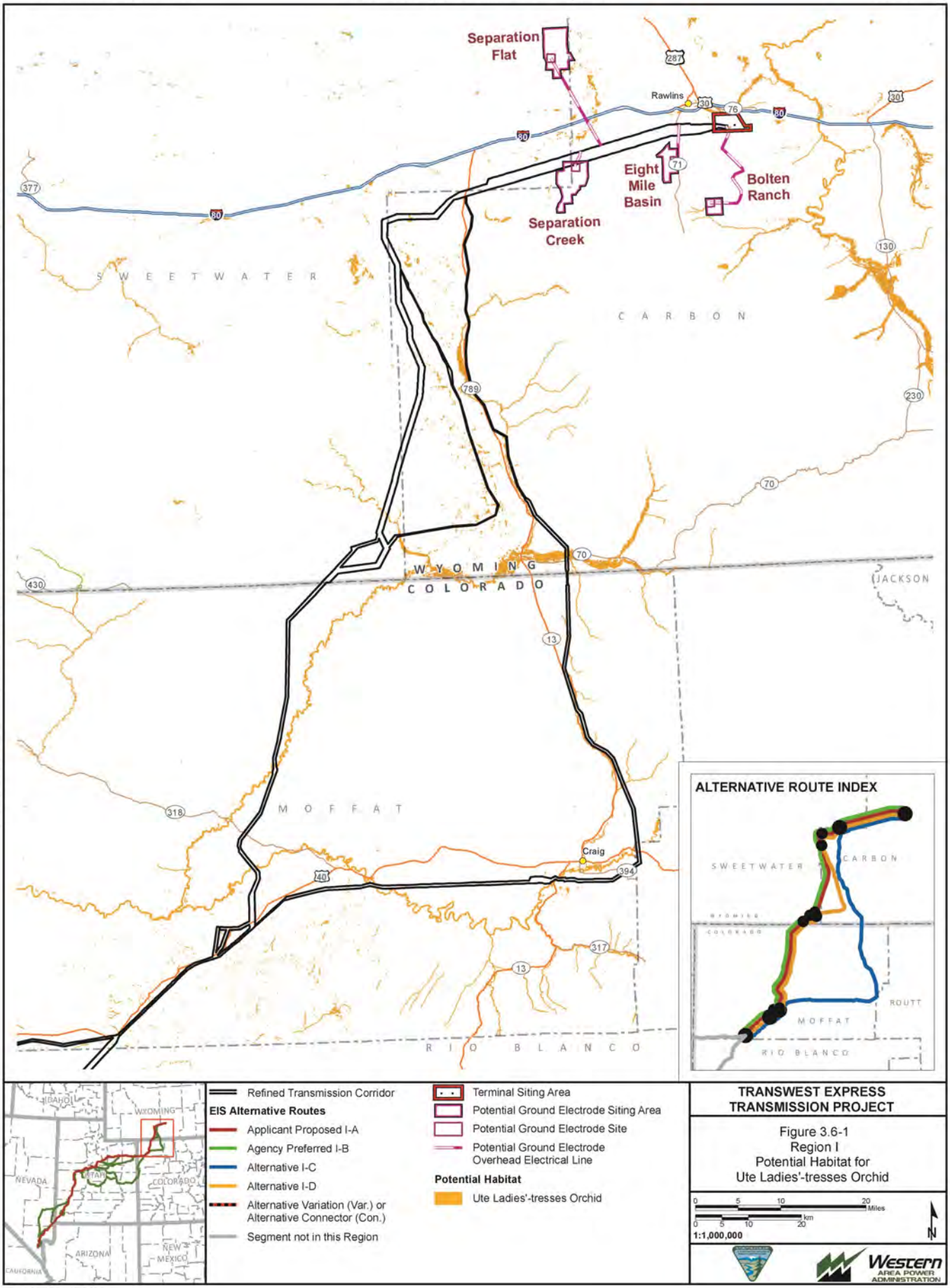
BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented. Specifically, mitigation measures **SS-1** and **SS-2** would be implemented to avoid Ute ladies'-tresses orchid potential habitat. Therefore, no impacts to the Ute ladies'-tresses orchid or its associated habitat are anticipated.

BLM Sensitive Species

Based on a desktop review, potential habitat has been identified for 11 BLM sensitive species within Alternative I-A (**Table 3.6-9**). Based on species occurrence data and agency consultation, two BLM sensitive species, Gibbens penstemon and tufted cryptantha, have been identified within Alternative I-A. 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 potential habitats within the refined transmission corridors are located in a variety of habitats including barren/sparsely vegetated areas, shrub and woodland communities on the Green River formation, rocky outcrops, sandy soils, and wetland and riparian areas. Information regarding suitable habitat for the Strigose Easter-daisy is not available; therefore, a conservative analysis was applied for this species. Impacts to species in habitats with limited revegetation potential such as rocky outcrops, 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 timeframe to restore woody communities. Construction and operation impacts would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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**, **SS-4**, **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 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 BMPs, design features, and mitigation measures, direct and indirect impacts are not anticipated.


Separation Flat
Rawlins
Eight Mile Basin
Bolten Ranch
Separation Creek
SWEETWATER
CARBON
WYOMING
COLORADO
JACKSON
MOFFAT
Craig
RIO BLANCO
ALTERNATIVE ROUTE INDEX
SWEETWATER
CARBON
ROUTT
MOFFAT
RIO BLANCO
IDAHO
WYOMING
NEVADA
UTAH
COLORADO
ARIZONA
NEW MEXICO
CALIFORNIA
Refined Transmission Corridor
EIS Alternative Routes
Applicant Proposed I-A
Agency Preferred I-B
Alternative I-C
Alternative I-D
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Terminal Siting Area
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
Potential Habitat
Ute Ladies'-tresses Orchid
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-1
Region I
Potential Habitat for
Ute Ladies'-tresses Orchid
Miles
km
1:1,000,000
N
Western AREA POWER ADMINISTRATION
Exported On: 1/21/2015

Alternative I-B (Agency Preferred)

Ute Ladies'-tresses Orchid (Federally Threatened)

Alternative I-B would cause approximately 19 acres of disturbance to potential habitat identified for Ute ladies'-tresses orchid (**Table 3.6-8** and **Figure 3.6-1**). Based on species occurrence data and agency consultation, no individuals or populations have been identified within Alternative I-B; therefore, no species-level impacts are anticipated. Additionally, no critical habitat has been designated for this species; therefore, no impacts to critical habitat are anticipated.

BMPs, design features, and mitigation measures presented for the Alternative I-A Ute ladies'-tresses orchid conclusion would be implemented. As such, no impacts to the Ute ladies'-tresses orchid or its associated habitat are anticipated.

BLM Sensitive Species

Based on a desktop review, potential habitat has been identified for 12 BLM sensitive species within Alternative I-B (**Table 3.6-9**). Based on species occurrence data and agency consultation, two BLM sensitive species, Gibbens penstemon and tufted cryptantha, have been identified within Alternative I-B. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts to BLM sensitive species would be the same as those described for Alternative I-A, BLM Sensitive Species.

Tuttle Ranch Micro-siting Options 3 and 4

Tuttle Ranch Micro-siting Options 3 and 4 are located along Alternative I-B. The only federally listed plant species identified as having potential habitat in the Tuttle Ranch Micro-siting Options 3 and 4 areas is the Ute ladies'-tresses orchid. Based on habitat modeling, approximately 0.4 acre of potential habitat has been identified within the Tuttle Ranch Micro-siting Option 3 area and approximately 0.5 acre of potential habitat has been identified within the Tuttle Ranch Micro-siting Option 4 area. The comparable portion associated with the Tuttle Ranch Micro-siting Option 3 did not differ; however, the comparable portion associated with the Tuttle Ranch Micro-siting Option 4 decreased by 0.1 acre (totaling approximately 0.4 acre of potential habitat). Based on species occurrence data and agency consultation, no Ute ladies'-tresses orchid individuals or populations have been identified within the Tuttle Ranch Micro-siting Options 3 and 4 areas; therefore, no species-level impacts are anticipated. No critical habitat has been designated for this species.

Based on species occurrence data and agency consultation, one BLM sensitive species, tufted cryptantha, has been identified within both the Tuttle Ranch Micro-siting Options 3 and 4. Based on a desktop review, potential habitat has been identified for 10 BLM sensitive species within both the Tuttle Ranch Micro-siting Options 3 and 4. The micro-siting options do not differ from each other or the comparable portion of Alternative I-B in their effects on BLM sensitive species.

Alternative I-C

Ute Ladies'-tresses Orchid (Federally Threatened)

Alternative I-C would cause approximately 89 acres of construction disturbance to potential habitat identified for Ute ladies'-tresses orchid (**Table 3.6-8** and **Figure 3.6-1**). Based on species occurrence data and agency consultation, no individuals or populations have been identified within Alternative I-C; therefore, no species-level impacts are anticipated. Additionally, no critical habitat has been designated for this species; therefore, no impacts to critical habitat are anticipated.

BMPs, design features, and mitigation measures presented for the Alternative I-A Ute ladies'-tresses orchid conclusion would be implemented. As such, no impacts to the Ute ladies'-tresses orchid or its associated habitat are anticipated.

BLM Sensitive Species

Based on a desktop review, potential habitat has been identified for 9 BLM sensitive species within Alternative I-C (**Table 3.6-9**). Based on species occurrence data and agency consultation, two BLM sensitive species, Gibbens penstemon and tufted cryptantha, have been identified within Alternative I-C. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts to BLM sensitive species would be the same as described for Alternative I-A, BLM Sensitive Species.

Alternative I-D

Ute Ladies'-tresses Orchid (Federally Threatened)

Alternative I-D would cause approximately 42 acres of construction disturbance to potential habitat identified for Ute ladies'-tresses orchid (**Table 3.6-8** and **Figure 3.6-1**). Based on species occurrence data and agency consultation, no individuals or populations have been identified within Alternative I-D; therefore, no species-level impacts are anticipated. Additionally, no critical habitat has been designated for this species; therefore, no impacts to critical habitat are anticipated.

BMPs, design features, and mitigation measures presented for the Alternative I-A Ute ladies'-tresses orchid description would be implemented. As such, no impacts to the Ute ladies'-tresses orchid or its associated habitat are anticipated.

BLM Sensitive Species

Based on a desktop review, potential habitat has been identified for 12 BLM sensitive species within Alternative I-D (**Table 3.6-9**). Based on species occurrence data and agency consultation, two BLM sensitive species, Gibbens penstemon and tufted cryptantha, have been identified within Alternative I-D. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts to BLM sensitive species would be the same as described for Alternative I-A, 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, two special status plant species have been identified within the Region I ground electrode system siting areas including one BLM sensitive species and one federally listed species (Ute ladies'-tresses orchid). **Table 3.6-11** summarizes acreages of federally listed plant species potential habitat which may be potentially impacted by the construction and operation of Region I ground electrode system facilities.

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

Alternative Ground Electrode System Locations	Analysis
Bolten Ranch – All Alternatives	• No impacts to federally listed plant species would occur based on lack of documented occurrences. Potential habitat for one federally listed species (Ute ladies'-tresses orchid [<0.1 acre]) is located within the ground electrode system siting area and could be impacted by Project-related activities. • No impacts to BLM sensitive species would occur based on lack of documented occurrences. Potential habitat for one BLM sensitive species (Trelease's milkvetch) 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 Ground Electrode System Impacts for Special Status Plant Species

Alternative Ground Electrode System Locations	Analysis
Separation Flat – All Alternatives	• No impacts to federally listed plant species would occur based on lack of documented occurrences. Potential habitat for one federally listed species (Ute ladies'-tresses orchid [approximately 0.7 acre]) is located within the ground electrode system siting area and could be impacted by Project-related activities. • No impacts to BLM sensitive species would occur based on lack of documented occurrences. Potential habitat for one BLM sensitive species (Trelease's milkvetch) is located within this ground electrode system siting area and could be impacted by Project-related activities.
Separation Creek – All Alternatives	• No impacts to federally listed plant species would occur based on lack of documented occurrences. Potential habitat for one federally listed species (Ute ladies'-tresses orchid [approximately 0.1 acre]) is located within the ground electrode system siting area and could be impacted by Project-related activities. • No impacts to BLM sensitive species would occur based on lack of documented occurrences. Potential habitat for one BLM sensitive species (Trelease's milkvetch) is located within this ground electrode system siting area and could be impacted by Project-related activities.
Eight Mile Basin – All Alternatives	• No impacts to federally listed plant species or potential habitat would occur based on lack of documented occurrences and absence of modeled potential habitat. • No impacts to BLM sensitive species would occur based on lack of documented occurrences. Potential habitat for one BLM sensitive species (Trelease's milkvetch) is located within this ground electrode system siting area and could be impacted by Project-related activities.

Table 3.6-11 Summary of Region I Ground Electrode System Facility Impacts for Federally Listed Plant Species

Species	Bolten Ranch (All Alternatives)	Separation Flat (All Alternatives)	Separation Creek (All Alternatives)	Eight Mile Basin (All Alternatives)
Ute ladies'-tresses orchid				
Construction Disturbance (acres)	<1	<1	<1	–
Species Total (acres)	**<1**	**<1**	**<1**	**–**
Operation Disturbance (acres)	<1	<1	<1	–

Region I Conclusion

Within Region I, potential habitat for one federally listed species was identified within Alternatives I-A, I-B, I-C, and I-D. Based on the implementation of mitigation measures **SS-1** and **SS-2**, no impacts to the Ute ladies'-tresses orchid or its associated habitat are anticipated. Impacts to BLM sensitive species would be similar between Alternatives I-A, I-B, and I-D; impacts to potential habitat would be lesser in Alternative I-C compared to the aforementioned alternatives. USFS lands are not intersected within Region I; therefore, no impacts to Forest sensitive species are anticipated within Region I.

3.6.6.4 Region II

Based on species occurrence information and habitat associations, the special status plant species that may be impacted by the Project in Region II include 56 BLM sensitive species, 18 Forest sensitive species, and 15 federally listed species (**Table 3.6-3**). Species occurrence and associated habitats in Region II are summarized in **Appendix G**, **Table G-1**. **Table 3.6-12** summarizes acreages of federally listed and Forest sensitive plant species potentially impacted in Region II. Unless otherwise indicated within the alterantives discussion that follows, this disturbance is less than 1 percent to each species'

potential habitat within Region II.**Table 3.6-13** provides known occurrence and potential habitat qualification of BLM sensitive species analyzed in Region II.

Table 3.6-12 Summary of Region II Alternative Route Impacts for Federally Listed and Forest Sensitive Plant Species[1]

Common Name	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Federally Listed Species							
Barneby Ridgecress: 42,088 acres *							
Clearing/Trampling (acres)	37/	–	–	–	–	–	67
Construction Disturbance (acres)	39	–	–	–	–	–	39
Species Subtotal (acres)	**76**	–	–	–	–	–	**106**
Operation Disturbance (acres)	6	**–**	**–**	**–**	**–**	**–**	**6**
Clay Phacelia: 1,353 acres*							
Clearing/Trampling (acres)	6	–	–	–	32	32	6
Construction Disturbance (acres)	5	–	–	–	24	24	5
Species Subtotal (acres)	**11**	**–**	**–**	**–**	**56**	**56**	**11**
Operation Disturbance (acres)	2	–	–	–	7	7	2
Clay Reed Mustard: 52,631 acres*							
Clearing/Trampling (acres)	–	–	–	49	–	49	-
Construction Disturbance (acres)	–	–	–	40	–	40	-
Species Subtotal (acres)	**–**	**–**	**–**	**89**	**–**	**89**	**-**
Operation Disturbance (acres)	–	–	–	11	–	11	-
Colorado Hookless Cactus: 23,953 acres*							
Clearing/Trampling (acres)	–	27	27	–	–	–	-
Construction Disturbance (acres)	–	29	29	–	–	–	-
Species Subtotal (acres)	**–**	**56**	**56**	**–**	**–**	**–**	**-**
Operation Disturbance (acres)	**–**	9	9	–	–	–	-
Deseret Milkvetch: 18,990 acres*							
Clearing/Trampling (acres)	155	–	–	–	155	155	155
Construction Disturbance (acres)	123	–	–	–	123	123	123
Species Subtotal (acres)	**278**	**–**	**–**	**–**	**278**		**278**
Operation Disturbance (acres)	45	–	–	–	45	45	45
Graham's Penstemon: 438,854 acres*							
Clearing/Trampling (acres)	13	7	7	254	264	428	13
Construction Disturbance (acres)	8	8	8	163	176	339	8
Species Subtotal (acres)	**21**	**15**	**15**	**417**	**440**	**767**	**21**
Operation Disturbance (acres)	2	3	3	36	29	100	2
Jones Cycladenia: 64,646 acres*							
Clearing/Trampling (acres)	–	–	42	–	–	–	-
Construction Disturbance (acres)	–	<1	25	–	–	–	-
Species Subtotal (acres)	**–**	**<1**	**67**	**–**	**–**	**–**	**-**
Operation Disturbance (acres)	–	–	4	–	–	–	-

Table 3.6-12 Summary of Region II Alternative Route Impacts for Federally Listed and Forest Sensitive Plant Species[1]

Common Name	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Last Chance Townsendia: 51,241 acres*							
Clearing/Trampling (acres)	–	13	186	–	–	–	-
Construction Disturbance (acres)	–	9	110	–	–	–	-
Species Subtotal (acres)	**–**	**22**	**296**	**–**	**–**	**–**	**-**
Operation Disturbance (acres)	–	2	25	–	–	–	-
San Rafael Cactus: 16,306 acres*							
Clearing/Trampling (acres)	–	–	8	–	–	–	-
Construction Disturbance (acres)	–	–	7	–	–	–	-
Species Subtotal (acres)	–	–	**15**	–	–	–	-
Operation Disturbance (acres)	–	–	2	–	–	–	-
Shrubby Reed Mustard: 65,243 acres*							
Clearing/Trampling (acres)	–	–	–	–	–	–	-
Construction Disturbance (acres)	–	–	–	<1	–	<1	-
Species Subtotal (acres)	–	–	–	**<1**	**–**	**<1**	**-**
Operation Disturbance (acres)	–	–	–	<1	–	<1	-
Uinta Basin Hookless Cactus: 354,054 acres*							
Clearing/Trampling (acres)	–	–	–	599	–	772	-
Construction Disturbance (acres)	–	–	–	442	–	613	-
Species Subtotal (acres)	**–**	**–**	**–**	**1,041**	**–**	**1,385**	**-**
Operation Disturbance (acres)	–	–	–	112	–	165	-
Uinta Basin Hookless Cactus Core Coservation Area 1: 37,817 acres*							
Clearing/Trampling (acres)	-	-	-	83	-	83	-
Construction Disturbance (acres)	-	-	-	61	-	61	-
Species Subtotal (acres)	**-**	**-**	**-**	**144**	**-**	**144**	**-**
Operation Disturbance (acres)	-	-	-	16	-	16	-
Uinta Basin Hookless Cactus Core Conservation Area 2: 79,060 acres*							
Clearing/Trampling (acres)	-	-	-	175	-	175	-
Construction Disturbance (acres)	-	-	-	127	-	127	-
Species Subtotal (acres)	**-**	**-**	**-**	**302**	**-**	**302**	**-**
Operation Disturbance (acres)	-	-	-	32	-	32	-
Ute Ladies-tresses Orchid:91,821 acres*							
Clearing/Trampling (acres)	95	38	32	21	117	39	93
Construction Disturbance (acres)	63	21	17	17	87	32	61
Species Subtotal (acres)	**158**	**59**	**49**	**38**	**204**	**71**	**154**
Operation Disturbance (acres)	14	4	3	5	20	10	12
White River Beardtongue: 114,125 acres*							
Clearing/Trampling (acres)	–	89	89	6	5	6	-
Construction Disturbance (acres)	<1	51	51	5	4	5	<1
Species Subtotal (acres)	**<1**	**140**	**140**	**11**	**9**	**11**	**-<1**
Operation Disturbance (acres)	–	11	11	1	1	1	-

Table 3.6-12 Summary of Region II Alternative Route Impacts for Federally Listed and Forest Sensitive Plant Species[1]

Common Name	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Winkler Cactus: 51,206 acres*							
Clearing/Trampling (acres)	–	45	42	–	–	–	-
Construction Disturbance (acres)	–	32	33	–	–	–	-
Species Subtotal (acres)	**-**	**77**	**75**	**-**	**-**	**-**	**-**
Operation Disturbance (acres)	–	7	7	–	–	–	-
Wright Fishhook Cactus: 411,914 acres*							
Clearing/Trampling (acres)	–	492	623	–	–	–	-
Construction Disturbance (acres)	–	322	472	–	–	–	-
Species Subtotal (acres)	-	**814**	**1,095**	**-**	**-**	**-**	**-**
Operation Disturbance (acres)	–	69	118	–	–	–	-
Forest Sensitive Species							
Arizona Willow: 66,015 acres*							
Clearing/Trampling (acres)	–	–	50	–	–	–	-
Construction Disturbance (acres)	–	–	44	–	–	–	-
Species Subtotal (acres)	**-**	**-**	**94**	**-**	**-**	**-**	**-**
Operation Disturbance (acres)	–	–	15	–	–	–	-
Bicknell Milkvetch: 18,521 acres*							
Clearing/Trampling (acres)	–	–	31	–	–	–	-
Construction Disturbance (acres)	–	–	27	–	–	–	-
Species Subtotal (acres)	**-**	**-**	**58**	**-**	**-**	**-**	**-**
Operation Disturbance (acres)	–	–	9	–	–	–	-
Canyon Sweetvetch: 55,605 acres*							
Clearing/Trampling (acres)	–	21	–	–	–	–	-
Construction Disturbance (acres)	–	20	–	–	–	–	-
Species Subtotal (acres)	**-**	**41**	**-**	**-**	**-**	**-**	**-**
Operation Disturbance (acres)	–	6	–	–	–	–	-
Carrington Daisy: 12,891 acres*							
Clearing/Trampling (acres)	–	5	–	–	–	–	-
Construction Disturbance (acres)	–	4	–	–	–	–	-
Species Subtotal (acres)	**-**	**9**	**-**	**-**	**-**	**-**	**-**
Operation Disturbance (acres)	–	1	–	–	–	–	-
Dainty Moonwort: 12,130 acres*							
Clearing/Trampling (acres)	2	–	–	–	–	<1	2
Construction Disturbance (acres)	2	–	–	–	–	<1	2
Species Subtotal (acres)	**4**	**–**	**–**	**–**	**–**	**<1**	**4**
Operation Disturbance (acres)	1	–	–	–	–	<1	1
Duchesne Greenthread: 101,480 acres*							
Clearing/Trampling (acres)	–	–	–	<1	79	<1	-
Construction Disturbance (acres)	–	–	–	–	46	–	-
Species Subtotal (acres)	**–**	**–**	**–**	**<1**	**125**	**<1**	**-**
Operation Disturbance (acres)	–	–	–	–	5	–	-

Table 3.6-12 Summary of Region II Alternative Route Impacts for Federally Listed and Forest Sensitive Plant Species[1]

Common Name	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Elsinore Buckwheat: 25,467 acres*							
Clearing/Trampling (acres)	–	–	67	–	–	–	-
Construction Disturbance (acres)	–	–	42	–	–	–	-
Species Subtotal (acres)	**–**	**–**	**109**	**–**	**–**	**–**	**-**
Operation Disturbance (acres)	–	–	10	–	–	–	-
Goodrich Blazingstar: 63,246 acres*							
Clearing/Trampling (acres)	–	–	–	–	33	<1	-
Construction Disturbance (acres)	–	–	–	–	19	<1	-
Species Subtotal (acres)	**–**	**–**	**–**	**–**	**52**	**<1**	**-**
Operation Disturbance (acres)	–	–	–	–	2	<1	-
Link Trail Columbine: 5,453 acres*							
Clearing/Trampling (acres)	–	8	–	–	–	–	-
Construction Disturbance (acres)	–	6	–	–	–	–	-
Species Subtotal (acres)	**–**	**14**	**–**	**–**	**–**	**–**	**-**
Operation Disturbance (acres)	–	2	–	–	–	–	-
Maguire Campion: 255,340 acres*							
Clearing/Trampling (acres)	–	90	90	121	–	–	-
Construction Disturbance (acres)	–	79	53	100	–	–	-
Species Subtotal (acres)	**–**	**169**	**143**	**221**	**–**	**–**	**-**
Operation Disturbance (acres)	–	23	12	32	–	–	-
Nevada Willowherb: 60,282 acres*							
Clearing/Trampling (acres)	–	–	65	–	–	–	-
Construction Disturbance (acres)	–	<1	33	–	–	–	-
Species Subtotal (acres)	**–**	**<1**	**98**	**–**	**–**	**–**	**-**
Operation Disturbance (acres)	–	<1	6	–	–	–	-
Sigurd Townsendia: 25,488 acres*							
Clearing/Trampling (acres)	–	–	52	–	–	–	-
Construction Disturbance (acres)	–	2	41	–	–	–	-
Species Subtotal (acres)	**–**	**2**	**93**	**–**	**–**	**–**	**-**
Operation Disturbance (acres)	–	1	13	–	–	–	-
Slender Moonwort: 74,129 acres*							
Clearing/Trampling (acres)	44	–	–	–	–	–	44
Construction Disturbance (acres)	27	–	–	–	–	–	27
Species Subtotal (acres)	**71**	**–**	**–**	**–**	**–**	**–**	**71**
Operation Disturbance (acres)	8	–	–	–	–	–	8
Untermann Daisy: 120,132 acres*							
Clearing/Trampling (acres)	–	–	–	<1	79	<1	-
Construction Disturbance (acres)	–	–	–	–	46	–	-
Species Subtotal (acres)	**–**	**–**	**–**	**<1**	**125**	**<1**	**-**
Operation Disturbance (acres)	–	–	–	–	5	–	-

Table 3.6-12 Summary of Region II Alternative Route Impacts for Federally Listed and Forest Sensitive Plant Species[1]

Common Name	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
Ward Beardtongue: 104,560 acres*							
Clearing/Trampling (acres)	–	2	307	–	–	–	-
Construction Disturbance (acres)	–	4	202	–	–	–	-
Species Subtotal (acres)	**–**	**6**	**509**	**–**	**–**	**–**	**-**
Operation Disturbance (acres)	–	1	51	–	–	–	-
Wasatch Jamesia: 82,521 acres*							
Clearing/Trampling (acres)	105	–	–	–	3	3	105
Construction Disturbance (acres)	85	–	–	–	4	4	85
Species Subtotal (acres)	**190**	**–**	**–**	**–**	**7**	**7**	**190**
Operation Disturbance (acres)	34	–	–	–	2	2	34

[1] Please note that Graham's penstemon and White River beardtongue are no longer Proposed Threatened, but are still considered BLM sensitive.

* This number represents the amount in acres of modeled potential habitat within the analysis area of Region II.

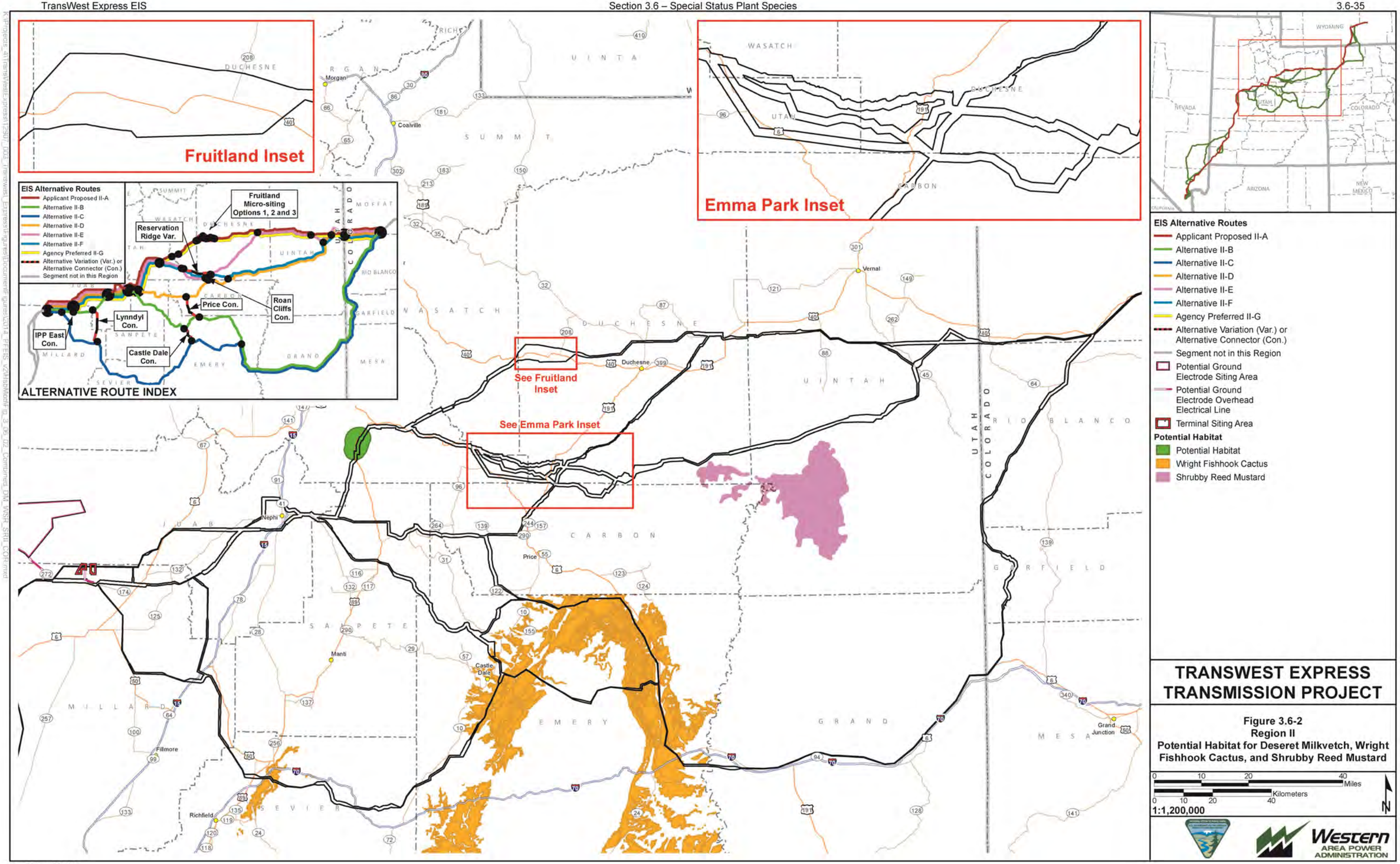
Table 3.6-13 Summary of Region II Alternative Route Impacts for BLM Sensitive Species

Parameter	Alternative II-A	Alternative II-B	Alternative II-C	Alternative II-D	Alternative II-E	Alternative II-F	Alternative II-G
BLM Sensitive Species							
Number of species with known occurrences impacted	6	8	9	3	7	5	6
Number of species with potential habitat impacted	24	38	45	27	27	24	24

Alternative II-A (Applicant Proposed)

Deseret Milkvetch (Federally Threatened)

Alternative II-A would cause approximately 278 acres of construction disturbance to potential habitat identified for the Deseret milkvetch (**Table 3.6-12** and **Figure 3.6-2**). This is approximately 1.5 percent of the potential habitat that exists in Region II for Deseret milkvetch. One population of the Deseret milkvetch is located within the Alternative II-A refined transmission corridor. No critical habitat has been designated for this species. Currently, the USFWS is reviewing a proposal to delist the species due to lack of the threats (USFWS 2011). Implementation of Alternative II-A potentially would represent a new threat to the species that may result in the USFWS making the determination not to delist the species (USFWS 2012a).



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

SS-7*: To avoid and minimize impacts to the desert milkvetch, TransWest would coordinate with the BLM and USFWS to implement appropriate mitigation measures during construction, including but not limited to:*

1. *If the Project can avoid all suitable habitat (as modeled) and occupied habitat (as documented) with a 300-foot buffer, no surveys are necessary. If avoidance of suitable habitat is not possible, surveys will be performed within 300 feet of the Project area to determine occupancy prior to construction or 400 feet if upslope of suitable or occupied habitat.*
2. *If surveys are necessary, they must be performed by qualified individual(s) and according to USFWS accepted survey protocols. Surveys will be conducted during the flowering and/or fruiting period when the plant can be detected and correctly identified. Surveys will be valid for one calendar year.*
3. *No new development or permanent ground disturbance, including but not limited to poles, pads, towers, etc., will occur within a 300-foot buffer of suitable or occupied Deseret milkvetch habitat. If construction activities occur upslope of suitable or occupied habitat, the buffer may be increased to 400 feet to prevent additional erosion within the habitat.*
4. *Wire will be strung between towers aerially with no ground disturbance in suitable or occupied Deseret milkvetch habitat.*
5. *No new roads will be established within a 300-foot buffer of suitable or occupied Deseret milkvetch habitat. If construction activities occur upslope of suitable or occupied habitat, the buffer may be increased to 400 feet to prevent additional erosion within the habitat.*
6. *Existing access roads will be utilized to the extent practicable to limit additional fragmentation within the species' habitat from new road development.*
7. *The existing access road to the north of Birdseye that connects to Blind Canyon Road contains plants alongside the road and within 300 feet of the road edge. If this road will be used, formal consultation that incorporates the following conservation measures is recommended:*
    a. *Existing road sections where the plants occur will not be bladed or widened.*
    b. *A 300-foot buffer will be maintained between the edge of disturbance from blading or widening activities and individual plants. Widening of existing roads will not occur if occupied habitat is immediately upslope or downslope of the existing road.*
    c. *This road will not be used during the flowering period of Deseret milkvetch, between May 1 and June 30 to minimize the impact of dust on pollination and reproduction.*
    d. *This road may be used during the active growing season, outside the flowering period: March 1 - April 30 and July 1 - August 31. During these time periods, dust abatement will be employed during all phases of construction, maintenance, and operation.*
8. *For the existing road to the south of Birdseye, if plants are found within 300 feet of the road edge, formal consultation that incorporates the conservation measures identified in #7 is recommended.*
9. *Occupied Deseret milkvetch habitats within 300 feet of the edge of newly installed roads, poles, pads, towers, etc. shall be monitored for a period of 3 years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the USFWS and the UNHP.*

10. *All Project employees, including contractors, brought onsite for the duration of the construction project and ongoing maintenance activities will be informed of the occurrence of Deseret milkvetch in the project area and of the threatened status of the species. Maps with areas of avoidance, including buffers, will be provided to all employees accessing the project area. A qualified biologist or botanist is required to perform this instruction and update maps as necessary.*
11. *A qualified biologist or botanist must be on-site pre-construction to clearly mark or flag avoidance areas so they are visible during construction. The same qualified personnel will be present during construction to monitor avoidance of these areas. A post-construction report documenting compliance and non-compliance with these measures will be prepared by the qualified personnel and submitted to USFWS no later than 1 month post-construction.*
12. *All equipment will be cleaned and inspected for presence of invasive, non-native plants and seeds before being brought in suitable habitat.*
13. *Post-construction, the project will provide a GIS-shapefile or documentation of new and upgraded access routes to the appropriate emergency fire operations personnel with the State of Utah, the BLM, the USFS, and USFWS, as well as notification statement that there is a Federally listed plant species within the area of Birdseye, Utah. This information will be provided no later than 1 year post-construction of this specific transmission line segment.*
14. *No vegetation treatments will be performed in suitable or occupied Deseret milkvetch habitat. In addition, the following buffers will be applied—300 feet buffer for mechanical vegetation treatments, 2,500 feet for herbicide treatments, and no aerial herbicide treatments.*
15. *Project disturbance within suitable habitat will not exceed 10 percent cumulatively. Compensatory mitigation measures will be necessary for any disturbance in Deseret milkvetch suitable or occupied habitat.*

In addition, if any construction activity, development, or ground disturbance (even temporarily) occurs in Deseret milkvetch modeled suitable or occupied habitat then the following compensatory mitigation measures shall be considered:

1. *Acquire conservation easements in perpetuity or fee title purchases of occupied habitat on private lands at a 3:1 ratio.*
2. *Additional site-specific measures also may be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.*

Effectiveness: BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to avoid, minimize, and mitigate any potential impacts to the Deseret milkvetch. The refined transmission corridors have been widened to allow for the 250-foot-wide transmission line ROW to be routed around the one previously mentioned Deseret milkvetch population. With the implementation of mitigation measures **SS-1** and **SS-7** in addition to the BMPs, design features, and TransWest's applicant-committed measures, no impacts to the Deseret milkvetch and its associated habitat would be anticipated.

Indirect impacts would be mitigated through implementation of mitigation measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**.

Ute Ladies'-tresses Orchid (Federally Threatened)

Alternative II-A would cause approximately 158 acres of construction disturbance to potential habitat identified for Ute ladies'-tresses orchid (**Table 3.6-12** and **Figure 3.6-3**). Known individuals and/or populations have been identified within Alternative II-A. No critical habitat has been designated for this species.

Implementation of BMPs, design features, mitigation measures and their 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 or its associated habitat are anticipated.

Graham's Penstemon (Former Federally Proposed, Current BLM Sensitive)

Alternative II-A would cause approximately 21 acres of construction disturbance to potential habitat identified for Graham's penstemon (**Table 3.6-12** and **Figure 3.6-4**). Known individuals and/or populations have been identified within Alternative II-A. No critical habitat has been designated for this species.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to avoid, minimize, and mitigate potential impacts to Graham's penstemon. Based on implementation of mitigation measure **SS-1**, in addition to the BMPs, design features, and TransWest's applicant-committed measures, no impacts to Graham's penstemon and its associated habitat are anticipated.

Indirect impacts would be mitigated through implementation of mitigation measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**.

Federal Species' Potential Habitat

Within Alternative II-A, potential habitat has been identified for the Barneby ridgecress, clay phacelia, and White River beardtongue (**Table 3.6-12**, and **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; therefore, no species-level impacts are anticipated. No critical habitat has been designated for these species.

Alternative II-A would cause approximately 76 acres of construction disturbance to potential habitat identified for Barneby ridgecress, 11 acres for clay phacelia, and 0.1 acre for White River beardtongue.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation would be implemented to avoid, minimize, and mitigate potential impacts to special status species habitats. 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**, **SS-4**, **SS-5**, and **SS-6**.

Based on the distribution of potential habitat for the Barneby ridgecress and White River beardtongue within Alternative II-A, it is likely that potential habitat could be spanned by the transmission line; therefore, no impacts to these species are anticipated. If species or habitat avoidance is deemed infeasible based on physical, other biological, or engineering constraints, impacts would be the same as 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, including species relocation areas, is located within the refined transmission corridors. Known occurrences of the species are found along the refined transmission

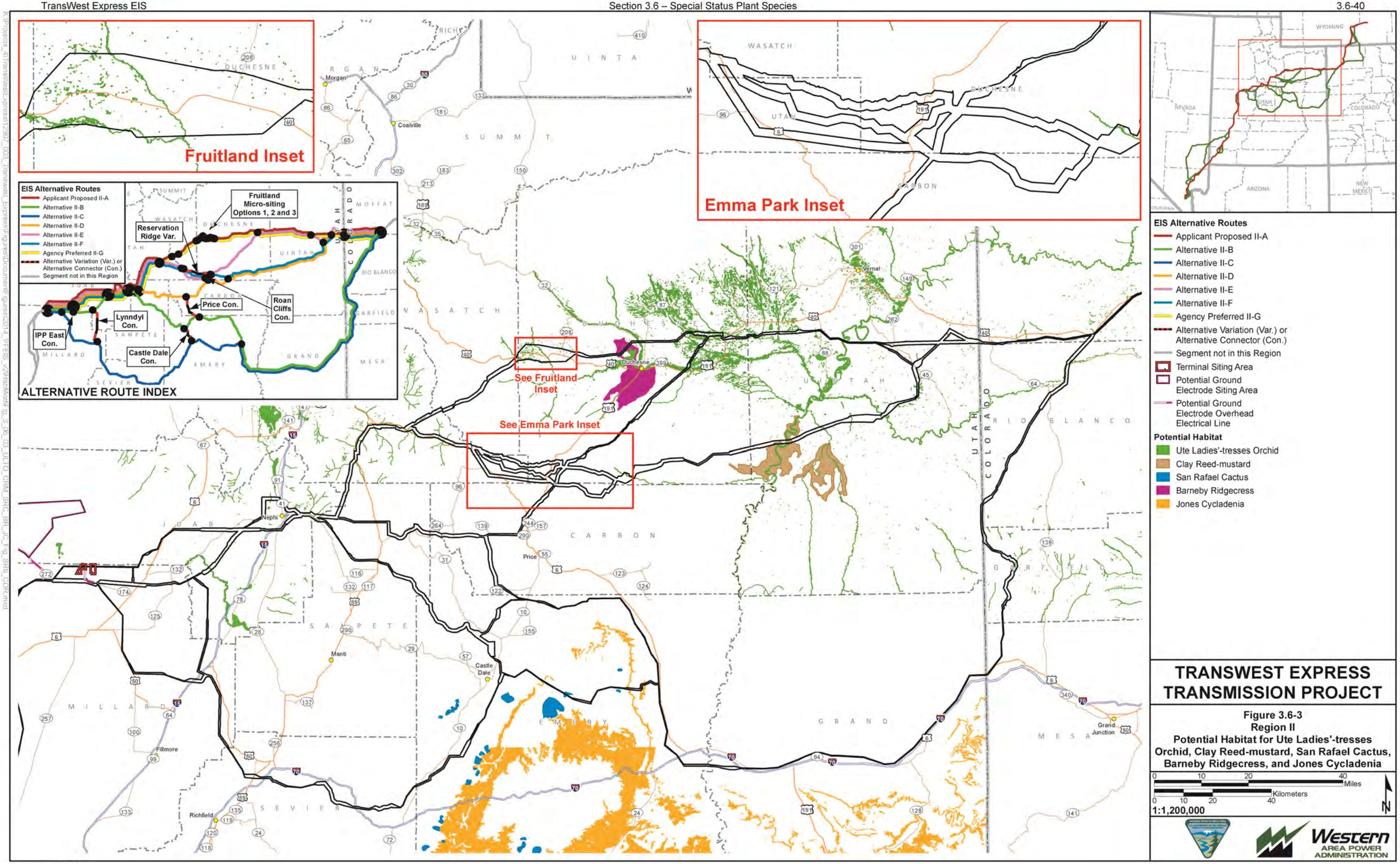
corridors on steep slopes on fine textured soil and fragmented shale derived from the Green River Formation. As the species grows on barren, precipitous hillsides and fine textured soil, it is extremely susceptible to erosion and sedimentation. Reclamation of the habitat for this species is difficult due to the steep slopes of its habitat. Based on the refined transmission corridor, the known locations for the species would be avoided; however, the species could be impacted by erosion from construction activities based on its proximity to the main highway and the potential locations for the proposed transmission line. In addition, it is likely that surface disturbance would occur in areas identified as suitable habitat for the species.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to avoid, minimize, and mitigate potential impacts to the clay phacelia. Indirect impacts would be mitigated through implementation of mitigation measures **SS-3**, **SS-4**, **SS-5**, **SS-6**, and **SS-9**.

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

SS-8: *(Avoidance of Clay Phacelia and Minimization of Indirect Impacts)*

1. *100 percent clearance surveys (within 650 feet of the centerline through all modeled suitable habitat) would establish the extent of occupied habitat that occurs in the area and any Project constraints. These surveys should occur between late May-early July.*
2. *Avoid placement of the 250-foot-wide transmission line ROW (including structures, facilities, and new roads) within 650 feet of known occupied (i.e., existing locations and USFS transplant sites) clay phacelia habitat.*
3. *All occupied sites would be avoided by development within the 250-foot-wide transmission line ROW (including structures, facilities, and new roads) by at least 650 feet. The distance could be adjusted in coordination with the authorizing agency and the USFWS in order to properly protect the plants from all disturbances. (Example: May be a larger distance if there is a higher risk of erosion or shorter distance if there is a lower risk chance of erosion.)*
4. *Appropriate erosion (i.e., silt fence, straw waddles) control measures would be constructed if disturbance is allowed within 650 feet of occupied habitat or if such measures are needed to prevent sedimentation or dust deposition.*
5. *A qualified botanist would be on-site to monitor surface-disturbing activities when clay phacelia is within 650 feet of those surface disturbing activities.*
6. *Only water (no chemicals, reclaimed production water or other) would be used for dust abatement measures within occupied clay phacelia habitat.*
7. *Dust abatement would be employed during maintenance activities in modeled suitable clay phacelia habitat over the life of the project during the time of the year when the plant is most vulnerable to dust-related impacts (March through August).*
8. *No herbicide treatments within 2,500 feet of occupied clay phacelia habitat and no aerial herbicide treatments within modeled suitable habitat.*
9. *Limit upgrades to existing access roads within 650 feet of occupied clay phacelia habitat to those that eliminate the need to construct a new road, or are necessary for safety. Upgrades also would be designed to limit impacts to clay phacelia.*



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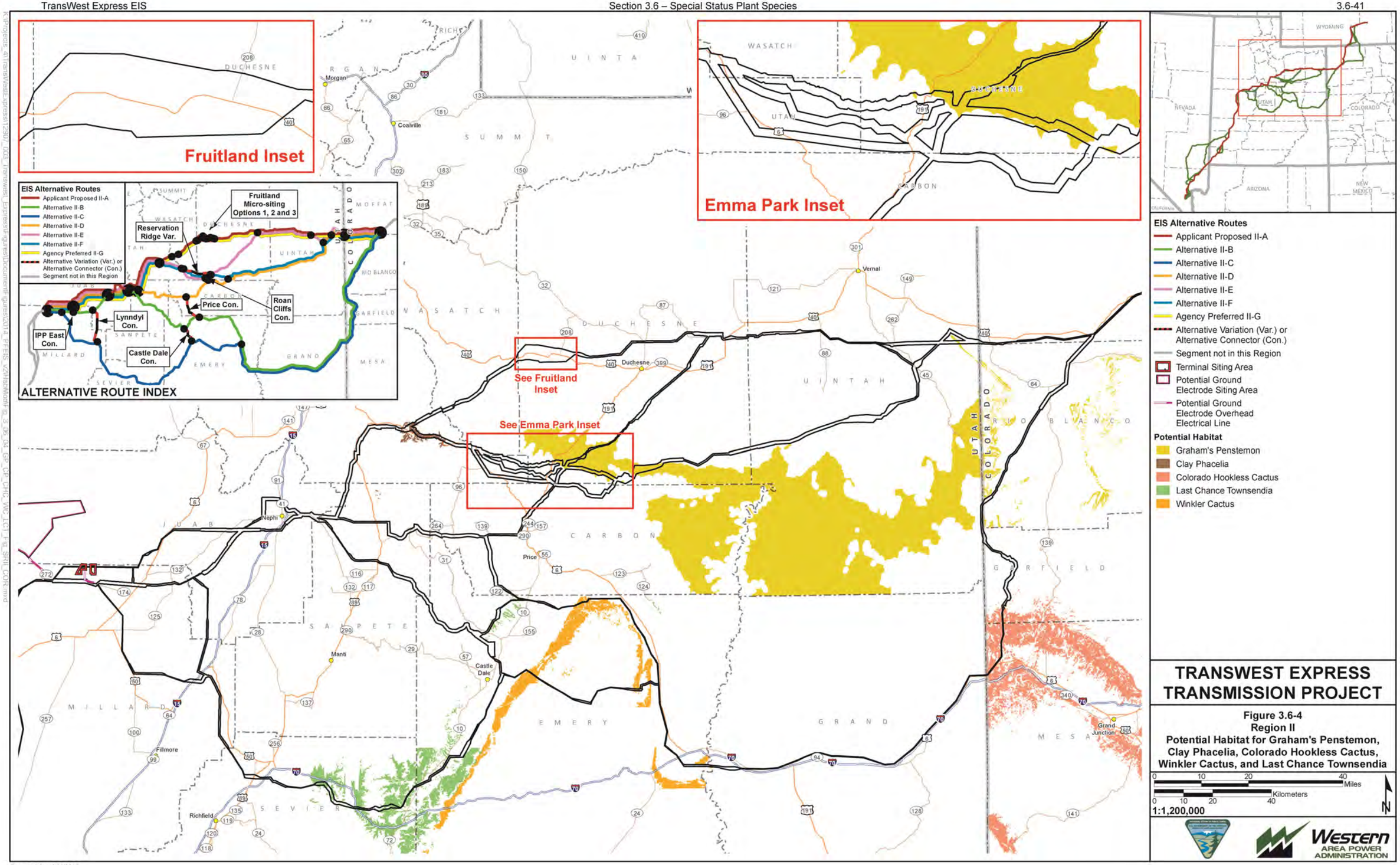

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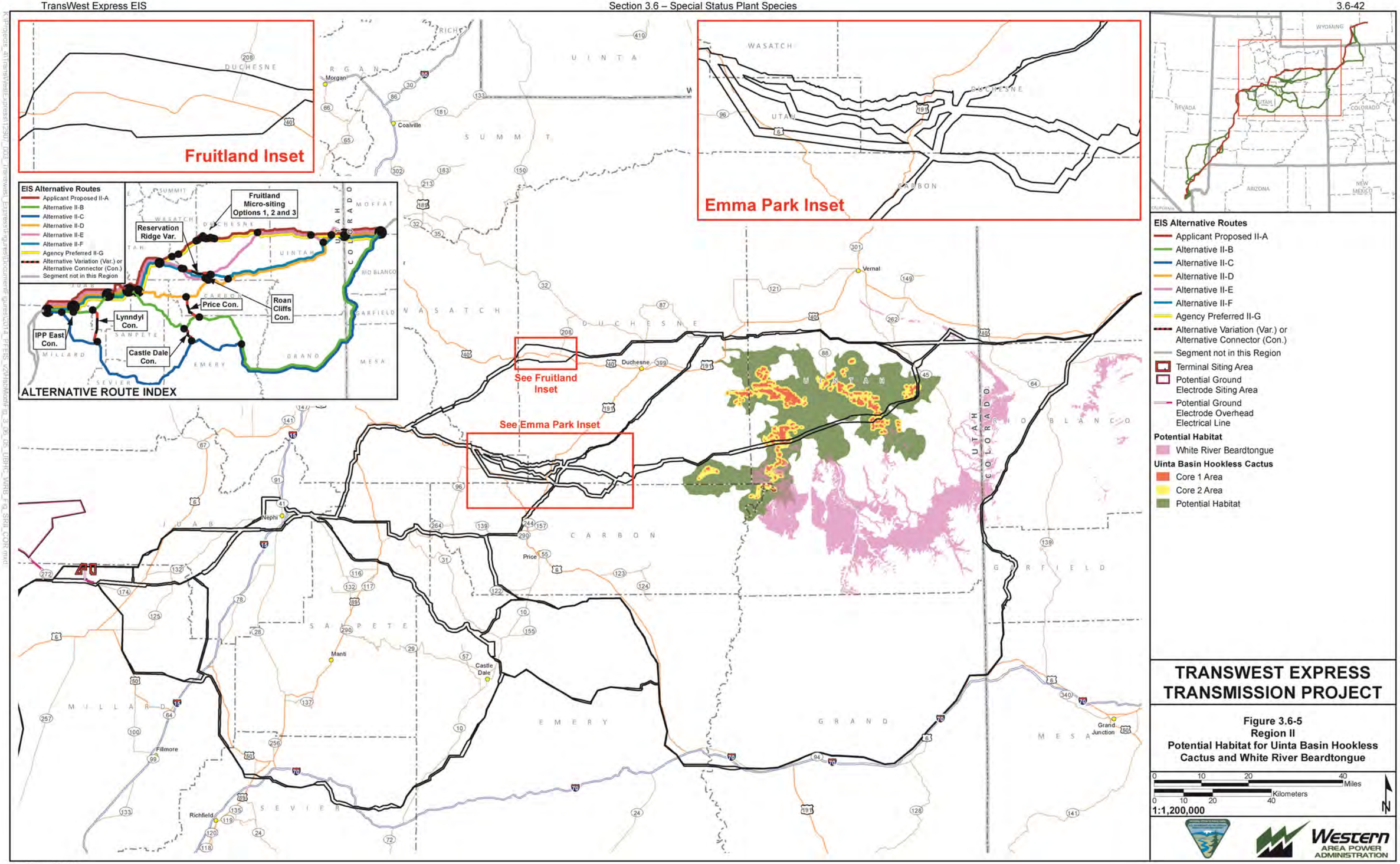

TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 3.6-5
Region II
Potential Habitat for Uinta Basin Hookless Cactus and White River Beardtongue

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***SS-9**: (Avoidance of High Quality Habitats) – In instances where complete habitat avoidance is not possible due to 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 habitats are defined as areas that are within the geographic range of the species and have been field-verified as having the majority of required habitat characteristics, and/or the species has been observed in the immediate vicinity, resulting in high occurrence potential for the identified species.*

Effectiveness: Upon implementation 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-3** and **SS-8** would prevent direct impacts to clay phacelia individuals and minimize indirect impacts from erosion resulting from surface-disturbing activities. If total avoidance of clay phacelia habitat is not feasible, implementation of mitigation measures **SS-8** and **SS-9**, in conjunction with mitigation measure **SS-1**, BMPs and design features, impacts to high quality habitats would be avoided. 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 BLM sensitive species have been identified within Alternative II-A: debris milkvetch, giant fourwing saltbush, Hamilton milkvetch, Graham's penstemon, horseshoe milkvetch, and Ute ladies'-tresses orchid. Based on a desktop review, potential habitat has been identified for 24 BLM sensitive species within Alternative II-A (**Table 3.6-13**). 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 II-A refined transmission 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. StrigoseEaster-daisy does not have available habitat information; therefore, a conservative analysis was applied for this species which was carried forward through the impact analysis. Impacts to species in limited revegetation 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. Impacts to BLM sensitive species would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation 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-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**, **SS-4**, **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 BMPs, design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

USFS Sensitive Species

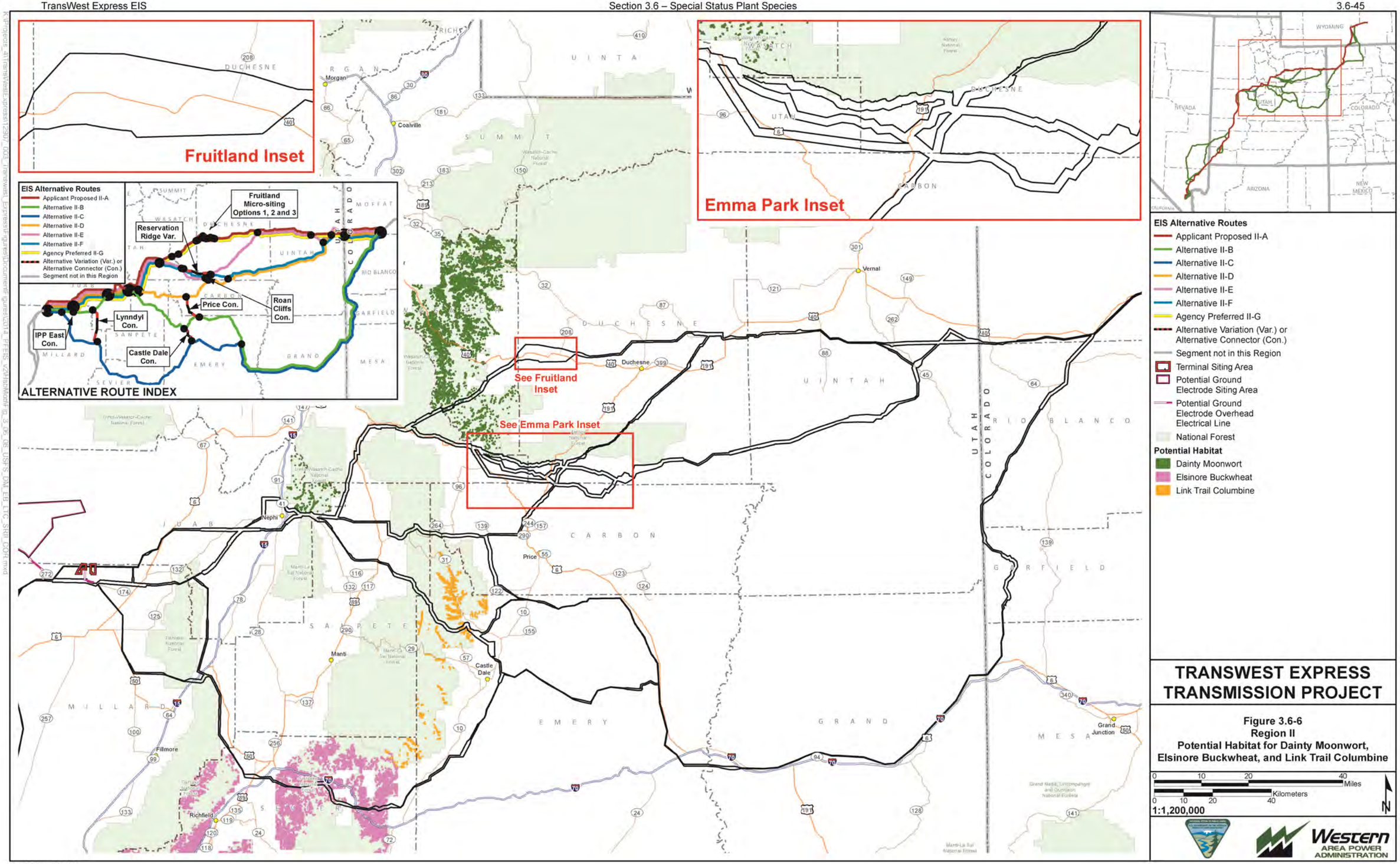
Based on habitat suitability modeling, potential habitat has been identified for the following Forest sensitive species within Alternative II-A: dainty moonwort, slender moonwort, and Wasatch jamesia. Alternative II-A would cause approximately 4 acres of construction disturbance to potential habitat identified for dainty moonwort, 71 acres for slender moonwort, and 190 acres for Wasatch jamesia. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Potential habitats for these species are presented in **Table 3.6-12** and shown in **Figures 3.6-6**, **3.6-7**, and **3.6-8**. For all three species, all known occurrences are located outside of the areas proposed for surface disturbance.

Based on species occurrence data and agency consultation, no Forest sensitive species have been identified within Alternative II-A; therefore, no species-level impacts are anticipated. If Forest sensitive species are identified during site-specific surveys, impacts would be avoided per mitigation measure **SS-1**. 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.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate impacts to potential habitats. 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**, **SS-4**, **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-9** 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 following micro-siting options are located along Alternative II-A: Fruitland Micro-siting Option 1, Fruitland Micro-siting Option 2, Fruitland Micro-siting Option 3, Strawberry IRA Micro-siting Option 2, and Strawberry IRA Micro-siting Option 3. Based on species occurrence data and agency consultation, no federally listed, Forest sensitive, or BLM sensitive plant species have been identified in these micro-siting options. Potential habitat has been identified for one BLM sensitive and federally listed species within the Fruitland Micro-siting Options -Ute ladies'-tresses orchid. Known occurrences of the Ute ladies'-tresses orchid occur within the Fruitland Micro-siting Option 1. The Fruitland Micro-siting Options 1 and 2 do not differ from the comparable portion of Alternative II-A in its effects on the Ute ladies'-tresses orchid (approximately 1.5 acres). Although the potential impact of the Fruitland Micro-siting Option 3 would be relatively low, the construction disturbance to potential habitat would be twice the amount (10 acres) of the comparable portion of Alternative II-A (5 acres). No critical habitat has been designated for this species.

Based on a habitat suitability model, potential habitat has been identified for three Forest sensitive species (slender moonwort, dainty moonwort, and Wasatch jamesia) within the Strawberry IRA Micro-siting Option 2 and Strawberry IRA Micro-siting Option 3, totaling approximately 60 acres for all three species combined. The comparable portion of Alternative II-A in relation to the Strawberry IRA Micro-siting Options is slightly less, totaling approximately 59 acres for all three species combined.



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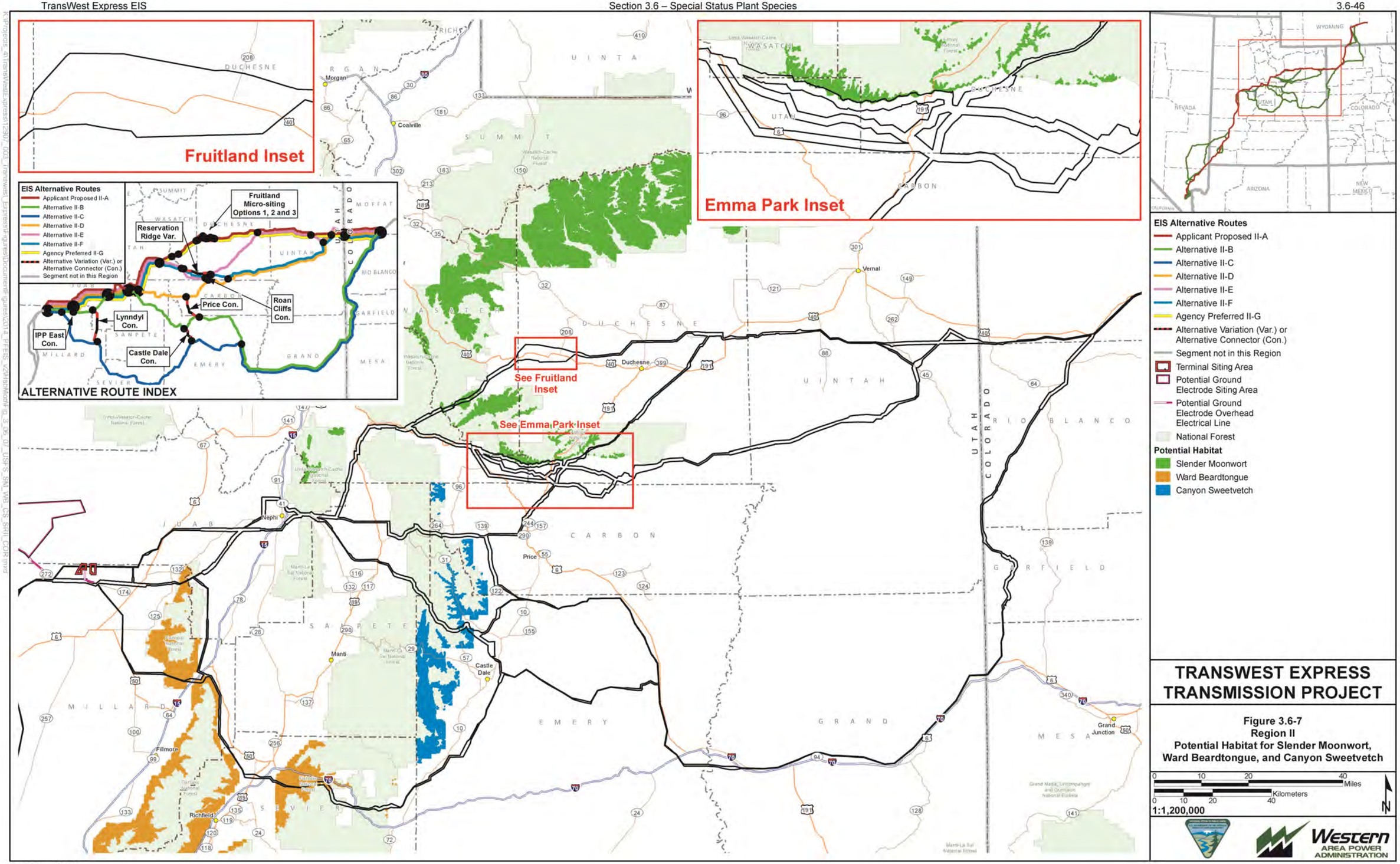

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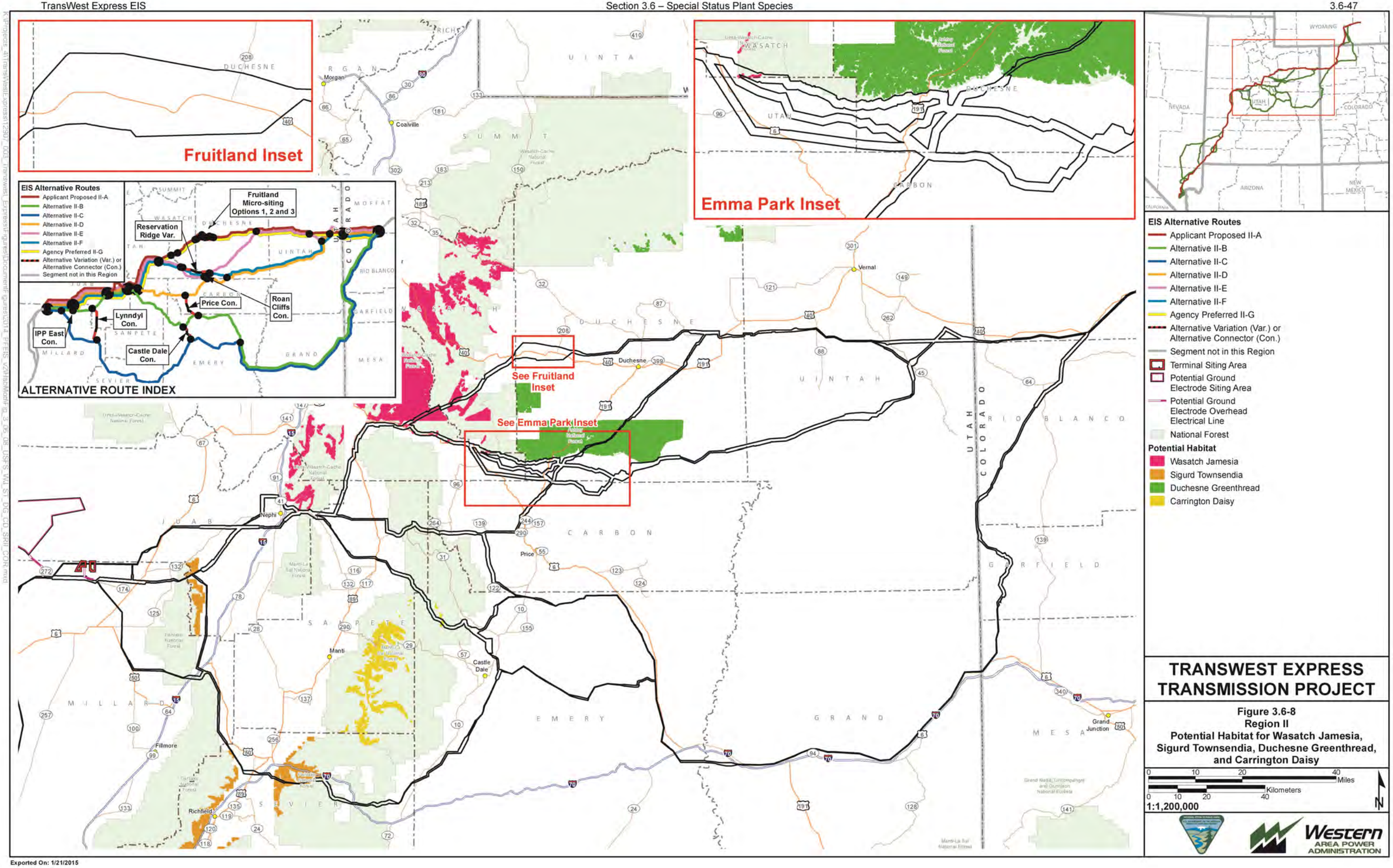

Fruitland Inset
Emma Park Inset
ALTERNATIVE ROUTE INDEX
EIS Alternative Routes
Applicant Proposed II-A
Alternative II-B
Alternative II-C
Alternative II-D
Alternative II-E
Alternative II-F
Agency Preferred II-G
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Fruitland Micro-siting Options 1, 2 and 3
Reservation Ridge Var.
Price Con.
Roan Cliffs Con.
Lynndyl Con.
IPP East Con.
Castle Dale Con.
See Fruitland Inset
See Emma Park Inset
Terminal Siting Area
Potential Ground Electrode Siting Area
Potential Ground Electrode Overhead Electrical Line
National Forest
Potential Habitat
Wasatch Jamesia
Sigurd Townsendia
Duchesne Greenthread
Carrington Daisy
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-8
Region II
Potential Habitat for Wasatch Jamesia, Sigurd Townsendia, Duchesne Greenthread, and Carrington Daisy
Miles
Kilometers
1:1,200,000
Western AREA POWER ADMINISTRATION
Exported On: 1/21/2015

Alternative II-B

Colorado Hookless Cactus (Federally Threatened)

Alternative II-B would cause approximately 56 acres of construction disturbance to potential habitat identified for Colorado hookless cactus (**Table 3.6-12**, **Figure 3.6-4**). Based on species occurrence data and agency consultation, Colorado hookless cactus individuals or populations have been identified within Alternative II-B. No critical habitat has been designated for this species.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate 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 measures **SS-3**, **SS-4**, **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.

Based on the amount of potential habitat identified 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-9** 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' Potential Habitat

Within Alternative II-B, potential habitat was identified for the Graham's penstemon (current status BLM sensitive), Jones cycladenia, Last Chance townsendia, Ute ladies'-tresses orchid, Winkler cactus, White River beardtongue (current status BLM sensitive), and Wright fishhook cactus (**Table 3.6-12** and **Figures 3.6-2**, **3.6-3**, **3.6-4**, and **3.6-5**). Alternative II-B would cause approximately 0.1 acre of construction disturbance to potential habitat identified for Jones cycladenia, 15 acres for Graham's penstemon, 22 acres for Last Chance townsendia, 59 acres for Ute ladies'-tresses orchid, 77 acres for Winkler cactus, 140 acres for White River beardtongue, and 814 acres for Wright fishhook cactus. No critical habitat has been designated for these species.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate impacts to potential habitats. With implementation of mitigation measure **SS-2**, no impacts to Ute ladies'-tresses orchid habitat is anticipated. Based on the limited acreage of potential habitat identified for the Graham's penstemon, Jones cycladenia, and Last Chance townsendia, no impacts are anticipated. As potential habitats for Winkler cactus and White River beardtongue are only found in isolated locations, no impacts are anticipated for these species. 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-9** would be applied. 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. 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.

Based on species occurrence data and agency consultation, no individuals or populations of these species have been documented within Alternative II-B; therefore, no direct impacts are 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 per mitigation measures **SS-1** and **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. 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**, **SS-4**, **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.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following BLM sensitive species have been identified within Alternative II-B: debris milkvetch, Duchesne milkvetch, Ferron milkvetch, grand buckwheat, Jones' blue star, narrowstem gilia, Rollins' cryptantha, and Uinta Basin springparsley. Based on a desktop review, potential habitat has been identified for 38 BLM sensitive species within Alternative II-B (**Table 3.6-13**). 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 are predominantly found in desert shrublands, rocky, barren areas, sand dunes, and shrub and pinyon-juniper communities. Impacts to species in limited revegetation potential 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. 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. Impacts to BLM sensitive species would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

The BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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**, **SS-4**, **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 mitigation measures would be developed in consultation with BLM and Western prior to construction. For the species that are avoided through implementation of the BMPs, 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 Forest sensitive species (Carrington daisy and canyon sweetvetch) have been identified within Alternative II-B. 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 refined transmission corridors also is within the Manti-La Sal National Forest.

Based on habitat suitability modeling, potential habitat has been identified for the following Forest sensitive species within Alternative II-B: canyon sweetvetch, Carrington daisy, Link Trail columbine, Maguire campion, Nevada willowherb, Sigurd townsendia, and Ward beardtongue. One species, the creutzfeldt-flower, did not have sufficient habitat information necessary for habitat model development; therefore, a conservative analysis was applied for this species which was carried forward through the impact analysis. Species ranges and habitat descriptions for these species are provided in

Appendix G, **Table G-1**. Potential habitats for these species are presented in **Table 3.6-12** and illustrated in **Figures 3.6-6**, **3.6-7**, **3.6-8**, **3.6-9,** and **3.6-10**.

Alternative II-B would cause approximately 41 acres of construction disturbance to potential habitat identified for canyon sweetvetch; 9 acres for Carrington daisy; 14 acres for Link Trail columbine; 0.2 acre for Nevada willowherb; 169 acres for Maguire campion; 2 acres for Sigurd townsendia; and 6 acres for Ward beardtongue. 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-9** 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.

Species-specific surveys within suitable habitat and subsequent species avoidance would be conducted through the implementation of 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. 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, and proposed mitigation measures, direct and indirect impacts are not anticipated.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate impacts to potential habitats. 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 measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**.

<u>Alternative II-C</u>

Colorado Hookless Cactus (Federally Threatened)

Alternative II-C coincides with Alternative II-B through Colorado hookless cactus habitat; therefore, the acreage and occurrence data for Colorado hookless cactus under Alternative II-C would be the same as that described for Alternative II-B. Likewise, impacts to Colorado hookless cactus would be the same under Alternative II-C as described for Alternative II-B.

Federal Species' Potential Habitat

Within Alternative II-C, potential habitat has been identified for the Graham's penstemon (current status BLM sensitive), Jones cycladenia, Last Chance townsendia, San Rafael cactus, Ute ladies'-tresses orchid, White River beardtongue (current status BLM sensitive), Winkler cactus, and Wright fishhook cactus (**Table 3.6-12** and **Figures 3.6-2**, **3.6-3**, **3.6-4**, and **3.6-5**). No critical habitat has been designated for these species.

Alternative II-C would cause approximately 15 acres of construction disturbance to potential habitat identified for Graham's penstemon; 67 acres for Jones cycladenia; 296 acres for Last Chance townsendia; 15 acres for San Rafael cactus; 49 acres for Ute ladies'-tresses orchid; 140 acres for White River beardtongue; 1,095 acres for Wright fishhook cactus; and 75 acres for Winkler cactus. For the linear stretches of contiguous Last Chance townsendia and Wright fishhook cactus habitat in the

corridor, total avoidance of habitat may not be feasible. To minimize impacts to Last Chance townsendia and Wright fishhook cactus suitable habitats, mitigation measure **SS-9** 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.

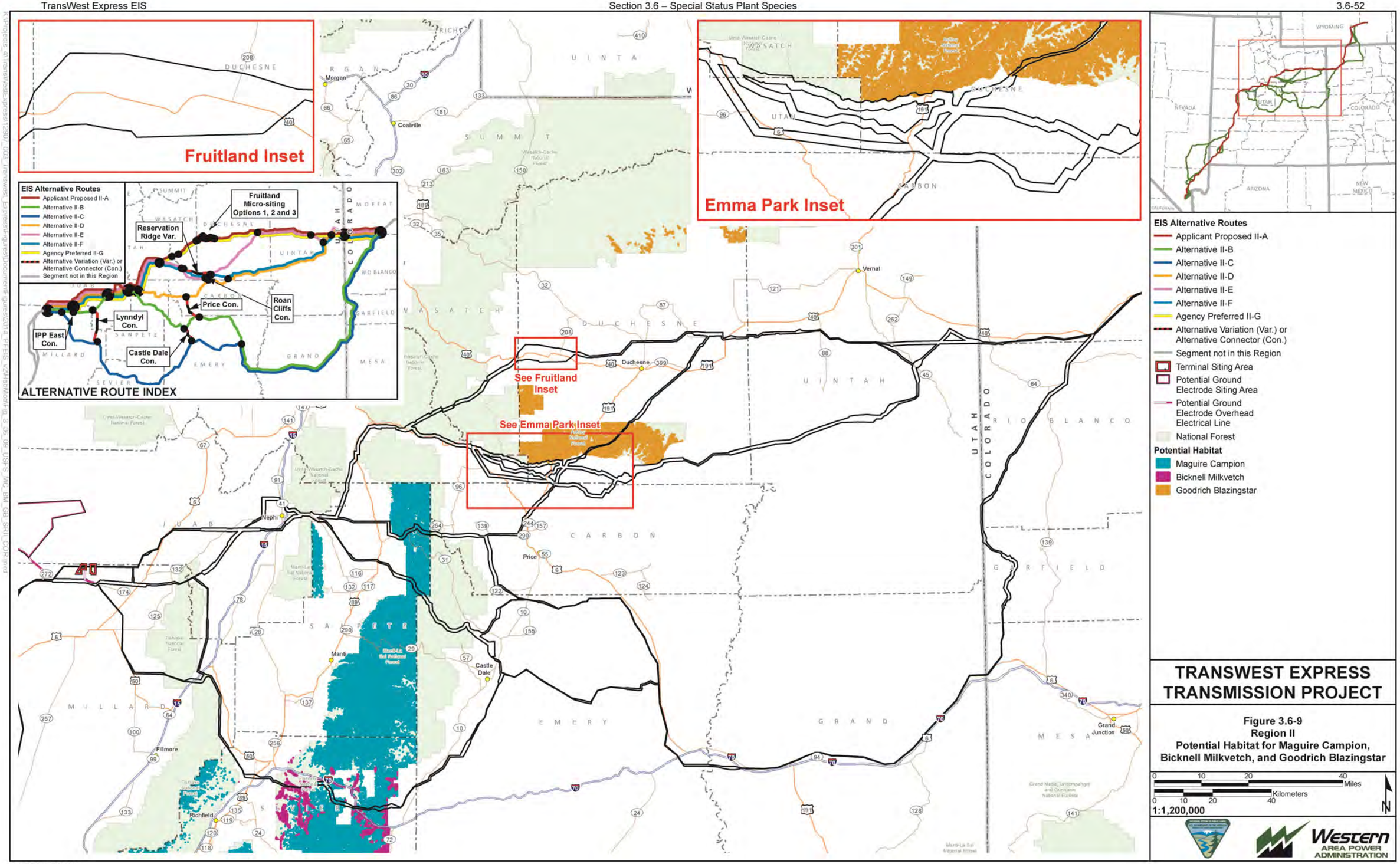
Based on species occurrence data and agency consultation, no individuals or populations have been documented within Alternative II-C; therefore, no direct species-level impacts are anticipated. Species-specific surveys within suitable habitat and subsequent species avoidance would be conducted through the implementation of mitigation measures **SS-1** and **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 measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**. Avoidance of known occurrences and suitable habitat would be difficult if another transmission line was routed in the refined transmission corridors.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following BLM sensitive species have been identified within Alternative II-C: debris milkvetch, Duchesne milkvetch, Ferron milkvetch, Grand buckwheat, Jones' blue star, narrowstem gilia, Rollins cryptantha, Uinta Basin springparsley, and Utah phacelia. Based on a desktop review, potential habitat has been identified for 45 BLM sensitive species within Alternative II-C (**Table 3.6-13**). 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 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 limited revegetation 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.

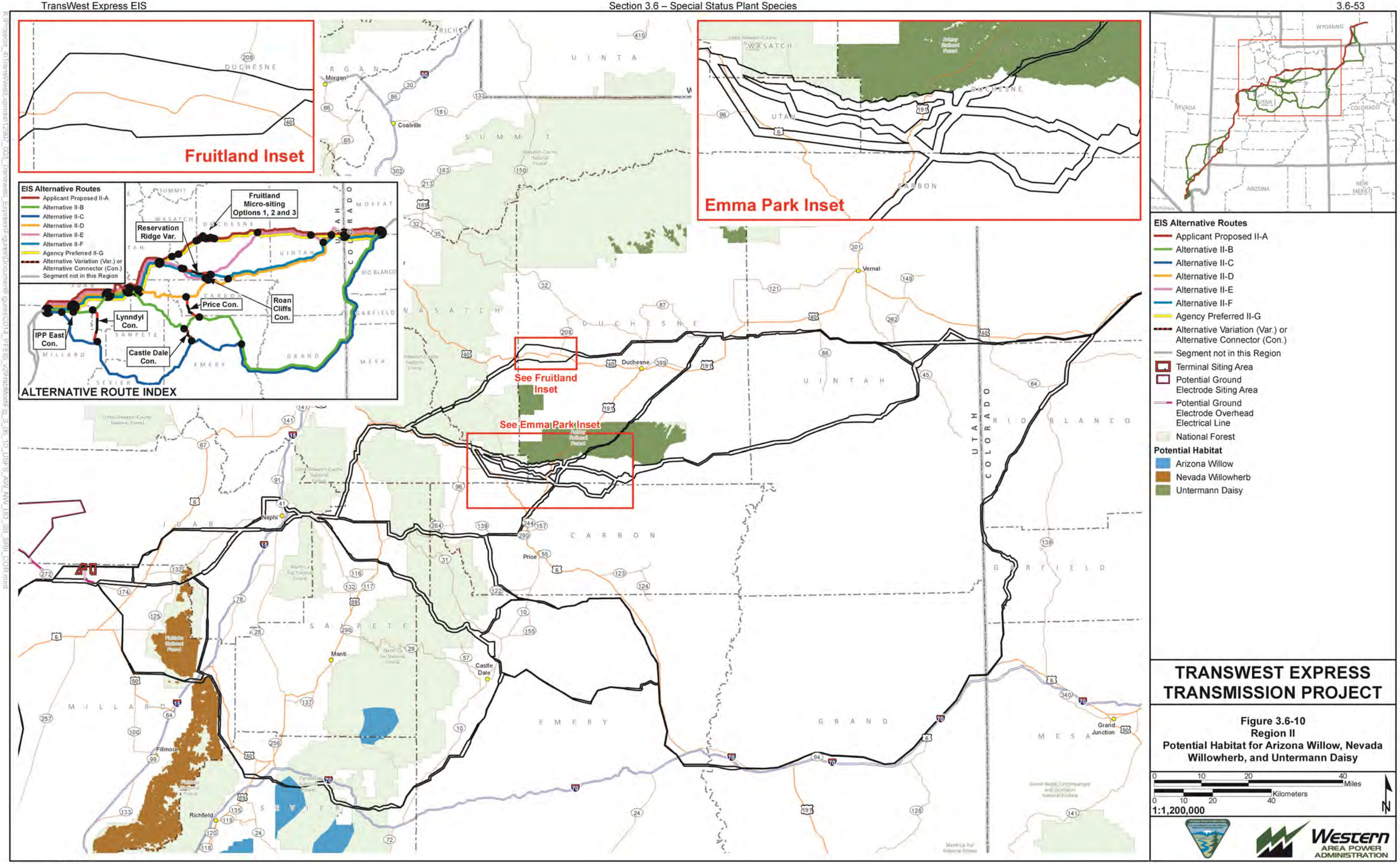
Impacts to BLM sensitive species would be consistent with those discussed in Section 3.6.6.1, Impacts from Terminal Construction and Operation, and Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components. BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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-3**, **SS-4**, **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. 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 based on the implementation of the BMPs, design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.



TRANSWEST EXPRESS TRANSMISSION PROJECT

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

Exported On: 1/21/2015



TRANSWEST EXPRESS TRANSMISSION PROJECT

Figure 3.6-10
Region II
Potential Habitat for Arizona Willow, Nevada Willowherb, and Untermann Daisy

Exported On: 1/21/2015

USFS Sensitive Species

Based on habitat suitability modeling, potential habitat has been identified for the following Forest sensitive species within Alternative II-C: Arizona willow, Bicknell milkvetch, Elsinore buckwheat, Maguire campion, Nevada willowherb, Sigurd townsendia, and Ward beardtongue. Two species, the Maguire daisy and creutzfeldt-flower, do not have sufficient habitat information necessary for habitat model development; therefore, a conservative analysis was applied for these species, which were carried forward through the impact analysis. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Potential habitats for the aforementioned species are presented in **Table 3.6-12** and illustrated in **Figures 3.6-6**, **3.6-7**, **3.6-8**, **3.6-9**, and **3.6-10**.

Alternative II-C would cause approximately 94 acres of construction disturbance to potential habitat identified for Arizona willow; 58 acres for Bicknell milkvetch; 109 acres for Elsinore buckwheat; 143 acres for Maguire campion; 98 acres for Nevada willowherb; 93 acres for Sigurd townsendia; and 509 acres for Ward beardtongue. BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate impacts to potential habitats within the refined transmission corridors. Pursuant to the implementation of mitigation measure **SS-1**, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**) and proposed mitigation measures **SS-3**, **SS-4**, **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-9** would be applied. The areas not avoided would result in loss of suitable habitat for the species.

Based on species occurrence data and agency consultation, no Forest sensitive species have been identified within the Alternative II-C refined transmission corridors. 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 and 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.

<u>Alternative II-D</u>

Clay Reed-Mustard (Federally Threatened)

Alternative II-D would cause approximately 89 acres of construction disturbance to potential habitat identified for clay reed-mustard (**Table 3.6-12** and **Figure 3.6-3**). Based on species occurrence data and agency consultation, clay reed-mustard individuals or populations have been identified within Alternative II-D. No critical habitat has been designated for this species.

BMPs, design features, and proposed mitigation measures as 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. TransWest'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 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-9** would be applied. The areas not avoided would result in loss of suitable habitat for the species.

Graham's Penstemon (Former Federally Proposed; Current BLM Sensitive)

Alternative II-D would cause approximately 417 acres of construction disturbance to potential habitat identified for Graham's penstemon (**Table 3.6-12** and **Figure 3.6-4**). Based on species occurrence data and agency consultation, Graham's penstemon individuals or populations have been identified within Alternative II-D.

BMPs, design features, and proposed mitigation measures as 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. 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 BMPs ECO-1 and ECO-4 (**Appendix C**) and proposed mitigation measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**. Based on the limited number of known locations in Alternative II-D, 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 Alternative II-D. To minimize impacts to suitable habitat, mitigation measure **SS-9** 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.

Uinta Basin Hookless Cactus (Federally Threatened)

Alternative II-D would cause approximately 1,041 acres of construction disturbance to potential habitat identified for Uinta Basin hookless cactus (**Table 3.6-12** and **Figure 3.6-5**). Based on species occurrence data and agency consultation, Uinta Basin hookless cactus individuals or populations have been identified within Alternative II-D. Alternative II-D crosses Uinta Basin hookless cactus Level 1 and Level 2 core conservation areas and potential impacts are shown in **Table 3.6-12**. Disturbance in a Level 1 core conservation area may require formal consultation with the USFWS. Any surface disturbance within 300 feet of Uinta Basin hookless cactus would require formal consultation with the USFWS. No critical habitat has been designated for this species.

Based on the extent of the potential habitat and known locations, 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 species, habitat fragmentation, introduction and spread of invasive species, loss of pollinators, fugitive dust impacts, and increased sedimentation. Reclamation in the habitats associated with 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-10: *(Uinta Basin Hookless Cactus Core Conservation Area Mitigation Measures) – To avoid or minimize impacts to the Uinta Basin hookless cactus (Sclerocactus wetlandicus), the following measures would be implemented within potentially suitable habitat for the species as identified by the BLM and USFWS:*

1. *All new or improved access that would not be required for maintenance would be closed or rehabilitated following Project construction using the most effective and least environmentally damaging methods.*

2. *Ground-disturbing activities would occur outside of the flowering season, typically late April to mid-May (exact date for year of construction to be identified by BLM Vernal FO and USFWS), in Level 1 Sclerocactus core habitat as defined by the USFWS. This would avoid adverse impacts on Sclerocactus reproductive success in high-density occupied habitat related to fugitive dust and pollinator disturbance.*
3. *The transmission line would be sited to minimize impacts on the maximum number of cacti technically feasible.*
4. *Where complete avoidance is unfeasible, all cacti located within the areas required to be disturbed by the Project would be transplanted by a qualified botanist. All transplanted cacti would be monitored as agreed upon by BLM and USFWS.*
5. *Site inventories would be conducted to determine habitat suitability. The following protocols would be adhered to for site inventories:*
    a. *Site inventories would be performed within a 300-foot buffer from the edges of the Project disturbance and/or ROW.*
    b. *Site inventories are required in known or potential habitat for all areas proposed for surface disturbance prior to initiation of project activities, at a time when the plant can be detected, and during appropriate flowering periods.*
    c. *Documentation would include, but not be limited to, individual plant locations and suitable habitat distributions.*
    d. *All surveys must be conducted by qualified individuals.*
    e. *Surveys would be valid for one year from the survey date. If the Project has not been completed within the year following pre-construction plant surveys, spot check surveys would be conducted on an annual basis by a qualified botanist, and reviewed by the BLM and USFWS, for all planned disturbance areas. Review of spot checks may result in additional pre-construction plant surveys as directed by the BLM and USFWS. If the proposed action or parts thereof have not occurred within 4 years of the original survey, additional coordination with the BLM and USFWS must occur and a new clearance survey may be necessary prior to ground disturbing activities.*
6. *Project activities would require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures would be evaluated and, if necessary, Section 7 consultation would be reinitiated.*
7. *Project activities must be designed to avoid direct disturbance to populations and to individual plants. This includes the following provisions:*
    a. *Designs would avoid concentrating water flows or sediments into occupied Uinta Basin Hookless Cactus habitat. Erosion control measures (e.g., silt fencing) would be implemented to minimize sedimentation to Sclerocactus plants and populations located downslope of proposed surface disturbance activities, and should only be implemented within the area proposed for disturbance.*
    b. *Construction would take place downslope of plants and populations where feasible; if disturbance must occur upslope, buffers of 300 feet minimum between surface disturbances and plants and populations would be incorporated. Donations to a mitigation fund generally are required for surface disturbance within 300 feet of plants and populations.*
    c. *Where populations are found within 200 feet of planned disturbance, a silt fence or similar erosion/sedimentation control device would be established around the individuals or groups of individuals prior to construction and would be maintained during and after construction until disturbed soils are revegetated or otherwise stabilized.*

d. Avoidance areas would be visually identifiable in the field (e.g., through use of flagging, temporary fencing, rebar, etc.).

8. Ground disturbing activities in suitable Sclerocactus habitat and within 300 feet of individual Sclerocactus plants and/or populations must occur outside of the flowering period, April 1 - May 30.

9. Disturbance from vehicle travel would be limited by implementation of the following provisions:

a. Disturbances to and in suitable habitat would be limited by staying on designated routes.

b. New access routes created by the project would be limited.

c. Signing would be placed to limit all-terrain vehicle travel in sensitive areas.

d. Dust abatement practices would be implemented near occupied plant habitat during the time of the year when Sclerocactus species are most vulnerable to dust-related impacts (March through August). All disturbed areas would be re-vegetated with native species consisting of species indigenous to the area.

10. Post-construction monitoring for invasive species would be required. Noxious weeds within Sclerocactus habitat may be controlled with herbicides in accordance with the BLM Herbicide Programmatic EIS (BLM 2007). Application for a pesticide use permit would include provisions for mechanical removal, as opposed to chemical removal, for Utah Class A, B, and C noxious weeds within 50 feet of Sclerocactus individuals or populations.

11. Additional measures to avoid or minimize effects on the species may be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.

The following recommendations have been developed by the USFWS for actions in Level 1 and Level 2 Sclerocactus core areas:

12. The USFWS would be contacted within 24 hours in the event of any emergency or unforeseen situation in which cacti or habitat in core conservation areas would be damaged or lost.

13. A qualified third-party botanist would be on site prior to and during all construction activities to flag cacti or avoidance areas, train construction crews on how to avoid cacti, and ensure that construction and activities do not damage core conservation area habitat.

14. Surface-disturbing activities in Level 1 Sclerocactus core conservation areas would occur outside of the flowering season, typically late April to mid-May, to avoid impacts related to fugitive dust and pollinator disturbance.

Effectiveness: Implementation of mitigation measure **SS-10**, in addition to BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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 refined transmission corridors for Alternative II-D, total avoidance of known locations and potential habitat for this species is unlikely. To minimize impacts to high quality suitable habitat, mitigation measure **SS-9** 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.

Federal Species' Potential Habitat

Within Alternative II-D, potential habitat was identified for the shrubby reed-mustard, Ute ladies'-tresses orchid, and White River beardtongue (now BLM Sensitive) (**Table 3.6-12** and **Figures 3.6-2**, **3.6-3**, and **3.6-5**). Alternative II-D would cause construction disturbance to approximately <1 acre of potential habitat identified for shrubby reed-mustard; 11 acres for White River beardtongue; and 38 acres for Ute ladies'-tresses orchid. Based on the limited acreage of potential habitat for the

shrubby reed-mustard and White River beardtongue, no impacts are anticipated. Reclamation in the habitats associated with clay reed-mustard, Uinta Basin Hookless Cactus, and shrubby reed-mustard may be difficult due to soils with limited revegetation potential, invasive and noxious weeds, and low precipitation. See Section 3.5, Vegetation, for more detail on reclamation. With implementation of mitigation measure **SS-2**, no impacts to Ute ladies'-tresses orchid habitat is anticipated.

No critical habitat has been designated for these species; therefore, no impacts to critical habitat are anticipated.

Based on species occurrence data and agency consultation, no individuals or populations have been identified within Alternative II-D; therefore, no direct impacts are anticipated. If species are identified during species-specific surveys, species avoidance would be conducted based on mitigation measures **SS-1** and **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, and impact minimization and mitigation measures would be developed in consultation with the USFS and Western prior to construction.

BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate impacts to all potential habitats within the refined transmission corridors. Species-specific surveys within suitable habitat and subsequent species avoidance would be conducted through the implementation of mitigation measures **SS-1** and **SS-2**. Based on the results of the surveys, design specifications could be implemented in accordance with BMPs ECO-1 and ECO-4 (**Appendix C**) and proposed mitigation measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following BLM sensitive species have been identified within Alternative II-D: debris milkvetch, giant fourwing saltbush, and Graham's penstemon. Based on a desktop review, potential habitat has been identified for 27 BLM sensitive species within the Alternative II-D refined transmission corridors (**Table 3.6-13**). Associated 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 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. Strigose Easter-daisy does not have available habitat information; therefore, a conservative analysis was applied for this species, which was carried forward through the impact analysis. Impacts to species in habitats with limited revegetation 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. Impacts to BLM sensitive species would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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**, **SS-4**, **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 BLM sensitive species that are avoided based on the implementation of BMPs, design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

USFS Sensitive Species

Based on habitat suitability modeling, potential habitat has been identified for the following Forest sensitive species within Alternative II-D: Duchesne greenthread, Goodrich blazingstar, Maguire campion, and Untermann daisy. One species, the creutzfeldt-flower, did not have sufficient habitat information necessary for habitat model development; therefore, a conservative analysis was applied for this species which was carried forward through the impact analysis. Associated species ranges and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Potential habitats for the aforementioned species are summarized in **Table 3.6-12** and illustrated in **Figures 3.6-8**, **3.6-9**, and **3.6-10**.

Within the Alternative II-D refined transmission corridors, the Duchesne greenthread and Untermann daisy each have less than 1 acre of construction disturbance to potential habitat. Alternative II-D would cause approximately 221 acres of construction disturbance to potential habitat identified for Maguire campion. 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 refined transmission corridors where it crosses Ashley National Forest.

Based on species occurrence data and agency consultation, two Forest sensitive species (Duchesne greenthread and Goodrich blazingstar) have been identified within Alternative II-D. 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.

Species-specific surveys within suitable habitat and subsequent species avoidance would be conducted through the implementation of 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. 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, and proposed mitigation measures, direct and indirect impacts are not anticipated.

BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate impacts to all potential habitats within the refined transmission corridors. Pursuant to implementation of mitigation measure **SS-1**, design specifications could be implemented in accordance with WWEC BMPs ECO-1 and ECO-4 (**Appendix C**) and proposed mitigation measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**.

For the species with limited and dispersed potential habitat (Duchesne greenthread and Untermann daisy), impacts are not anticipated. For the Maguire campion, which spans linear stretches of contiguous habitat paralleling the corridors, complete avoidance of habitat is not likely. To minimize impacts to suitable habitats for these species, mitigation measure **SS-9** 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.

Alternative II-E

Clay Phacelia (Federally Endangered)

Alternative II-E would cause approximately 56 acres of construction disturbance to potential habitat identified for clay phacelia (**Table 3.6-12** and **Figure 3.6-4**). This is approximately 4 percent of the potential habitat that exists in Region II for clay phacelia. Based on species occurrence data and agency consultation, clay phacelia individuals or populations have been identified within Alternative II-E. No critical habitat has been designated for this species. The types of impacts, BMPs, design features, and proposed mitigation measures would be similar to those described for Alternative II-A; however, the impacts would be greater, commensurate with the amount of potential habitat disturbed.

Deseret Milkvetch (Federally Threatened)

Alternative II-E would cause approximately 278 acres of construction disturbance to potential habitat identified for Deseret milkvetch (**Table 3.6-12** and **Figure 3.6-2**). This is approximately 1.5 percent of the potential habitat which exists in Region II for Deseret milkvetch. Based on species occurrence data and agency consultation, Deseret milkvetch individuals or populations have been identified within Alternative II-E. No critical habitat has been designated for this species; therefore, no impacts to critical habitat are anticipated.

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 impacts to Deseret milkvetch along with BMPs, design features, and proposed mitigation measures would be the same as those described for Alternative II-A.

Graham's Penstemon (Former Federally Proposed; Current BLM Sensitive)

Alternative II-E would cause approximately 440 acres of construction disturbance to potential habitat identified for Graham's penstemon (**Table 3.6-12** and **Figure 3.6-4**). Based on species occurrence data and agency consultation, Graham's penstemon individuals or populations have been identified within Alternative II-E.

BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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 measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**. Based on the limited number of known locations, 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 refined transmission corridors. To minimize impacts to suitable habitat, mitigation measure **SS-9** would be applied. The areas not avoided would result in loss of suitable habitat for the species.

Ute Ladies'-tresses Orchid (Federally Threatened)

Alternative II-E would cause approximately 204 acres of construction disturbance to potential habitat identified for Ute ladies'-tresses orchid (**Table 3.6-12** and **Figure 3.6-3**). Based on species occurrence data and agency consultation, Ute ladies'-tresses orchid individuals or populations have been identified within Alternative II-E. No critical habitat has been designated for this species.

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

Federal Species' Potential Habitat

Alternative II-E would cause approximately 9 acres of construction disturbance to potential habitat identified for White River beardtongue (now BLM Sensitive) (**Table 3.6-12** and **Figure 3.6-5**). Based on species occurrence data and agency consultation, no individuals or populations of the species have been documented within Alternative II-E.

BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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 measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**. Based on the small amount of potential habitat for White River beardtongue, impacts within Alternative II-E are not anticipated.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following BLM sensitive species have been identified within Alternative II-E: Graham's penstemon, Hamilton milkvetch, debris milkvetch, giant fourwing saltbush, horseshoe milkvetch, Untermann daisy, and Ute ladies'-tresses orchid. Based on a desktop review, potential habitat has been identified for 27 BLM sensitive species within Alternative II-E (**Table 3.6-13**). Associated species range and habitat are provided in **Appendix G**, **Table G-1**.

BLM sensitive species with known locations and habitat within Alternative II-E range from species that are found across a wide variety of habitats to those that are only found in very specific soil and vegetation combinations. The habitats include sandy and clay substrates, ridge tops, badlands, steep slopes, barren/sparsely vegetated areas, shrub and juniper communities, coniferous communities, chaparral, mountain, and mixed and desert shrublands. Strigose Easter-daisy does not have available habitat information; therefore, a conservative analysis was applied for this species, which was carried forward through the impact analysis. Impacts to species in habitats with limited revegetation 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. BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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**, **SS-4**, **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, one Forest sensitive species (Untermann daisy) has been identified within Alternative II-E. The majority of the known occurrences for Untermann daisy are located in the analysis area within the Ashley National Forest.

Based on habitat suitability modeling, potential habitat has been identified for the following Forest sensitive species within Alternative II-E: Duchesne greenthread, Goodrich blazingstar, slender moonwort, Untermann daisy, and 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 presented in **Table 3.6-12** and illustrated in **Figures 3.6-7**, **3.6-8**, **3.6-9**, and **3.6-10**. Alternative II-E would cause approximately 52 acres of construction disturbance to potential habitat identified for Goodrich blazingstar and 125 acres for Untermann daisy. For Duchesne greenthread, there are approximately 125 acres of construction disturbance to potential habitat within within the Ashley National Forest. Wasatch jamesia has approximately 7 acres of construction disturbance to potential habitat identified in the Uinta National Forest Planning Area[1]. The species occurrences for Wasatch jamesia are located outside of the analysis area. The habitat suitability model did not capture potential habitat for the slender moonwort.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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**, **SS-4**, **SS-5**, and **SS-6**. For the species with limited and dispersed potential habitat (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, and Untermann daisy suitable habitats, mitigation measure **SS-9** 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

Clay Phacelia (Federally Endangered)

Alternative II-F would cause approximately 56 acres of construction disturbance to potential habitat identified for clay phacelia (**Table 3.6-12** and **Figure 3.6-4**). This is approximately 4 percent of the potential habitat that exists in Region II for clay phacelia. Based on species occurrence data and agency consultation, clay phacelia individuals or populations have been identified within Alternative II-F. No critical habitat has been designated for this species.

As Alternative II-F coincides with Alternative II-E through this species' range, the acreage and occurrence data for clay phacelia are the same as those described for Alternative II-E. The types of impacts to clay phacelia would be the same as those described for Alternative II-A; however, the impacts would be greater, commensurate with the amount of potential habitat disturbed.

Deseret Milkvetch (Federally Threatened)

Alternative II-F would cause approximately 278 acres of construction disturbance to potential habitat for Deseret milkvetch (**Table 3.6-12** and **Figure 3.6-2**). This is approximately 1.5 percent of the potential habitat that exists for Deseret milkvetch. Based on species occurrence data and agency consultation, Deseret milkvetch individuals or populations have been identified within the

[1] In March 2008, the Uinta National Forest and the Wasatch-Cache National Forest were combined into one administrative unit (Uinta-Wasatch-Cache National Forest). Each of these forests continues to operate under individual forest plans approved in 2003. The term "Uinta National Forest Planning Area" is used to refer to the portion of the Uinta-Wasatch-Cache National Forest managed under the 2003 LRMP for the Uinta National Forest.

Alternative II-F refined transmission corridors. 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-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 for Alternative II-A.

Graham's Penstemon (Former Federally Proposed; Current BLM Sensitive)

Alternative II-F would cause approximately 767 acres of construction disturbance to potential habitat for Graham's penstemon (**Table 3.6-12** and **Figure 3.6-4**). Based on species occurrence data and agency consultation, Graham's penstemon individuals or populations have been identified within Alternative II-F.

BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation 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 measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**. Based on the limited number of known locations, 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 refined transmission corridors. To minimize impacts to suitable habitat, mitigation measure **SS-9** would be applied. The areas not avoided would result in loss of suitable habitat for the species.

Clay Reed-mustard (Federally Threatened)

Alternative II-F would cause approximately 89 acres of construction disturbance to potential habitat identified for clay reed-mustard (**Table 3.6-12** and **Figure 3.6-3**). Based on species occurrence data and agency consultation, clay reed-mustard individuals or populations have been identified within Alternative II-F. No critical habitat has been designated for this species.

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 (Federally Threatened)

Alternative II-F would cause approximately 1,385 acres of construction disturbance to potential habitat identified for Uinta Basin hookless cactus (**Table 3.6-12** and **Figure 3.6-5**). Based on species occurrence data and agency consultation, Uinta Basin hookless cactus individuals or populations have been identified within Alternative II-F. No critical habitat has been designated for this species.

As Alternative II-F coincides with Alternative II-D through this species' range and core conservation areas, 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 for Alternative II-D. To mitigate Project-related impacts to Uinta Basin hookless cactus, mitigation measure **SS-10** (*Uinta Basin Hookless Cactus Core Conservation Area Mitigation Measures)* is proposed.Based on the extent of the potential habitat and known locations, 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.

Federal Species' Potential Habitat

Within Alternative II-F, potential habitat has been identified for shrubby reed-mustard, Ute ladies'-tresses orchid, and White River beardtongue (now BLM Sensitive) (**Table 3.6-12** and **Figures 3.6-2**, **3.6-3**, and **3.6-5**). Based on species occurrence data and agency consultation, no individuals or populations of these species have been identified within Alternative II-F.

Alternative II-F would cause less than 1 acre of construction disturbance to potential habitat for shrubby reed-mustard; 71 acres for Ute ladies'-tresses orchid; and 11 acres for White River beardtongue.

BMPs, design features and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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 measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**.

BMP's, design features, and proposed mitigation measures would be similar to those presented for Alternative I-A; 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 limited revegetation potential 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.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following BLM sensitive species have been identified within Alternative II-F: debris milkvetch, giant fourwing saltbush, Goodrich blazingstar, Graham's penstemon, and Duchesne greenthread. Based on a desktop review, potential habitat has been identified for 24 BLM sensitive species within Alternative II-F (**Table 3.6-13**). Associated species range and habitat are provided in **Appendix G, Table G-1**.

The BLM sensitive species with known locations and habitat within Alternative II-F 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/sparsely vegetated areas, shrub and juniper communities, coniferous communities, chaparral, mountain, and mixed and desert shrublands. Impacts to species in habitats with limited revegetation 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 timeframe needed to restore woody communities.

BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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 measures **SS-3**, **SS-4**, **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, 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 Forest sensitive species (Goodrich blazingstar and Duchesne greenthread) have been identified within Alternative II-F. Based on habitat suitability modeling, potential habitat has been identified for the following Forest sensitive species within Alternative II-F: dainty moonwort, Duchesne greenthread, Goodrich blazingstar, Untermann daisy, and 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 presented in **Table 3.6-12** and illustrated in **Figures 3.6-6**, **3.6-8**, **3.6-9**, and **3.6-10**.

The majority of the known occurrences for Goodrich blazingstar and Duchesne greenthread are located in the Ashley National Forest. Dainty moonwort, Duchesne greenthread, and Untermann daisy each have less than 1 acre of disturbance to potential habitat identified. Wasatch jamesia has approximately 7 acres of construction disturbance to potential habitat identified in the Uinta National Forest Planning Area. The species occurrences for Wasatch jamesia are located outside of the analysis area. The habitat suitability model did not identify potential habitat for the Goodrich blazingstar.

BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate any potential impacts to Forest 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 measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**. Given that each species is limited to dispersed potential habitat within the refined transmission corridors, impacts are not anticipated.

<u>Alternative II-G (Agency Preferred)</u>

Deseret Milkvetch (Federally Threatened)

Alternative II-G would cause approximately 278 acres of construction disturbance to potential habitat identified for Deseret milkvetch (**Table 3.6-12** and **Figure 3.6-2**). This is approximately 1.5 percent of the potential habitat that exists for Deseret milkvetch. One population of the Deseret milkvetch is located within the Alternative II-G refined transmission corridor. No critical habitat has been designated for this species. Currently, the USFWS is reviewing a proposal to delist the species due to lack of the threats (USFWS 2011). Implementation of Alternative II-G would potentially represent a new threat to the species that may result in the USFWS making the determination not to delist the species (USFWS 2012a).

To mitigate Project-related impacts to the Deseret milkvetch, mitigation measure **SS-7** was developed (described in Section 3.6.6.4 and **Appendix C**).

Effectiveness: BMPs, design features, and proposed mitigation measures as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation would be implemented to avoid, minimize, and mitigate any potential impacts to the Deseret milkvetch. The refined transmission corridors have been widened to allow for the 250-foot-wide transmission line ROW to be routed around the one previously mentioned Deseret milkvetch population. With the implementation of mitigation measures **SS-1** and **SS-7** in addition to the BMPs, design features, and TransWest's applicant-committed measures, no impacts to the Deseret milkvetch and its associated habitat would be anticipated.

Indirect impacts would be mitigated through implementation of mitigation measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**.

Ute Ladies'-tresses Orchid (Federally Threatened)

Alternative II-G would cause approximately 154 acres of construction disturbance to potential habitat identified for Ute ladies'-tresses orchid (**Table 3.6-12** and **Figure 3.63**). Known individuals and/or populations have been identified within Alternative II-G. No critical habitat has been designated for this species.

Implementation of BMPs, design features, mitigation measures and their 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 or its associated habitat are anticipated.

Graham's Penstemon (Former Federally Proposed; Current BLM Sensitive)

Alternative II-G would cause approximately 21 acres of construction disturbance to potential habitat identified for Graham's penstemon (**Table 3.6-12** and **Figure 3.6-4**). Known individuals and/or populations have been identified within Alternative II-G.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to avoid, minimize, and mitigate potential impacts to Graham's penstemon. Based on implementation of mitigation measure **SS-1**, in addition to the BMPs, design features, and TransWest's applicant-committed measures, no impacts to Graham's penstemon and its associated habitat are anticipated.

Indirect impacts would be mitigated through implementation of mitigation measures **SS-3**, **SS-4**, **SS-5**, and **SS-6**.

Federal Species' Potential Habitat

Within Alternative II-G, potential habitat has been identified for the Barneby ridgecress, clay phacelia, and White River beardtongue (now considered BLM Sensitive) (**Table 3.6-12**, and **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-G; therefore, no species-level impacts are anticipated. No critical habitat has been designated for these species.

The estimated construction disturbance to potential habitat for federally listed species within Alternative II-G includes 106 acres for Barneby ridgecress 11 acres for clay phacelia, and less than 1 acre for White River beardtongue.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation would be implemented to avoid, minimize, and mitigate potential impacts to special status species habitats. 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**, **SS-4**, **SS-5**, and **SS-6**.

Based on the distribution of potential habitat for the Barneby ridgecress and White River beardtongue within Alternative II-G, it is likely that potential habitat could be spanned by the transmission line; therefore, no impacts to these species are 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.

Affects to clay phacelia for Alternative II-G would be the same as with Alternative II-A, described in detail in Section 3.6.6.4.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation would be implemented to avoid, minimize, and mitigate potential impacts to the clay phacelia. Indirect impacts would be mitigated through implementation of mitigation measures **SS-3**, **SS-4**, **SS-5**, **SS-6,** and **SS-9**.

To mitigate Project-related impacts to clay phacelia, mitigation measure **SS-8** (Avoidance of Clay Phacelia and Minimization of Indirect Impacts) is proposed. **SS-8** is described in Section 3.6.6.4 as well as **Appendix C**.

Effectiveness: Upon implementation 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-3** and **SS-8** would prevent direct impacts to clay phacelia individuals and minimize indirect impacts from erosion resulting from surface-disturbing activities. If total avoidance of clay phacelia habitat is not feasible, implementation of mitigation measures **SS-8** and **SS-9**, in conjunction with mitigation measure **SS-1**, BMPs and design features, impacts to high quality habitats would be avoided. 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 BLM sensitive species have been identified within Alternative II-G: debris milkvetch, giant fourwing saltbush, Hamilton milkvetch, Graham's penstemon, horseshoe milkvetch, and Ute ladies'-tresses orchid. Based on a desktop review, potential habitat has been identified for 24 BLM sensitive species within Alternative II-G (**Table 3.6-13**). 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 II-G refined transmission 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. Strigose Easter-daisy does not have available habitat information; therefore, a conservative analysis was applied for this species which was carried forward through the impact analysis. Impacts to species in limited revegetation 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. Impacts to BLM sensitive species would be consistent with those discussed in Section 3.6.6.2, Impacts Common to All Alternative Routes and Associated Components.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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**, **SS-4**, **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 BMPs, design features, and proposed mitigation measures, direct and indirect impacts are not anticipated.

USFS Sensitive Species

Based on habitat suitability modeling, potential habitat has been identified for the following Forest sensitive species within Alternative II-G: dainty moonwort, slender moonwort, and Wasatch jamesia. Alternative II-G would cause approximately 4 acres of construction disturbance to potential habitat identified for dainty moonwort; 71 acres for the slender moonwort, and 190 acres for Wasatch jamesia. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Potential habitats for these species are presented in **Table 3.6-12** and shown in **Figures 3.6-6**, **3.6-7**, and **3.6-8**. For all three species, all known occurrences are located outside of the areas proposed for surface disturbance.

Based on species occurrence data and agency consultation, no Forest sensitive species have been identified within Alternative II-G; therefore, no species-level impacts are anticipated. If Forest sensitive species are identified during site-specific surveys, impacts would be avoided per mitigation measure **SS-1**. 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.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, would be implemented to minimize and mitigate impacts to potential habitats. 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**, **SS-4**, **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-9** 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 following micro-siting options are located along Alternative II-G: Fruitland Micro-siting Option 1, Fruitland Micro-siting Option 2, Fruitland Micro-siting Option 3, Strawberry IRA Micro-siting Option 2, and Strawberry IRA Micro-siting Option 3. Based on species occurrence data and agency consultation, no federally listed, Forest sensitive, or BLM sensitive plant species have been identified in these micro-siting options. Potential habitat has been identified for one BLM sensitive and federally listed species within the Fruitland Micro-siting Options: Ute ladies'-tresses orchid. The Fruitland Micro-siting Options 1 and 2 would not differ from the comparable portion of Alternative II-G in their effect on the Ute ladies'-tresses orchid (approximately 1.0 acres). The Fruitland Micro-citing Option 3, although still having minor impacts, would be almost twice the amount of construction impacts (10 acres) as the comparable portion of Alternative II-G (6 acres). No critical habitat has been designated for this species.

Based on a habitat suitability model, potential habitat has been identified for three Forest sensitive species (slender moonwort, dainty moonwort, and Wasatch jamesia) within the Strawberry IRA Micro-siting Option 2 and Strawberry IRA Micro-siting Option 3, totaling approximately 60 acres for all three species combined. The comparable portion of Alternative II-G in relation to the Strawberry IRA Micro-siting Options would be slightly less, totaling approximately 59 acres for all three species combined.

Alternative Variation in Region II

Based on species occurrence data and agency consultation, no federally listed, Forest sensitive, or BLM sensitive plant species have been identified along the Reservation Ridge Alternative Variation. Potential habitat has been identified for one federally listed species (Graham's penstemon), six Forest sensitive species (Untermann daisy, Goodrich blazingstar, Duchesne greenthread, slender moonwort, dainty moonwort, and Wasatch jamesia), and six BLM sensitive species. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. A summary of potential habitat acreages for the aforementioned federally listed and Forest sensitive species is presented in **Table 3.6-14** and illustrated in **Figures 3.6-4**, **3.6-6**, **3.6-7, 3.6-8**, **3.6-9**, and **3.6-10**.

Table 3.6-14 Summary of Region II Alternative Variation Impacts for Federally Listed and Forest Sensitive Plant Species[1]

Common Name	Reservation Ridge Alternative Variation	Alternative II-A Comparable
Federally Listed Species		
Graham's Penstemon		
Clearing/Trampling (acres)	31	–
Construction Disturbance (acres)	35	–
Species Subtotal (acres)	**66**	**–**
Operation Disturbance (acres)	10	–
Forest Sensitive Species[2]		
Dainty Moonwort		
Clearing/Trampling (acres)	<1	–
Construction Disturbance (acres)	<1	–
Species Subtotal (acres)	**<1**	**–**
Operation Disturbance (acres)	<1	–
Goodrich Blazingstar		
Clearing/Trampling (acres)	3	–
Construction Disturbance (acres)	3	–
Species Subtotal (acres)	**6**	**–**
Operation Disturbance (acres)	1	–
Slender Moonwort		
Clearing/Trampling (acres)	9	–
Construction Disturbance (acres)	10	–
Species Subtotal (acres)	**19**	**–**
Operation Disturbance (acres)	3	–
Untermann Daisy		
Clearing/Trampling (acres)	3	–
Construction Disturbance (acres)	3	–
Species Subtotal (acres)	**6**	**–**
Operation Disturbance (acres)	1	–
Wasatch Jamesia		
Clearing/Trampling (acres)	3	<1
Construction Disturbance (acres)	3	<1
Species Subtotal (acres)	**6**	**<1**
Operation Disturbance (acres)	1	<1

[1] The Graham's penstemon and White River beardtongue are no longer proposed for listing. They are now classified as a BLM sensitive.

[2] The habitat suitability model did not capture potential habitat for the Duchesne greenthread.

The approximate spatial extent of potential habitat for all federally listed and Forest sensitive species combined totals 104 acres along the Reservation Ridge Alternative Variation. The comparable portion of Alternative II-A in relation to the Reservation Ridge Alternative Variation is considerably less, totaling less than 1 acre for all federally listed and Forest sensitive species combined. Critical habitat has been proposed for the Graham's penstemon; however, no impacts to the proposed critical habitat are anticipated along either the Reservation Ridge Alternative Variation or the Alternative II-A comparable.

Alternative Connectors in Region II

Table 3.6-15 summarizes the impacts and advantages/disadvantages associated with the five alternative connectors in Region II based on known occurrences and potential habitat identification within the refined transmission corridors. A summary of potential habitat acreage for all potentially impacted federally listed and Forest sensitive species is presented in **Table 3.6-16**.

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

Alternative Connector	Analysis	Advantage
Roan Cliffs Alternative Connector	No federally listed or BLM sensitive species or their habitat would be impacted by Project-related activities at this location.	No Project-related impacts are anticipated at this location.
Price Alternative Connector	Based on a desktop review, potential habitat has been identified for six BLM sensitive species (Horse Canyon stickleaf, trotter oreoxis, Jones indigo-bush, psoralea globemallow, Thompson talinum, and creutzfeldt-flower) and one Forest sensitive species (creutzfeldt-flower) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to six BLM sensitive species and one Forest sensitive species.
Castle Dale Alternative Connector	Based on a desktop review, potential habitat has been identified for two federally listed species (Wright fishhook cactus and Last Chance townsendia), that could be impacted by Project-related activities. Based on a desktop review, potential habitat has been identified for seven BLM sensitive species (Mussentuchit gilia, Horse Canyon stickleaf, trotter oreoxis, Jones indigo-bush, psoralea globemallow, Thompson talinum, and creutzfeldt-flower) and one Forest sensitive species (creutzfeldt-flower) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to two federally listed species, seven BLM sensitive species, and one Forest sensitive species.
Lynndyl Alternative Connector	No federally listed species or their habitat would be impacted by Project-related activities at this location. Based on a desktop review, potential habitat has been identified for seven BLM sensitive species Goodrich eared rockcress, giant fourwing saltbush, ibex buckwheat, Neese narrowleaf penstemon, Ward beardtongue, Sigurd townsendia, and Nevada willowherb) and three Forest sensitive species (Ward beardtongue, Sigurd townsendia, and Nevada willowherb) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to seven BLM sensitive species and three Forest sensitive species.
IPP East Alternative Connector	No federally listed or Forest sensitive species or their habitat would be impacted by Project-related activities at this location. Based on a desktop review, potential habitat has been identified for three BLM sensitive species Goodrich eared rockcress, giant fourwing saltbush, and Neese narrowleaf penstemon) and could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to three BLM sensitive species.

Table 3.6-16 Summary of Region II Alternative Connector Impacts for Federally Listed and Forest Sensitive Plant Species

Common Name	Roan Cliffs Alternative Connector	Castle Dale Alternative Connector	Price Alternative Connector	Lynndyl Alternative Connector	IPP East Alternative Connector
Federally Listed Species					
Last Chance Townsendia					
Clearing/Trampling (acres)	–	<1	–	–	–
Construction Disturbance (acres)	–	<1	–	–	–
Species Subtotal (acres)	**–**	**<1**	**–**	**–**	**–**
Operation Disturbance (acres)	–	<1	–	–	–
Wright Fishhook Cactus					
Clearing/Trampling (acres)	–	27	–	–	–
Construction Disturbance (acres)	–	18	–	–	–
Species Subtotal (acres)	**–**	**45**	**–**	**–**	**–**
Operation Disturbance (acres)	–	3	–	–	–
Forest Sensitive Species[1]					
Nevada Willowherb					
Clearing/Trampling (acres)	–	–	–	–	–
Construction Disturbance (acres)	–	–	–	1	–
Species Subtotal (acres)	**–**	**–**	**–**	**1**	**–**
Operation Disturbance (acres)	–	–	–	<1	–
Sigurd Townsendia					
Clearing/Trampling (acres)	–	–	–	–	–
Construction Disturbance (acres)	–	–	–	1	–
Species Subtotal (acre	**–**	**–**	**–**	**1**	**–**
Operation Disturbance (acres) **s)**	–	–	–	<1	–
Ward Beardtongue					
Clearing/Trampling (acres)	–	–	–	–	–
Construction Disturbance (acres)	–	–	–	3	–
Species Subtotal (acres)	**–**	**–**	**–**	**3**	**–**
Operation Disturbance (acres)	–	–	–	1	–

[1] A habitat suitability model was not developed for the creutzfeldt-flower.

Region II Series Compensation Stations (Design Option 3)

If Design Option 3 was implemented, a series compensation station would be necessary along the alternative routes of Region II during the first-phase (AC operation). There are three potential sites, each corresponding to specific alternative routes. Upon completion of Phase 2 of Design Option 2, when there would be no utility for the station, it would be deconstructed and reclaimed to the original condition. These series compensation station alternatives are depicted in **Figure 2-3**.

Series Compensation Station 1 – Design Option 3 corresponds to Alternatives II-A and II-E. Based on species occurrence information and agency consultation, no federally listed or BLM sensitive plant species have been identified within the Series Compensation Station 1 – Design Option 3 area. Potential habitat has been identified for five BLM sensitive species. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**.

Series Compensation Station 2 – Design Option 3 corresponds to Alternatives II-B and II-C. Based on species occurrence information and agency consultation, no federally listed or BLM sensitive plant species have been identified within the Series Compensation Station 2 – Design Option 3 area. Potential habitat has been identified for nine BLM sensitive species. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**.

Series Compensation Station 3 – Design Option 3 corresponds to Alternatives II-D and II-F. Based on species occurrence information and agency consultation, no federally listed or BLM sensitive plant species have been identified within the Series Compensation Station 3 – Design Option 3 area. Based on habitat suitability modeling, approximately 38 acres of potential habitat for the Uinta Basin hookless cactus would be impacted by the Project under this Design Option. In addition, potential habitat has been identified for five BLM sensitive species. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**.

Region II Conclusion

The only known population of Deseret milkvetch is located along Alternatives II-A, II-E, II-F, and II-G. Implementation of **SS-7** would avoid impacts to Deseret milkvetch within the 250-foot-wide transmission line ROW. Indirect impacts to the species could potentially result from fugitive dust and noxious weed impacts. Known occurrences of clay phacelia are located within Alternatives II-E, II-F, and Alternatives II-A and II-G, although to a lesser extent. Based on the current alignment, the known locations for the species would be avoided; however, species could be impacted by erosion from construction activities, based on its proximity to the main highway and the potential locations for the proposed transmission line. Direct impacts to clay phacelia could occur, especially if another transmission line is located within the corridor. Indirect impacts to the species could mainly result from erosion and sedimentation. Implementation of **SS-3** and **SS-9** would mitigate impacts to the species through avoidance of known populations and high quality habitat and the implementation of stringent erosion controls.

Within Region II, Alternative II-F has the highest number of known occurrences and would impact the greatest acreage of potential habitat for federally listed species. Alternative II-D has the greatest number of federally listed species with potential habitat. Alternative II-C would impact the greatest number of BLM sensitive species. Alternatives II-A and II-G would impact the least number of Forest sensitive species and their potential habitat.

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

3.6.6.5 Region III

Based on species occurrence information and habitat associations, the special status plant species that may be impacted in Region III include 46 BLM sensitive species, 2 Forest sensitive species, 7 Nevada state-listed species, 8 NPS-Lake Mead NRA sensitive species and 4 federally listed species (**Table 3.6-4**). Species occurrence and associated habitats in Region III are summarized in **Appendix G**, **Table G-1**. Unless otherwise indicated in the alternatives discussions that follow, this disturbance would be less than 1 percent to each species' potential habitat within Region III. Species parameters are detailed within the Final Special Status Species Survey Plan. **Table 3.6-17** summarizes acreages of federally listed and Forest sensitive plant species potentially impacted in Region III. **Table 3.6-18** provides known occurrence and potential habitat qualification of BLM sensitive and Nevada state-listed species potentially impacted in Region III.

Table 3.6-17 Summary of Region III Alternative Route Impacts for Federally Listed and Forest Sensitive Plant Species[1]

Common Name	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
Federally Listed Species				
Las Vegas Buckwheat: 138,479 acres *				
Clearing/Trampling (acres)	362	87	55	87
Construction Disturbance (acres)	198	47	45	47
Species Subtotal (acres)	**560**	**134**	**100**	**134**
Operation Disturbance (acres)	51	8	12	8
Shivwitz Milkvetch: 4,301 acres*				
Clearing/Trampling (acres)	4	–	–	-
Construction Disturbance (acres)	2	–	–	-
Species Subtotal (acres)	**6**	**–**	**–**	**-**
Operation Disturbance (acres)	1	–	–	-
Siler Pincushion Cactus: 39,736 acres*				
Clearing/Trampling (acres)	80	–	–	-
Construction Disturbance (acres)	42	–	–	-
Species Subtotal (acres)	**122**	**–**	**–**	**-**
Operation Disturbance (acres)	10	–	–	-
Ute Ladies-tresses Orchid: 4,712 acres*				
Clearing/Trampling (acres)	–	1	9	-
Construction Disturbance (acres)	–	1	7	-
Species Subtotal (acres)	**–**	**2**	**16**	**-**
Operation Disturbance (acres)	–	–	2	-
Forest Sensitive Species				
Pinyon Penstemon: 195,626 acres*				
Clearing/Trampling (acres)	169	–	–	-
Construction Disturbance (acres)	171	–	–	-
Species Subtotal (acres)	**340**	**–**	**–**	**-**
Operation Disturbance (acres)	51	–	–	-

[1] Las Vegas buckwheat is no longer a Federal Candidate species, but is a BLM Sensitive species.

* This number represents the amount in acres of modeled potential habitat within the analysis area of Region III.

Table 3.6-18 Summary of Region III Alternative Route Impacts for BLM Sensitive and Nevada State-listed Plant Species

Parameter	Alternative III-A	Alternative III-B	Alternative III-C	Alternative III-D
BLM Sensitive Species				
Number of species with known occurrences impacted	8	7	4	7
Number of species with potential habitat impacted	30	33	34	33
Nevada State-listed Species				
Number of species with known occurrences impacted	3	4	1	4
Number of species with potential habitat impacted	4	6	5	6

Alternative III-A (Applicant Proposed)

Las Vegas Buckwheat (Former Federal Candidate; Current BLM Sensitive)

Alternative III-A would cause approximately 560 acres of construction disturbance to potential habitat identified for Las Vegas buckwheat (**Table 3.6-17** and **Figure 3.6-11**). Based on species occurrence data and agency consultation, Las Vegas buckwheat individuals or populations have been identified within Alternative III-A.

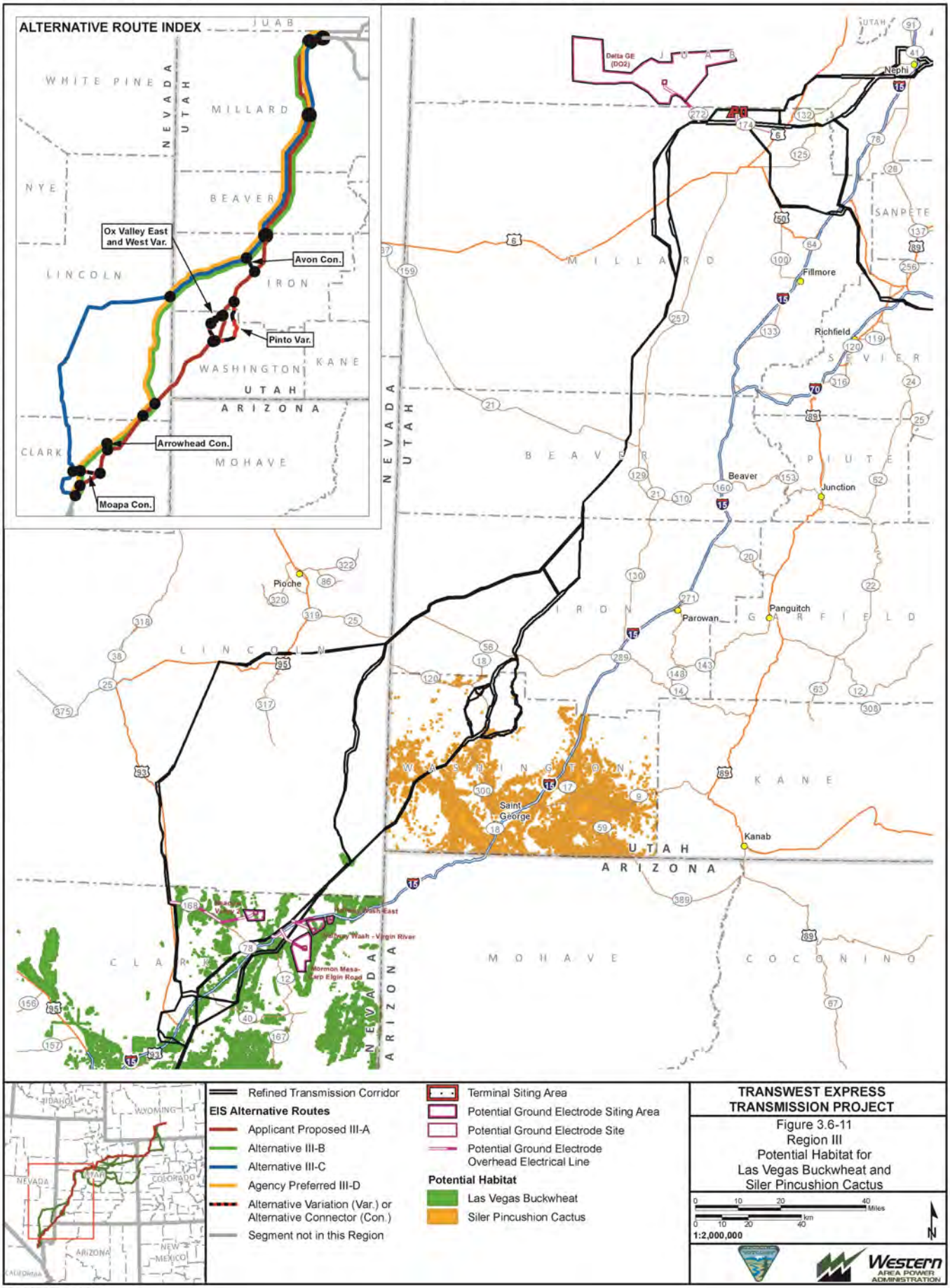
BMPs, design features, and proposed mitigation measures would be implemented as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, to minimize and mitigate any potential impacts to sensitive species habitat. Species-specific surveys within suitable habitat and subsequent 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 measures **SS-3**, **SS-4**, **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-1** and **SS-9**, in conjunction with BMPs, and 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.

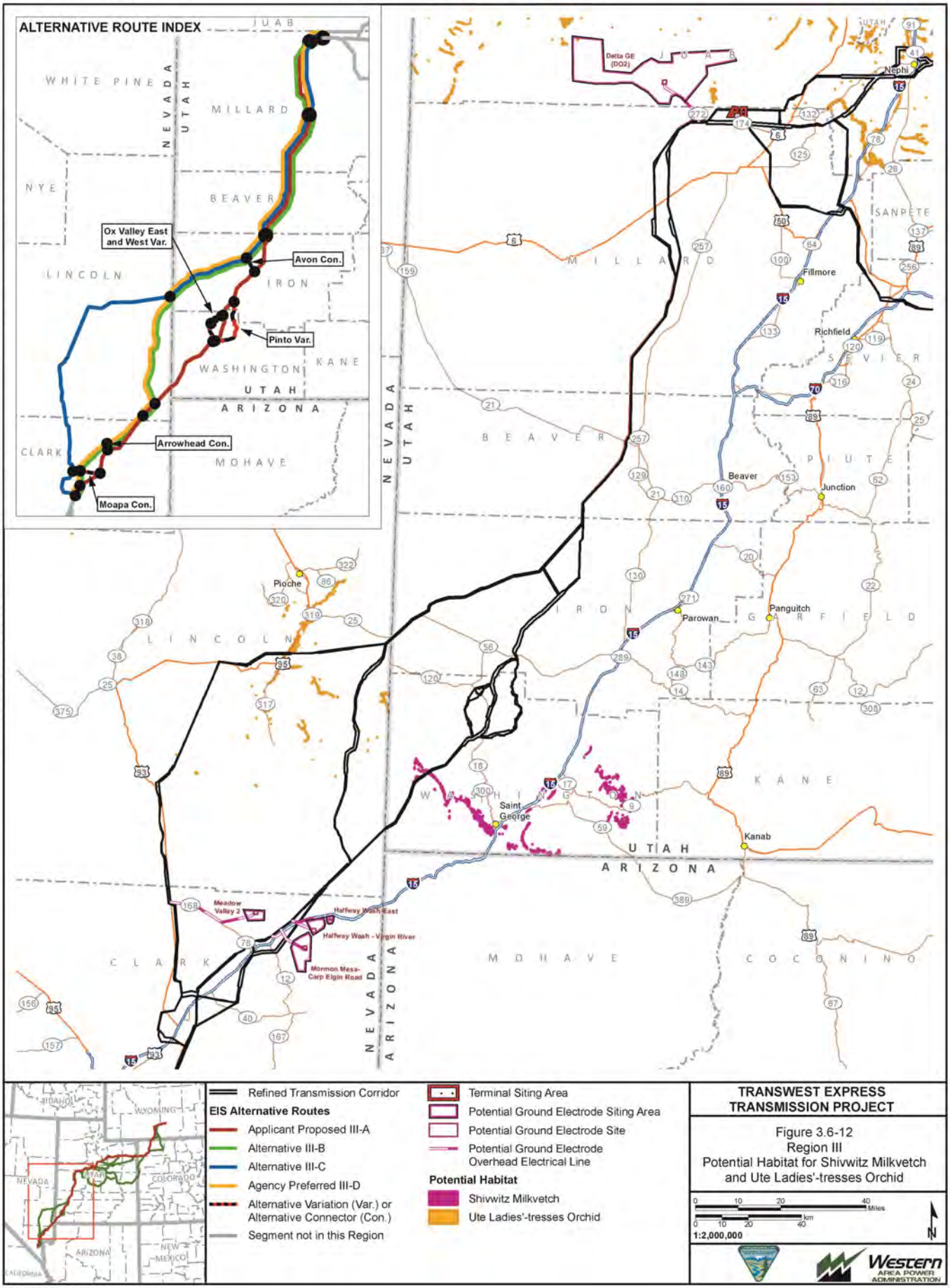
Federal Species' Potential Habitat

Within Alternative III-A, potential habitat has been identified for the Shivwitz milkvetch and Siler pincushion cactus (**Table 3.6-17** and **Figures 3.6-11** and **3.6-12**). Alternative III-A would cause approximately 6 acres of construction disturbance to potential habitat identified for Shivwitz milkvetch and 122 acres for Siler pincushion cactus. Based on species occurrence data and agency consultation, no individuals or populations of these species have been identified within Alternative III-A. 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 Alternative III-A, 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. Impact minimization and mitigation measures would be developed in consultation with the USFWS, BLM, and Western prior to construction.

BMPs, design features, and proposed mitigation measures would be implemented as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, to minimize and mitigate impacts to potential sensitive plant species within Alternative III-C. 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**, **SS-4**, **SS-5**, and **SS-6**. Based on the limited range of both species, and the amount of acreage of potential habitat identified for them, no impacts are anticipated for these species under Alternative III-A.


ALTERNATIVE ROUTE INDEX
WHITE PINE
NEVADA
UTAH
MILLARD
NYE
BEAVER
Ox Valley East and West Var.
Avon Con.
LINCOLN
IRON
Pinto Var.
WASHINGTON
KANE
UTAH
ARIZONA
CLARK
Arrowhead Con.
MOHAVE
Moapa Con.
Delta GE (DO2)
Nephi
Fillmore
Richfield
SANPETE
SEVIER
PIUTE
Beaver
Junction
Pioche
Parowan
Panguitch
GARFIELD
Saint George
Kanab
COCONINO
Mormon Mesa-Carp Elgin Road
Refined Transmission Corridor
EIS Alternative Routes
Applicant Proposed III-A
Alternative III-B
Alternative III-C
Agency Preferred III-D
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Terminal Siting Area
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
Potential Habitat
Las Vegas Buckwheat
Siler Pincushion Cactus
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-11
Region III
Potential Habitat for
Las Vegas Buckwheat and
Siler Pincushion Cactus
1:2,000,000
Western AREA POWER ADMINISTRATION
Exported On: 1/28/2015



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BLM Sensitive Species

Based on species occurrence data and agency consultation, the following BLM sensitive species have been identified within Alternative III-A: Beaver Dam breadroot, Las Vegas bearpoppy, Las Vegas buckwheat, rosy twotone beardtongue, silverleaf sunray, sticky ringstem, pinyon penstemon, and threecorner milkvetch. Based on a desktop review, potential habitat was identified for 30 BLM sensitive species within Alternative III-A (**Table 3.6-18**). Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

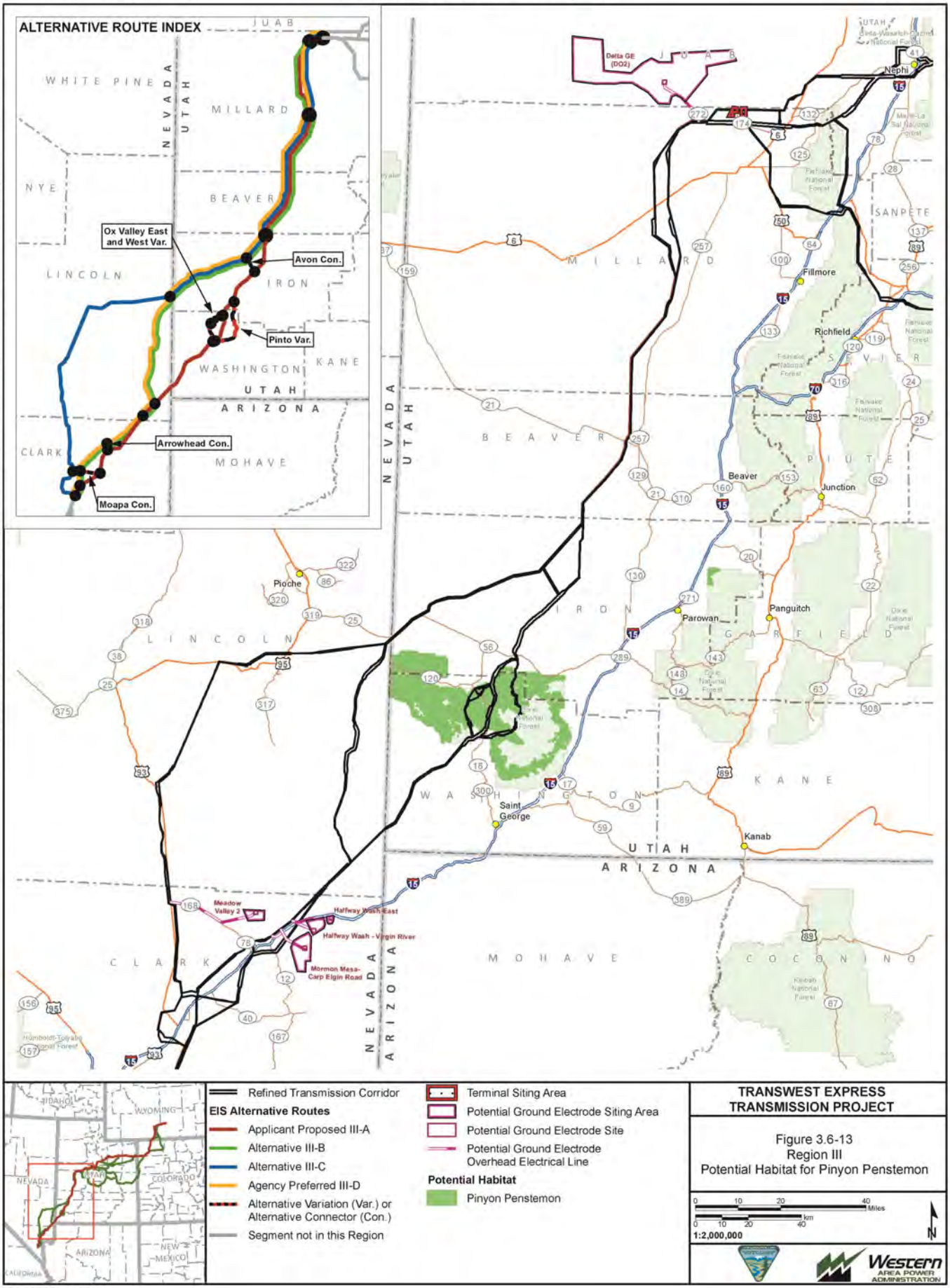
The BLM sensitive species with known locations and habitat within the corridors vary from species that are found across a wide range of habitats to those that are only found on very specific soil and vegetation combinations. The habitats include wetland and riparian areas, shrub and pinyon-juniper communities, 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 limited revegetation 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. Reclamation in shrub and pinyon-juniper communities may take longer due to the longer time-frame to restore woody communities.

BMPs, design features, and proposed mitigation measures would be implemented as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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. 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 Forest sensitive species, the pinyon penstemon, has been identified within Alternative III-A. Pinyon penstemon is found entirely within the Dixie National Forest in relation to the Alternative III-A refined transmission corridor. Based on habitat suitability modeling, approximately 340 acres of potential habitat have been identified for the pinyon penstemon with Alternative III-A (**Table 3.6-17**, **Figure 3.6-13**). The potential habitat is found extensively in large contiguous sections through Alternative III-A. Associated species range and habitat descriptions for this species are provided in **Appendix G**, **Table G-1**.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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**, **SS-4**, **SS-5**, and **SS-6**.


ALTERNATIVE ROUTE INDEX
WHITE PINE
NEVADA
UTAH
MILLARD
NYE
BEAVER
Ox Valley East and West Var.
Avon Con.
LINCOLN
IRON
Pinto Var.
WASHINGTON
KANE
UTAH
ARIZONA
CLARK
Arrowhead Con.
MOHAVE
Moapa Con.
Delta GE (DO2)
Nephi
Fillmore
Richfield
SANPETE
SEVIER
PIUTE
Beaver
Junction
Pioche
Parowan
Panguitch
GARFIELD
Saint George
Kanab
Meadow Valley 2
Halfway Wash East
Halfway Wash - Virgin River
Mormon Mesa-Carp Elgin Road
COCONINO
Refined Transmission Corridor
EIS Alternative Routes
Applicant Proposed III-A
Alternative III-B
Alternative III-C
Agency Preferred III-D
Alternative Variation (Var.) or Alternative Connector (Con.)
Segment not in this Region
Terminal Siting Area
Potential Ground Electrode Siting Area
Potential Ground Electrode Site
Potential Ground Electrode Overhead Electrical Line
Potential Habitat
Pinyon Penstemon
TRANSWEST EXPRESS TRANSMISSION PROJECT
Figure 3.6-13
Region III
Potential Habitat for Pinyon Penstemon
1:2,000,000
Western AREA POWER ADMINISTRATION
Exported On: 1/28/2015

Based on the extensive coverage of the potential habitat within Alternative III-A, total avoidance of suitable habitat may not be feasible. To minimize impacts to suitable habitats, mitigation measure **SS-9** would be applied. 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. The areas not avoided would result in loss of suitable habitat for the species. 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.

Nevada State-listed Species

Based on species occurrence data and agency consultation, the following Nevada state-listed species have been identified within Alternative III-A: threecorner milkvetch, Las Vegas buckwheat, and Las Vegas bearpoppy. Based on a desktop review, potential habitat has been identified for four Nevada state-listed species within Alternative III-A (**Table 3.6-18**). Associated species ranges and habitat descriptions for these species are provided in **Appendix G, Table G-1**.

Potential Project-related impacts to Nevada state-listed 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</u>

Las Vegas Buckwheat (Former Federal Candidate; Current BLM Sensitive)

Alternative III-B would cause approximately 130 acres of construction disturbance to potential habitat identified for Las Vegas buckwheat (**Table 3.6-17** and **Figure 3.6-11**). Based on species occurrence data and agency consultation, Las Vegas buckwheat individuals or populations have been identified within Alternative III-B.

BMPs, design features, and proposed mitigation measures as 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. 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**, **SS-4**, **SS-5**, and **SS-6**. Based on the location of the potential habitat, and the occurrence of known populations identified within Alternative III-B, total avoidance of suitable habitat may not be feasible. To minimize impacts to suitable habitat, mitigation measure **SS-9** 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' Potential Habitat

Alternative III-B would cause approximately 2 acres of construction disturbance to potential habitat identified for Ute ladies'-tresses orchid (**Table 3.6-17** and **Figure 3.6-11**). Based on species occurrence data and agency consultation, no individuals or populations of this species have been identified within Alternative III-B. No critical habitat has been designated for Ute ladies'-tresses orchid.

Since no individuals or populations were identified within Alternative III-B, direct impacts to the Ute ladies'-tresses orchid are not anticipated. If this species is identified during site-specific surveys, impacts would be avoided based on mitigation measures **SS-1** and **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. Impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following BLM sensitive species have been identified within Alternative III-B: Las Vegas buckwheat, pink egg milkvetch, sticky buckwheat, sticky ringstem, Las Vegas bearpoppy, rosy twotone beardtongue, and Veyo milkvetch. Based on a desktop review, potential habitat has been identified for 33 BLM sensitive species within Alternative III-B (**Table 3.6-18**). 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 potential habitats within Alternative III-B 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 limited revegetation 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. Reclamation in shrub and pinyon-juniper communities may take longer due to the longer time-frame to restore woody communities.

BMPs, design features, and proposed mitigation measures would be implemented as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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**, **SS-4**, **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 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 following Nevada state-listed species have been identified within Alternative III-B: Las Vegas buckwheat, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat. Based on a desktop review, potential habitat has been identified for six Nevada state-listed species within Alternative III-B (**Table 3.6-18**). 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**.

The types of impacts to Nevada state-listed species under Alternative III-B would be the same as those described for Alternative III-A for Las Vegas buckwheat and Alternative III-A for BLM sensitive species.

<u>Alternative III-C</u>

Federal Species' Potential Habitat

Alternative III-C would cause approximately 100 acres of construction disturbance to potential habitat identified for Las Vegas buckwheat (currently considered aBLM sensitive species) and 16 acres for

Ute ladies'-tresses orchid (**Table 3.6-17** and **Figure 3.6-11**). Based on species occurrence data and agency consultation, no individuals or populations of these species have been identified within Alternative III-C. Additionally, no critical habitat has been designated for these species.

Since no individuals or populations were identified within Alternative III-C, direct impacts to the Ute ladies'-tresses orchid are not anticipated. If this species is identified during site-specific surveys, impacts would be avoided based on mitigation measures **SS-1** and **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-3**, **SS-4**, **SS-5**, and **SS-6**. Based on the location of potential habitat and the occurrence of known locations within Alternative III-C, total avoidance of suitable habitat may not be feasible. To minimize impacts to suitable habitat, mitigation measure **SS-9** 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, and impact minimization and mitigation measures would be developed in consultation with the BLM and Western prior to construction.

BLM Sensitive Species

Based on species occurrence data and agency consultation, the following BLM sensitive species have been identified within Alternative III-C: Needle Mountains milkvetch, pink egg milkvetch, rosy twotone beardtongue, and threecorner milkvetch. Based on a desktop review, potential habitat has been identified for 34 BLM sensitive species within Alternative III-C (**Table 3.6-18**). 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 potential habitats within Alternative III-C 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 limited revegetation 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. Reclamation in shrub and pinyon-juniper communities may take longer due to the longer time-frame to restore woody communities.

BMPs, design features, and proposed mitigation measures presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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 measures **SS-3**, **SS-4**, **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 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 Alternative III-C is the threecorner milkvetch. Based on a desktop review, potential habitat has been identified for five Nevada state-listed species within Alternative III-C (**Table 3.6-18**). 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 Nevada state-listed species under Alternative III-C would be the same as those described for Alternative III-A for Las Vegas buckwheat and Alternative III-A for BLM sensitive species.

Alternative III-D (Agency Preferred)

Alternative III-D would cause approximately 134 acres of construction disturbance to potential habitat identified for Las Vegas buckwheat (**Table 3.6-17** and **Figure 3.6-11**). Based on species occurrence data and agency consultation, Las Vegas buckwheat individuals or populations have been identified within Alternative III-D refined transmission corridors. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

BMPs, design features, and proposed mitigation measures as 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. 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**, **SS-4**, **SS-5**, and **SS-6**. Based on the location of the potential habitat, and the occurrence of known populations identified within Alternative III-D, total avoidance of suitable habitat may not be feasible. To minimize impacts to suitable habitat, mitigation measure **SS-9** 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.

Alternative Variations in Region III

Based on species occurrence information and habitat associations, no federally listed, BLM sensitive, or Forest sensitive species have been identified along the Ox Valley East, Ox Valley West, or Pinto alternative variations. Based on habitat suitability modeling, potential habitat has been identified for one federally listed species (Siler pincushion cactus) along the Pinto Alternative Variation (23.2 acres), and also along the Alternative III-A comparable alignments associated with each Region III alternative variation (totaling approximately 11 acres). Based on habitat suitability modeling, potential habitat has been identified for one Forest sensitive species (pinyon penstemon) along the Ox Valley East (340 acres), Ox Valley West (334 acres), and Pinto (458 acres) alternative variations (totaling approximately 1,132 acres). The comparable portion of Alternative III-A in relation to the Region III alternative variations is slightly less, totaling approximately 1,079 acres. **Figures 3.6-11** and **3.6-13** illustrate the potential habitats for one federally listed and one Forest sensitive species associated with the Region III alternative variations. A summary of potential habitat acreage for the aforementioned federally listed and Forest sensitive species is presented in **Table 3.6-19**.

Based on a desktop analysis, potential habitat has been identified for three BLM sensitive species (pinyon penstemon, wirestem buckwheat, and pink egg milkvetch), along the Ox Valley East, Ox Valley West, and Pinto alternative variations.

Table 3.6-19 Summary of Region III Alternative Variation Impacts for Federally Listed and Forest Sensitive Plant Species

Common Name	Ox Valley East Alternative Variation	Alternative III-A Comparable	Ox Valley West Alternative Variation	Alternative III-A Comparable	Pinto Alternative Variation	Alternative III-A Comparable
Federally Listed Species						
Siler Pincushion Cactus						
Clearing/Trampling (acres)	–	2	–	2	13	2
Construction Disturbance (acres)	–	2	–	2	10	2
Species Subtotal (acres)	**–**	**4**	**–**	**4**	**23**	**4**
Operation Disturbance (acres)	–	<1	–	<1	2	<1
Forest Sensitive Species						
Pinyon Penstemon						
Clearing/Trampling (acres)	167	144	174	144	249	169
Construction Disturbance (acres)	173	153	160	153	209	171
Species Subtotal (acres)	**340**	**297**	**334**	**297**	**458**	**340**
Operation Disturbance (acres)	54	48	52	48	50	51

Alternative Connectors in Region III

Table 3.6-20 summarizes the impacts and advantages/disadvantages associated with the three alternative connectors in Region III based on known occurrences and potential habitat identification. A summary of potential habitat acreage for all potentially impacts federally listed species is presented in **Table 3.6-21**.

Table 3.6-20 Summary of Region III Alternative Connector Impacts for Special Status Plant Species

Alternative Connector	Analysis	Impact Conclusion
Arrowhead Alternative Connector	No federally listed species or their habitat would be impacted by Project-related activities at this location. Based on species occurrence data and agency consultation, one BLM sensitive species (rosy twotone beardtongue) has been identified at this location. Based on a desktop review, potential habitat has been identified for 13 BLM sensitive species (white bearpoppy, straw milkvetch, alkali mariposa lily, Gold Butte moss, polished blazingstar, St. George blue-eyed grass, sticky ringstem, silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) and 3 Nevada state-listed species (Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to 13 BLM sensitive species and 3 Nevada state-listed species and potential loss of 1 BLM sensitive species.
Avon Alternative Connector	No federally listed, BLM sensitive, or Nevada state-listed species or their habitat would be impacted by Project-related activities at this location.	No Project-related impacts are anticipated at this location.

Table 3.6-20 Summary of Region III Alternative Connector Impacts for Special Status Plant Species

Alternative Connector	Analysis	Impact Conclusion
Moapa Alternative Connector	Based on species occurrence data and agency consultation, 3 BLM sensitive species (silverleaf sunray, rosy twotone beardtongue, and threecorner milkvetch) and 1 Nevada state-listed species (three corner milkvetch) have identified at this location. Based on habitat suitability modeling, 48 acres of potential habitat has been identified for Las Vegas buckwheat (formerlly a Federal candidate for listing under the ESA; currently a BLM sensitive species totaling approximately 48 acres. Based on a desktop review, potential habitat has been identified for 16 BLM sensitive species (white bearpoppy, straw milkvetch, alkali mariposa lily, Gold Butte moss, polished blazingstar, white-margined beardtongue, yellow twotone beardtongue, St. George blue-eyed grass, Las Vegas buckwheat, mokiak milkvetch, silverleaf sunray, Beaver Dame breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) and 3 Nevada state-listed species (Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to one federally listed species, 16 BLM sensitive species, and 3 Nevada state-listed species and potential loss of 3 BLM sensitive species.

Table 3.6-21 Summary of Region III Alternative Connector Impacts for Federally Listed Plant Species [1]

Common Name	Arrowhead Alternative Connector	Avon Alternative Connector	Moapa Alternative Connector
Las Vegas Buckwheat			
Clearing/Trampling (acres)	–	–	28
Construction Disturbance (acres)	–	–	17
Species Subtotal (acres)	**–**	**–**	**45**
Operation Disturbance (acres)	–	–	3

[1] Las Vegas buckwheat was a Federal candidate species but is now a BLM sensitive species.

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 3.6-22** provides a comparison of impact parameters associated with the alternative ground electrodes in Region III based on known occurrences and potential habitat identified within the ground electrode system siting areas. Based on species occurrence information and habitat associations, 31 special status plant species may be impacted by construction and operation of the Region III ground electrode systems including 30 BLM sensitive species, and 5 Nevada state-listed species. **Table 3.6-23** summarizes acreages of federally listed plant species potential habitat which may be potentially impacted by the construction and operation of Region III ground electrode system facilities.

Table 3.6-22 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, III-B, and III-D)	• 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 sticky buckwheat and threecorner milkvetch (BLM sensitive species and Nevada state-listed species) are located within the ground electrode system siting areas and could be impacted by Project-related activities. • Based on a desktop analysis, potential habitat has been identified for 15 BLM sensitive species (sticky ringstem, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, polished blazingstar, straw milkvetch, white bearpoppy, threecorner milkvetch, Mokiak milkvetch, St. George blue-eyed grass, alkali mariposa lily, Gold Butte moss, sticky buckwheat, rosy twotone beardtongue, and parish phacelia) and 3 Nevada state-listed species (Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) within the ground electrode system siting area that could be impacted by Project-related activities.
Halfway Wash-Virgin River (Alternatives III-A, III-B, and III-D)	• No impacts to BLM sensitive and Nevada state-listed species would occur based on lack of documented occurrences. • Based on a desktop analysis, potential habitat has been identified for 16 BLM sensitive species (sticky ringstem, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, polished blazingstar, straw milkvetch, white bearpoppy, threecorner milkvetch, Mokiak milkvetch, St. George blue-eyed grass, alkali mariposa lily, Gold Butte moss, sticky buckwheat, rosy twotone beardtongue, and parish phacelia, and Las Vegas buckwheat) and 3 Nevada state-listed species (Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) within the ground electrode system siting area that could be impacted by Project-related activities.
Halfway Wash East (Alternatives III-A, III-B, and III-D)	• No impacts to BLM sensitive and Nevada state-listed species would occur based on lack of documented occurrences. • Based on a desktop analysis, potential habitat has been identified for 16 BLM sensitive species (sticky ringstem, Beaver Dam breadroot, silverleaf sunray, Las Vegas bearpoppy, polished blazingstar, straw milkvetch, white bearpoppy, threecorner milkvetch, Mokiak milkvetch, St. George blue-eyed grass, alkali mariposa lily, Gold Butte moss, sticky buckwheat, rosy twotone beardtongue, and parish phacelia, and Las Vegas buckwheat) and 3 Nevada state-listed species (Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) within the ground electrode system siting area that could be impacted by Project-related activities.
Meadow Valley 2 (Alternative III-C)	• No impacts to BLM sensitive and Nevada state-listed species would occur based on lack of documented occurrences. • Based on a desktop analysis, potential habitat has been identified for 27 BLM sensitive species (see **Appendix G-1**) and four Nevada state-listed species (Las Vegas buckwheat, threecorner milkvetch, sticky buckwheat, and sand cholla) within the ground electrode system siting area that could be impacted by Project-related activities.
Delta (Design Option 2) (All Alternatives)	• No impacts to federally listed, BLM sensitive, or Nevada state-listed species and their associated habitats would occur based on lack of documented occurrences and suitable habitat.

Table 3.6-23 Summary of Region III Ground Electrode System Alternative Facility Impacts for Federally Listed Plant Species[1]

Common Name	Delta Ground Electrode Bed (DO2)	Halfway Wash – Virgin River (Alternative III-A)	Halfway Wash – Virgin River (Alternative III-B)	Halfway Wash East (Alternative III-A)	Halfway Wash East (Alternative III-B)	Meadow Valley 2 (Alternative III-C)	Mormon Mesa-Carp Elgin Rd (Alternative III-A)	Mormon Mesa-Carp Elgin Rd (Alternative III-B)
Las Vegas Buckwheat								
Construction Disturbance (acres)	–	15	17	3	3	4	–	–
Species Subtotal (acres)	**–**	**15**	**17**	**3**	**3**	**4**	**–**	**–**
Operation Disturbance (acres)	–	3	4	1	1	2	–	–

[1] Las Vegas buckwheat was a Federal candidate species but is now a BLM sensitive species.

Region III Series Compensation Stations (Design Option 2)

If Design Option 2 were implemented, a series compensation station would be necessary along the AC-configured alternative routes of Region III. There are three potential sites, each corresponding to a specific alternative route. These series compensation station alternatives are depicted in **Figure 2-2**.

Series Compensation Station 1 – Design Option 2 corresponds to Alternative III-A. Based on species occurrence information and agency consultation, no federally listed or BLM sensitive plant species or potential habitat have been identified within the area.

Series Compensation Station 2 – Design Option 2 corresponds to Alternative III-C. Based on species occurrence information and agency consultation, no federally listed or BLM sensitive plant species have been identified within the area. Potential habitat has been identified for 14 BLM sensitive species and two Nevada state-listed species. Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**.

Series Compensation Station 3 – Design Option 2 corresponds to Alternative III-B. Based on species occurrence information and agency consultation, no federally listed or BLM sensitive plant species or potential habitat have been identified within the area.

Region III Conclusion

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

3.6.6.6 Region IV

Based on species occurrence information and habitat associations, 19 special status plant species may be impacted in Region IV including 19 BLM sensitive species, 6 Nevada state-listed species, 8 NPS-Lake Mead NRA sensitive species, and 1 federally listed species (**Table 3.6-5**). Species occurrence and associated habitats in Region IV are provided in **Appendix G**, **Table G-1**. Selected datasets and species parameters are detailed within the Final Special Status Species Survey Plan. **Table 3.6-24** summarizes acreages of federally listed plant species potentially impacted by Region IV. This disturbance is less than 1 percent to the species' potential habitat within Region IV. **Table 3.6-25** provides known occurrence and potential habitat qualification of BLM sensitive, Nevada state-listed, and NPS Lake Mead NRA sensitive species potentially impacted by Region IV.

Table 3.6-24 Alternative Route Impacts for Plant Species listed as Candidates for Federal Listing[1]

Common Name	Alternative IV-A	Alternative IV-B	Alternative IV-C
Las Vegas Buckwheat: 199,846 acres*			
ROW Clearing/Trampling (acres)	160	65	204
Construction Disturbance (acres)	107	35	110
Species Subtotal (acres)	**267**	**100**	**314**
Operation Disturbance (acres)	23	7	14

[1] Las Vegas buckwheat was a Federal candidate species but is now a BLM sensitive species.

* This number represents the amount in acres of modeled potential habitat within the analysis area of Region IV.

Table 3.6-25 Summary of Region IV Alternative Route Impacts for BLM Sensitive, Nevada State-listed, and NPS-Lake Mead NRA Sensitive Plant Species

Parameter	Alternative IV-A	Alternative IV-B	Alternative IV-C
BLM Sensitive Species			
Number of species with known occurrences impacted	3	3	3
Number of species with potential habitat impacted	17	18	18
NPS Lake Mead NRA Sensitive Species			
Number of species with known occurrences impacted	0	3	3
Number of species with potential habitat impacted	0	8	8
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)

Federal Species' Potential Habitat

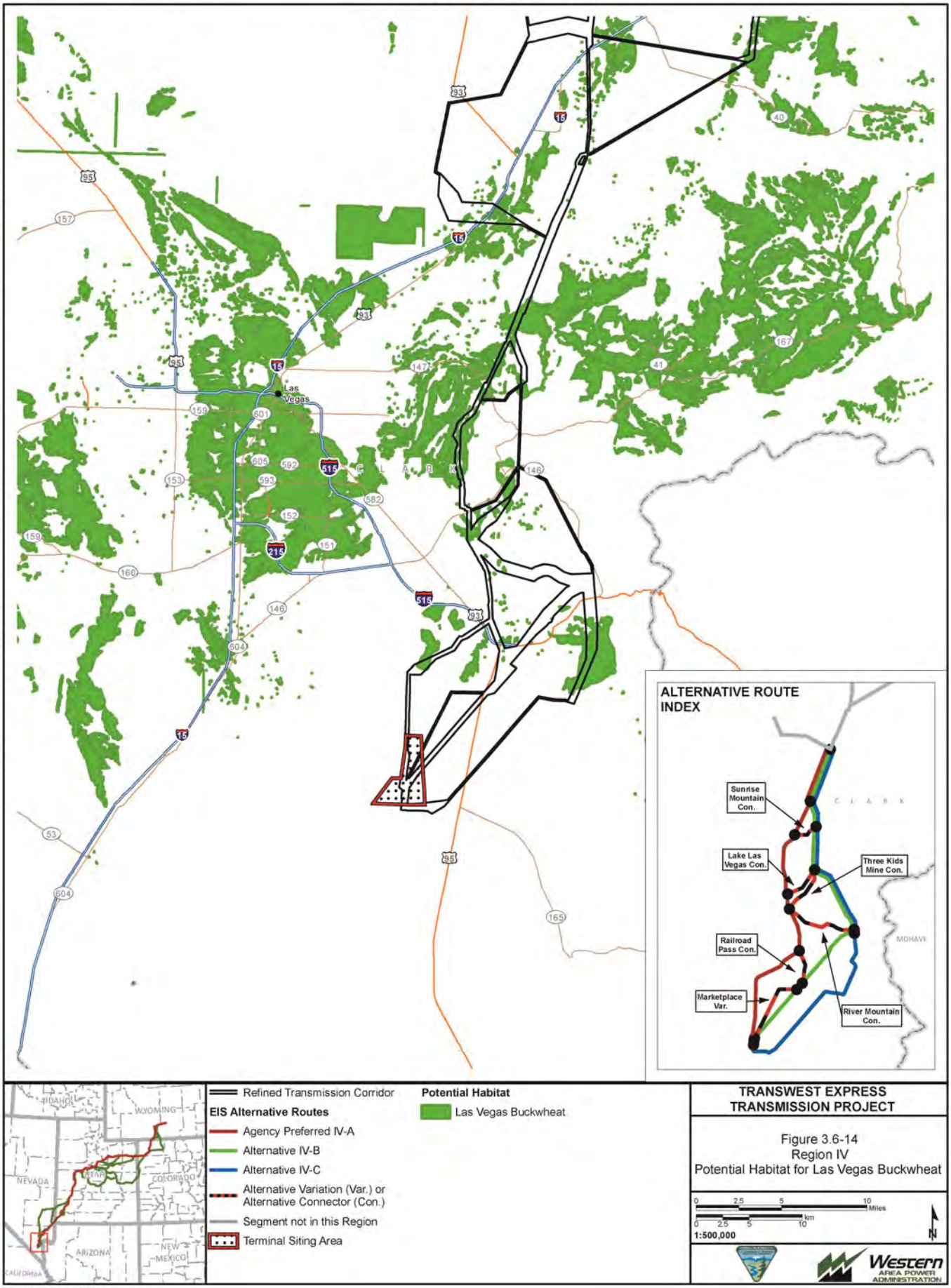
Alternative IV-A would cause approximately 267 acres of construction disturbance to potential habitat identified for Las Vegas buckwheat (now BLM Sensitive) (**Table 3.6-24** and **Figure 3.6-14**). Based on species occurrence data and agency consultation, no Las Vegas buckwheat individuals or populations have been identified within Alternative IV-A. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

BMPs, design features, and proposed mitigation measures 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. 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**, **SS-4**, **SS-5**, and **SS-6**. Because Alternative IV-C parallels potential habitat, total avoidance of suitable habitat may not be feasible. To minimize impacts to suitable habitat, mitigation measure **SS-9** 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 BLM sensitive species have been identified within Alternative IV-A: Las Vegas bearpoppy, sticky ringstem, and rosy twotone beardtongue. Based on a desktop review, potential habitat has been identified for 17 BLM sensitive species within the corridors associated with Alternative IV-A (**Table 3.6-25**). 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 Alternative IV-A 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 limited revegetation 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.



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BMPs, design features, and proposed mitigation measures would be implemented as presented in Section 3.6.6.1, Impacts from Terminal Construction and Operation, 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-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**, **SS-4**, **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 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, one Nevada state-listed species, the Las Vegas bearpoppy, has been identified within Alternative IV-A. Based on a desktop review, potential habitat has been identified in Alternative IV-A for the following Nevada state-listed species: Las Vegas bearpoppy, Las Vegas buckwheat, Las Vegas catseye, sticky buckwheat, and threecorner milkvetch (**Table 3.6-25**). Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts to Nevada state-listed species would be the same as described for Alternative IV-A for Las Vegas buckwheat and Alternative IV-A for BLM Sensitive Species.

Alternative IV-B

Federal Species Identified as having Potential Habitat

Alternative IV-B would cause approximately 100 acres of construction disturbance to potential habitat identified for Las Vegas buckwheat (now BLM Sensitive) (**Table 3.6-24** and **Figure 3.6-14**). Based on species occurrence data and agency consultation, no Las Vegas buckwheat individuals or populations have been identified within Alternative IV-B. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

BMPs, design features, and proposed mitigation measures 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. 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**, **SS-4**, **SS-5**, and **SS-6**. Based on the location of the one area of potential habitat within Alternative IV-B, 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. 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 BLM sensitive species have been identified within Alternative IV-B: Las Vegas bearpoppy, rosy twotone beardtongue, and sticky ringstem. Based on a desktop review, potential habitat has been identified for 18 BLM sensitive species within Alternative IV-B (**Table 3.6-25**). Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Based on the similarity in vegetation communities and species impacted, impacts to BLM sensitive species would be the same as described for Alternative IV-A BLM Sensitive Species.

Nevada State-listed Species

Based on species occurrence data and agency consultation, one Nevada state-listed species, the Las Vegas bearpoppy, has been identified within Alternative IV-B. Based on a desktop review, potential habitat has been identified within Alternative IV-B for the following Nevada state-listed species: Las Vegas bearpoppy, Las Vegas buckwheat, Las Vegas catseye, sticky buckwheat, and threecorner milkvetch (**Table 3.6-25**). Associated species range and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts to Nevada state-listed species would be the same as described for Alternative IV-A for Las Vegas Buckwheat and Alternative IV-A for BLM Sensitive Species.

NPS Lake Mead Sensitive Species

Based on species occurrence data and agency consultation, three NPS Lake Mead sensitive species, the Las Vegas bearpoppy, sticky ringstem, and rosy twotone beardtongue, have been identified within Alternative IV-B. Based on a desktop review, potential habitat has been identified for eight NPS Lake Mead sensitive species within Alternative IV-B (**Table 3.6-25**). Associated species ranges and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts to NPS Lake Mead sensitive species would be the same as described for Alternative IV-A BLM Sensitive Species.

Alternative IV-C

Federal Species' Potential Habitat

Alternative IV-C would cause approximately 314 acres of construction disturbance to potential habitat identified for Las Vegas buckwheat (now BLM Sensitive) (**Table 3.6-24** and **Figure 3.6-14**). Based on species occurrence data and agency consultation, no Las Vegas buckwheat individuals or populations have been identified within Alternative IV-C. Critical habitat is not designated for candidate species; therefore, a critical habitat assessment was not completed.

BMPs, design features, and proposed mitigation measures 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. 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**, **SS-4**, **SS-5**, and **SS-6**. Because Alternative IV-C parallels potential habitat, total avoidance of suitable habitat may not be feasible. To minimize impacts to suitable habitat, mitigation measure **SS-9** 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 BLM sensitive species have been identified within Alternative IV-C: Las Vegas bearpoppy, rosy twotone beardtongue, and sticky ringstem. Based on a desktop review, potential habitat has been identified for 18 BLM sensitive species within Alternative IV-C (**Table 3.6-25**). Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Based on the similarity in vegetation communities and species impacted, impacts to BLM sensitive species would be the same as described for Alternative IV-A BLM Sensitive Species.

NPS Lake Mead Sensitive Species

Based on species occurrence data and agency consultation, three NPS Lake Mead sensitive species, the Las Vegas bearpoppy, sticky ringstem, and rosy twotone beardtongue, have been identified within Alternative IV-C. Based on a desktop review, potential habitat has been identified for eight NPS Lake

Mead sensitive species within Alternative IV-C (**Table 3.6-25**). Associated species ranges and habitat descriptions for these species are provided in **Appendix G**, **Table G-1**. Impacts to NPS Lake Mead sensitive species would be the same as described for Alternative IV-A for BLM Sensitive Species.

Nevada State-listed Species

Based on species occurrence data and agency consultation, one Nevada state-listed species, the Las Vegas bearpoppy, has been identified within Alternative IV-C. 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 (**Table 3.6-25**). Associated species range and habitat descriptions for these species are provided in **Appendix G, Table G-1**. Impacts to Nevada state-listed species would be the same as described for Alternative IV-A for Las Vegas buckwheat and Alternative IV-A for BLM Sensitive Species.

Alternative Variations in Region IV

Based on species occurrence information and habitat associations, 18 special status plant species may be impacted by the Marketplace Alternative Variation including Las Vegas buckwheat (was Federal Candidate; now BLM Sensitive, 17 BLM sensitive species, and five Nevada state-listed species. Based on species occurrence information and habitat associations, no federally listed species have been identified along the Marketplace Alternative Variation. Based on habitat suitability modeling, potential habitat has been identified for one federally listed species (Las Vegas buckwheat) along the Marketplace Alternative Variation (1 acre); no potential habitat has been identified along the Alternative IV-B comparable alignment. A summary of potential habitat acreage for the Las Vegas buckwheat is presented in **Table 3.6-26** and illustrated in **Figure 3.6-14**.

Table 3.6-26 Summary of Region IV Alternative Variation Impacts for Federally Listed Plant Species[1]

Common Name	Marketplace Alternative Variation (Alternative IV-B)	Alternative IV-B Comparable
Las Vegas Buckwheat		
ROW Clearing/Trampling (acres)	–	–
Construction Disturbance (acres)	1	–
Species Subtotal (acres)	**1**	**–**
Operation Disturbance (acres)	<1	–

[1] Las Vegas Buckwheat was a Federal candidate species but is now a BLM sensitive species.

Alternative Connectors in Region IV

Table 3.6-27 summarizes the impacts and advantages/disadvantages associated with the five alternative connectors in Region IV based on known occurrences and identified potential habitat. A summary of potential habitat acreages for all potentially impacts federally listed species is presented in **Table 3.6-28**.

Region IV Conclusion

Within Region IV, impacts to federally listed, BLM sensitive, and Nevada state-listed species are fairly consistent between alternatives. Impacts to NPS Lake Mead sensitive species would be limited to Alternatives IV-B and IV-C.

Table 3.6-27 Summary of Region IV Alternative Connector Impacts for Special Status Species

Alternative Connector	Analysis	Impact Conclusion
Sunrise Mountain Alternative Connector	Based on species occurrence information and agency consultation, no federally listed, BLM sensitive, Nevada-state-listed, or NPS Lake Mead sensitive species have been identified at this location. Based on habitat suitability modeling, 14 acres of potential habitat has been identified for Las Vegas buckwheat (was Federal candidate; now BLM sensitive). **Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat. Based on a desktop review, potential habitat has been identified for 11 BLM sensitive species (white bearpoppy, alkali mariposa lily, Gold Butte moss, polished blazingstar, Las Vegas buckwheat, silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat); 5 Nevada state-listed species (Las Vegas buckwheat, Las Vegas bearpoppy, threecorner milkvetch, sticky buckwheat, and Las Vegas catseye); and 6 NPS Lake Mead sensitive species (silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to 1 federally listed, 11 BLM sensitive species, 5 Nevada state-listed species, and 6 NPS Lake Mead sensitive species.
Lake Las Vegas Alternative Connector	Based on species occurrence information and agency consultation, one BLM sensitive and NPS Lake Mead sensitive species (rosy twotone beardtongue) has been identified at this location. Based on habitat suitability modeling 32 acres of, potential habitat has been identified for Las Vegas buckwheat (was Federal candidate; now BLM sensitive).**Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat. Based on a desktop review, potential habitat has been identified for 17 BLM sensitive species (white bearpoppy, straw milkvetch, halfring milkvetch, alkali mariposa lily, Gold Butte moss, polished blazingstar, white-margined beardtongue, yellow twotone beardtongue, St. George blue-eyed grass, Las Vegas buckwheat, Mokiak milkvetch, silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat); five Nevada state-listed species (Las Vegas buckwheat, Las Vegas bearpoppy, threecorner milkvetch, sticky buckwheat, and Las Vegas catseye); and seven NPS Lake Mead sensitive species (Mokiak milkvetch, silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to 1 federally listed, 17 BLM sensitive species, 5 Nevada state-listed species, and 7 NPS Lake Mead sensitive species and potential species impacts to 1 BLM sensitive and NPS Lake Mead sensitive species.

Table 3.6-27 Summary of Region IV Alternative Connector Impacts for Special Status Species

Alternative Connector	Analysis	Impact Conclusion
Three Kids Mine Alternative Connector	Based on species occurrence information and agency consultation, one BLM sensitive and NPS Lake Mead sensitive species (rosy twotone beardtongue) has been identified at this location. Based on habitat suitability modeling, 46 acres of potential habitat has been identified for Las Vegas buckwheat (was Federal candidate; now BLM sensitive).**Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat. Based on a desktop review, potential habitat has been identified for 17 BLM sensitive species (white bearpoppy, straw milkvetch, halfring milkvetch, alkali mariposa lily, Gold Butte moss, polished blazingstar, white-margined beardtongue, yellow twotone beardtongue, St. George blue-eyed grass, Las Vegas buckwheat, Mokiak milkvetch, silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat); 5 Nevada state-listed species (Las Vegas buckwheat, Las Vegas bearpoppy, threecorner milkvetch, sticky buckwheat, and Las Vegas catseye); and 7 NPS Lake Mead sensitive species (Mokiak milkvetch, silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to 1 federally listed, 17 BLM sensitive species, 5 Nevada state-listed species, and 7 NPS Lake Mead sensitive species and potential species impacts to 1 BLM sensitive and NPS Lake Mead sensitive species.
River Mountain Alternative Connector	Based on species occurrence information and agency consultation, 1 BLM sensitive and NPS Lake Mead sensitive species (rosy twotone beardtongue) has been identified at this location. Based on habitat suitability modeling, 2 acres of potential habitat has been identified for Las Vegas buckwheat (was Federal candidate, now BLM sensitive). **Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat. Based on a desktop review, potential habitat has been identified for 17 BLM sensitive species (white bearpoppy, straw milkvetch, halfring milkvetch, alkali mariposa lily, Gold Butte moss, polished blazingstar, white-margined beardtongue, yellow twotone beardtongue, St. George blue-eyed grass, Las Vegas buckwheat, Mokiak milkvetch, silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat); 5 Nevada state-listed species (Las Vegas buckwheat, Las Vegas bearpoppy, threecorner milkvetch, sticky buckwheat, and Las Vegas catseye); and 7 NPS Lake Mead sensitive species (Mokiak milkvetch, silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to 1 federally listed, 17 BLM sensitive species, 5 Nevada state-listed species, and 7 NPS Lake Mead sensitive species and potential species impacts to 1 BLM sensitive and NPS Lake Mead sensitive species.

Table 3.6-27 Summary of Region IV Alternative Connector Impacts for Special Status Species

Alternative Connector	Analysis	Impact Conclusion
Railroad Pass Alternative Pass	Based on species occurrence information and agency consultation, one BLM sensitive species (rosy twotone beardtongue) has been identified at this location. Based on habitat suitability modeling, 3 acres of potential habitat has been identified for Las Vegas buckwheat (was Federal candidate, now BLM sensitive). **Figure 3.6-14** illustrates the potential habitat for the Las Vegas buckwheat. Based on a desktop review, potential habitat has been identified for 17 BLM sensitive species (white bearpoppy, straw milkvetch, halfring milkvetch, alkali mariposa lily, Gold Butte moss, polished blazingstar, white-margined beardtongue, yellow twotone beardtongue, St. George blue-eyed grass, Las Vegas buckwheat, Mokiak milkvetch, silverleaf sunray, Beaver Dam breadroot, rosy twotone beardtongue, Las Vegas bearpoppy, threecorner milkvetch, and sticky buckwheat); and 5 Nevada state-listed species (Las Vegas buckwheat, Las Vegas bearpoppy, threecorner milkvetch, sticky buckwheat, and Las Vegas catseye) that could be impacted by Project-related activities.	The disadvantage of using this alternative connector would include potential habitat disturbance to 1 federally listed, 17 BLM sensitive species, and 5 Nevada state-listed species and potential species impacts to one BLM sensitive species.

Table 3.6-28 Summary of Region IV Alternative Connector Impacts for Federally Listed Plant Species[1]

Common Name	Sunrise Mountain Alternative Connector	Lake Las Vegas Alternative Connector	Three Kids Mine Alternative Connector	River Mountains Alternative Connector	Railroad Pass Alternative Connector
Las Vegas Buckwheat					
Clearing/Trampling (acres)	7	16	23	1	1
Construction Disturbance (acres)	7	16	23	1	2
Species Subtotal (acres)	**14**	**32**	**46**	**2**	**3**
Operation Disturbance (acres)	1	4	6	<1	1

[1] Las Vegas buckwheat was a Federal candidate species but is currently considered a BLM sensitive species.

3.6.6.7 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 also would 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 reclamation success, pollinators that also are 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.

3.6.6.8 Irreversible and Irretrievable Commitment of Resources

All potential operation impacts to special status habitats within the refined transmission corridors 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 would be considered irreversible.

3.6.6.9 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.

3.6.6.10 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.