

## 3.4 VEGETATION

This section addresses vegetation resources in the study corridor. It includes information on plant communities; waters of the U.S., including wetlands; and woodland and forest species with commercial value.

### 3.4.1 AREA OF ANALYSIS AND METHODOLOGY

The study corridor for vegetation resources consists of a minimum 500-foot wide survey corridor (i.e., 250 feet on each side of the centerline) along the five route alternatives. Information on the vegetation resources was obtained from a variety of sources including Ecological Status Inventory (ESI) data from BLM field offices; NRCS soil surveys (NRCS 1980a/b, 1989, 1992, 1997, 1998) and MLRA reports (NRCS Area 24, 25, 28B); references, including Rangeland Cover Types of the United States (Shiflet 1994), A Flora of Nevada (Kartesz 1988), Intermountain Flora Vascular Plants of the Intermountain West, U.S.A (Cronquist et al. 1986-1997), and Illustrated Flora of the Pacific States (Abrams 1981); and field surveys conducted by Summit EnviroSolutions, under contract to SSPC (SEI 2000). Additional input was provided by resource agency staff from the BLM, Nevada Natural Heritage Program (NNHP) (personal communication with Carrie Carreno, Nevada Department of Conservation and Natural Resources, May 5, 1999), and the USFWS (Weaney 1999).

### PLANT COMMUNITIES

Soil Surveys and MLRA descriptions from the NRCS, and ESI data from the Elko, Ely, and Battle Mountain BLM Field Offices were used to determine potential plant community types along the route alternatives. Soil survey maps and ESI maps identify several plant community types that can occur within a soil or ecological site complex. The Soil Surveys applicable to the project area include:

- Soil Survey of Diamond Valley Area, Nevada, 1980;
- Soil Survey of Elko County Area, Nevada Central Part, 1997;
- Soil Survey of Eureka County Area, Nevada, 1989;
- Soil Survey of Lander County Area, Nevada North Part, 1992;
- Soil Survey of Tuscarora Mountain Area, Nevada, 1980; and
- Soil Survey of Western White Pine County Area, Nevada, 1998.

NRCS MRLA reports applicable to the project area include:

- MLRA 24 Humboldt Area;
- MLRA 25 Owyhee High Plateau; and
- MLRA 28B Central Nevada Basin and Range.

A list of MRLA Range Sites, including correlated plant community types, with potential to occur within the project area is included in the Vegetation Survey report (SEI and Tetra Tech EMI 2000). Field surveys were conducted by three vegetation specialists between May 24 and July 15, 1999 and April 26 and 27, 2000 covering the proposed route alternative segments and re-routes (A through L). The survey corridor was at least 500 feet wide, extending at least 250 feet on each side of the proposed alignment centerline. The field surveys were conducted by driving, walking, and using binoculars. The vegetation specialists identified and mapped plant community types in the project study area on 1:24,000 scale, USGS 7.5-minute topographic maps. Plant community types rarely change abruptly along a discrete well-

defined line. Instead, they tend to merge into each other across an ecotone. However, for mapping purposes, boundary lines were drawn between the plant community types. Surveys were not conducted along access roads that might be improved outside of the 500-foot wide study corridor, since they were not known at the time of surveys. Surveys for sensitive resources along access roads would be conducted prior to construction, once a preferred route alternative is selected.

Special-status species field surveys were conducted on June 14, 15, 16, and 17, 1999 in areas identified by the plant community surveys as having potentially suitable habitat for special-status species. Special-status plant and wildlife species are addressed in Section 3.7. Plant species observed within these survey areas were identified and documented and are included in the survey report prepared by SEI and Tetra Tech EMI (2000).

Pinyon-juniper woodland was assessed in conjunction with the vegetation surveys to determine the average tree species composition in the project area. A series of five 300-foot transects were measured for frequency of pinyon and juniper stems at and near Henderson Summit to assist in determining stem densities and proportions of pinyons and juniper trees in mixed woodland. In addition, Robin Tausch, a regional paleoecologist, was consulted to provide information on the approximate density of stems in the woodland, based on his extensive surveys within the region (personal communication with Robin Tausch, U.S. Forest Service, April 11, 2000).

## **WETLANDS AND OTHER WATERS OF THE UNITED STATES**

The extent of jurisdictional wetlands and other waters of the U.S. were estimated using maps and a reconnaissance survey. Wetland inventory data from National Wetland Inventory (NWI) maps were obtained from the USFWS and transferred to 7.5-minute USGS topographic quadrangle maps for field use. Potential wetlands were then identified and mapped in the field on the USGS quad maps, based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.

Potential other waters of the U.S. were identified on 7.5-minute USGS topographic quadrangle maps. All drainages indicated as having perennial or intermittent flow on the USGS quads were identified as potential other waters of the U.S. Those drainages that cross any part of the proposed route alternative segments were tallied. This method was developed in consultation with the U.S. Army Corps of Engineers (USACE) Nevada Field Office (personal communication with Nancy Kang, USACE, June 4, 1999).

The USACE indicated that for construction and permit documents it would be necessary to determine the types of impacts that each drainage would receive due to project construction. A wetland delineation report was not conducted as part of this EIS. Once a preferred route alternative is selected, a full inventory of waters of the U.S., including wetlands, would be developed in accordance with the USACE Wetland Delineation Manual (USACE 1987) for final permit and construction documents. Results of this inventory would be included in a wetland delineation report.

This report would be submitted to the USACE for certification and would serve as a baseline for determining impacts to wetlands. The delineation report would also be part of the application package for the Section 404 permit needed to authorize fills to wetlands. Permit and construction documents would include tables that specify the type, length, and width of temporary and permanent impacts to jurisdictional waters of the U.S. All waters of the U.S. that would be affected by the project would be identified on construction and permit document maps. Permits would be obtained from the USACE for all discharges of fill material into waters of the U.S., including wetlands, before proceeding with a proposed action.

## **REGULATORY FRAMEWORK**

This section summarizes the laws and regulations that apply to vegetation and wetland resources for the project. Wetland communities are considered valuable natural resources that provide habitat for a variety of dependent plant and wildlife species. The USACE and USFWS have policies and laws that regulate impacts on wetlands, as described below.

### **Clean Water Act, Section 404 – Definition of Wetlands**

The USACE and the EPA regulate the placement of fill into “waters of the United States” under Section 404 of the federal Clean Water Act. Waters of the United States include lakes, rivers, streams and their tributaries, and wetlands. Wetlands are defined for regulatory purposes as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3, 40 CFR 230.3). For a wetland to qualify as jurisdictional by the USACE and therefore be subject to regulation under Section 404 of the Clean Water Act, the site must support a prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology.

Other waters of the U.S. are sites that typically lack one or more of the three indicators for wetlands, listed above. Other waters of the U.S. in the project area include perennial and intermittent drainages that drain to navigable waters, such as rivers, streams, and other surface features with defined beds and banks (e.g., irrigation ditch reconfigured from a natural drainage that connected to a navigable water). Drainages that do not connect to navigable waterways are typically not defined as other waters of the U.S.

Project proponents must obtain a permit from the USACE for all discharges of fill material into waters of the U.S., including wetlands, before proceeding with a proposed action. The USACE may issue either individual permits on a case-by-case basis or general permits on a program level. General permits exist to cover similar activities expected to cause only minimal adverse environmental effects. Nationwide permits are a type of general permit that cover particular fill activities. All Nationwide permits have a general set of conditions that must be met for all projects and specific conditions that apply to particular projects.

### **Executive Order 11990: Protection of Wetlands**

The federal government supports a policy of minimizing “the destruction, loss, or degradation of wetlands” (Executive Order 11990, May 24, 1977). The Order directs all federal agencies to refrain from assisting or giving financial support to projects that encroach on public or privately owned wetlands.

### **Federal Land Policy and Management Act**

The Federal Land Policy and Management Act (FLPMA) of 1976 directs BLM to manage public lands in a manner that will provide for multiple use and at the same time protect natural resources for generations to come. In addition to FLPMA, numerous laws, regulations, policies, Executive Orders, and Memoranda of Understanding direct BLM to manage its riparian/wetland areas for the benefit of the nation and the economy. The BLM Manual 1737 for Riparian-Wetland Area Management identifies marshes, shallow swamps, lakeshores, bogs, muskies, wet meadows, estuaries, and riparian areas as wetlands.

### 3.4.2 AFFECTED ENVIRONMENT

#### PLANT COMMUNITIES IN THE STUDY AREA

The Basin and Range Region consists of many parallel rows of north-south trending mountain ranges separated by alluvium-filled valleys and intermontane basins. Geographically, the Basin and Range Region occupies most of Nevada, along with margins of Oregon, Idaho, Utah, Arizona, Wyoming, and California. The topography of the project area varies from flat alkaline valleys to steep mountains, and the elevation ranges from approximately 4,650 to 7,600 feet. Vegetation in the project area and in the Great Basin in general consists of primarily three major vegetation communities: sagebrush, salt desert scrub, and pinyon-juniper woodland. Low elevation alkaline soils with little rainfall tend to be characterized by salt desert scrub in dry lakebeds and playas. Middle to higher elevation areas that receive over 7 inches of moisture yearly tend to be characterized by sagebrush. At still higher elevations with more rain or snowfall, the sagebrush transitions into pinyon-juniper woodlands.

Twelve plant community types were identified within the project area, along with some areas that were designated as “developed or disturbed” land. In addition to these plant communities, areas qualifying as jurisdictional wetlands and other waters of the U.S. were identified. As a result of the 1999 and 2000 fires, portions of some plant communities were altered. These areas are discussed under Fire Affected Communities. Table 3.4-1 is a summary of the characteristic plant species by plant community type. The plant communities include Basin big sagebrush, mountain big sagebrush, Wyoming big sagebrush, black sagebrush, low sagebrush, salt desert shrub, pinyon-juniper woodland, greasewood, riparian, winterfat, crested wheatgrass, cultivated, and developed/disturbed.

Of these, all five sagebrush communities, salt desert shrub, and pinyon-juniper woodland are plant communities that are locally and regionally common, but which may provide important habitat for sensitive wildlife species, including sage grouse. Portions of riparian communities and other areas that qualify as wetlands, and waters of the U.S., are protected under Section 404 of the Clean Water Act. Riparian communities that do not qualify as wetlands are still considered important since they provide important habitat value for common and sensitive wildlife species. Crested wheatgrass, cultivated, and developed/disturbed communities are altered plant communities that generally provide lower habitat value to sensitive wildlife species than the natural communities.

Plant community descriptions were based on descriptions provided in Rangeland Cover Types of the United States (Shiflet 1994), and modified according to findings from the field surveys. The Rangeland Cover Types categorize community types in order of dominance (shrubs or overstory) and subdominance (grasses and forbs). The plant community classification system, as provided in Shiflet (1994) was selected over other classification systems (e.g., Cronquist et al. [1986-1997] and The Nature Conservancy’s *Terrestrial Vegetation of the United States* [The Nature Conservancy 1988]) because it is more detailed than the others and best determines potential habitat for wildlife, especially sage grouse.

The mapped vegetation types are generally consistent with type descriptions in Shiflet (1994). The dominance was typical of the types as well as the associated forbs and grasses. Cheatgrass (*Bromus tectorum*) was found throughout the project area but was generally not extensive. However, in the northeastern portion of the study area (e.g., Crescent Valley area), cheatgrass is now extensive.

Exceptions to the plant community descriptions occurred in areas that had been previously burned and are recovering, and areas of private land that may be heavily grazed but whose basic vegetation type had not been altered. Some areas contained non-native components such as cheatgrass, Russian thistle (*Salsola tragus*), and tumble mustard (*Sisymbrium altissimum*). These include areas around Beowawe and in Crescent Valley.

**TABLE 3.4-1: PLANT COMMUNITY TYPES AND CHARACTERISTIC PLANTS**

<b>Plant Community</b>	<b>Characteristic Plant Species</b>
Basin Big Sagebrush	Basin big sagebrush is the predominant shrub. Other characteristic species include shrubs such as gray horsebrush, and grasses such as squirreltail and Great Basin wildrye.
Mountain Big Sagebrush	Mountain big sagebrush is the predominant shrub. Other characteristic species include shrubs such as Mormon tea and snakeweed, and grasses such as Indian ricegrass, Great Basin wildrye, and Sandburg's bluegrass, and forbs.
Wyoming Big Sagebrush	Wyoming big sagebrush predominates. Other characteristic species include shrubs such as snakeweed, grasses such as squirreltail and Indian ricegrass, and forbs.
Black Sagebrush	Black sagebrush is the dominant shrub. Other characteristic species include grasses such as Sandburg's bluegrass, Indian ricegrass, and squirreltail, and forbs.
Low Sagebrush	Low sagebrush is the dominant shrub. Other characteristic species include grasses such as squirreltail and Sandburg's bluegrass, and forbs.
Salt Desert Shrub	Shadscale, black greasewood, and winterfat are the predominant shrubs in this sparsely vegetated plant community.
Winterfat	Winterfat is the dominant shrub, with smaller amounts of shadscale. This community is usually found as an inclusion in the salt desert shrub plant community.
Greasewood	Black greasewood is the dominant shrub. Some seasonally ponded areas within this community may qualify as jurisdictional wetlands.
Crested Wheatgrass	Crested wheatgrass is the dominant species, and is usually found within one of the big sagebrush or greasewood plant community types. It is often a temporary plant community that is generally used to increase perennial grass cover and fire resistance.
Pinyon-Juniper Woodlands	Utah juniper and pinyon pine are the dominant species, with understory species similar to adjacent shrub communities.
Cultivated	Alfalfa fields, small grain fields, and cultivated pastures.
Riparian	Characteristic species include sedges, rushes, creeping wild rye, ruderal (weedy) species such as common mullein and horehound, and occasional shrubs such as coyote willow and wild rose. Some areas include invasive weeds, primarily hoary cress. Some areas within this community may also qualify as jurisdictional wetlands.
Developed / Disturbed	These areas are mostly unvegetated (e.g., roads, gravel pits, buildings). Where vegetation occurs it is generally characterized by weedy species such as cheatgrass and tumble mustard.
Fire Affected Communities	Plant communities that burned in the summer of 1999 and 2000. Many areas were reseeded following the fires to re-establish perennial vegetation (BLM 1999a).

Invasive weeds were present infrequently and were generally associated with road features and heavily impacted private pasture lands (see Section 3.5 for a discussion of invasive weeds). The town of Eureka is an exception, however. Nearly all roads and drainages within and surrounding Eureka have populations of hoary cress (*Cardaria draba*).

Few areas in the Great Basin have not been altered by human presence; as a result, the route alternative segments contain evidence of human alterations varying from the grazing of range animals, wild horses, mining activities, fire frequency changes, and dredging activities such as along the Humboldt River. Despite these perturbations, however, few areas were extensively ruderal (weedy), and the majority of the

segments are relatively healthy. Cryptogamic soils were found throughout the project area and were found associated with both Wyoming big sage and mountain big sage. These soils are characterized by a crust formed by plants and plant-like organism that lack water-conducting vascular tissue, flowers, and are not reproduced by seeds. Cryptogamic soils affect various soil characteristics (i.e., moisture, erodibility, etc.), and may be somewhat resistant to invasion by many weeds. Grazing cattle and wild horses have impacted cryptogamic soil integrity in certain areas (e.g., Pine Valley).

### **Basin Big Sagebrush Community**

The Basin big sagebrush (*Artemisia tridentata* var. *tridentata*) community occurs on less than 2% of the land area in the study corridor. The Basin big sagebrush community occupies areas with deep permeable soils generally associated with drainages and valley bottoms. It occupies areas of 8- to 14-inch annual precipitation and was mapped at elevational ranges between 5,600 and 7,000 feet. The community is dominated by Basin big sage and grasses. Other shrub species including rubber rabbitbrush (*Chrysothamnus nauseosus*) and green rabbitbrush (*C. vicidiflorus*), gray horsebrush (*Tetradymia canescens*), and Heerman buckwheat (*Eriogonum heermanni*) are also present. Forbs include milkvetch species (*Astragalus* spp.), Douglas pincushion (*Chaenactis douglasii*), cryptantha (*Cryptantha flavoculata*), and Basin butterweed (*Senecio multilobatus*). Grasses include squirreltail (*Elymus elymoides*), Indian ricegrass (*Achnatherum hymenoides*), and Great Basin wildrye (*Elymus cinereus*).

### **Mountain Big Sagebrush Community**

The mountain big sagebrush (*Artemisia tridentata* var. *vaseyana*) community occurs in about 5% of the land area in the study corridor. The mountain big sagebrush community occupies areas of greater precipitation ranging from 14 to 18 inches per year and is located in areas of well-drained, deep permeable soils. Mountain big sage is generally found at higher elevations than the other big sage communities. It was mapped at elevational ranges from 5,700 to 7,400 feet, but may also be found at elevations above 10,000 feet. The community is dominated by mountain big sage and grasses. Other shrubs are also present, such as rubber and green rabbitbrush, desert peach (*Prunus andersonii*), Mormon tea (*Ephedra viridis*), snakeweed (*Gutierrezia sarothrae*), bitterbrush (*Purshia tridentata*), snowberry (*symphoricarpos* spp.), and gray horsebrush. Forbs include astragalus species, hookers, and arrowleaf balsamroot (*Balsamorhiza hookeri* and *B. sagittata*), phlox (*Phlox hoodii*), spurred lupine (*Lupinus argenteus*), mat buckwheat (*Eriogonum cespitosum*), and desert paintbrush (*Castilleja chromosa*). Grasses include squirreltail, Indian rice grass, Great Basin wildrye, Thurber's needlegrass (*Stipa thurberiana*), Sandburg's bluegrass (*Poa secunda*), and needle-and-thread grass (*Hesperostipa comata*).

### **Wyoming Big Sagebrush Community**

The Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*) community is by far the most prevalent plant community type in the study area, occurring in about 45% of the study corridor. The Wyoming big sagebrush community is found at lower elevations than the other big sagebrush communities, in areas of low precipitation (8 to 12 inches) and shallow stony soils. It was mapped at elevations between 4,600 and 6,800 feet. The community is dominated by Wyoming big sage and grasses. Small amounts of snakeweed are also present. Forbs and grass species include species of buckwheat (*Eriogonum* spp.), arrowleaf balsamroot, phlox (*Phlox hoodii* and *P. longifolia*), current leaf desert mallow (*Spaeralea grossularifolia*), Douglas pincushion, squirreltail, Indian rice grass, and Sandburg's bluegrass.

### **Black Sagebrush Community**

The black sagebrush (*Artemisia nova*) community occurs in about 15% of the study corridor. The black sagebrush community is generally found in areas with shallow, very rocky soils but within the same climatic variances of the big sagebrush community types. The black sagebrush community was mapped at elevations around 7,000 feet. The community is dominated by black sage, and is also characterized by grasses including Sandburg's bluegrass, Indian ricegrass, and squirreltail. Forbs include buckwheat species, hairy fleabane (*Erigeron pumilus*), goldenweed (*Haplopappus nanus* and *H. acaulis*), lovage (*Lomatium*

spp.), bitterroot (*Lewisia rediviva*), Pursh's milkvetch (*Astragalus purshii*), or other milkvetch species, and bladderpod (*Physaria chambersii*). Mountain snowberry (*Symphoricarpos oreophilus*) and bitterbrush (*Purshia tridentata*) were found in this community, but only rarely (e.g., along the east side of the Diamond Mountains).

### **Low Sagebrush Community**

The low sagebrush (*Artemisia arbuscula*) community occurs in less than 2% of the study corridor. The low sagebrush community is generally found in areas of shallow soils with low precipitation of 8 to 16 inches. Low sagebrush was mapped at elevations between 5,600 to 7,000 feet. Low sagebrush was found interspersed within the big sagebrush communities, most notably interspersed within the Wyoming big sagebrush community. The community is dominated by low sage and is also characterized by grasses and forbs, including Sandburg's bluegrass, squirreltail, lovage, buckwheat species, phlox, balsamroot, milkvetch, goldenweed, and short-stemmed lupine (*Lupinus brevicaulis*).

### **Salt Desert Shrub Community**

The salt desert shrub community occurs in about 15% of the study corridor. The salt desert shrub community occupies valley floors in areas of tight (i.e., clay) soils that are seasonally saturated and contain high amounts of salts. The community is found in the lowest elevations of the project area. The salt desert shrub community is characterized primarily by a mix of one or more chenopods including shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), and winterfat (*Krascheninnikovia lanata*). Other shrubs typical of this community include four-wing salt bush (*Atriplex canescens*), budsage (*Artemisia spinescens*), and green rabbitbrush. Grasses and forbs associated with this community include saltgrass (*Distichlis spicatum*), squirreltail, Great Basin wildrye, and desert mallow. In some areas, such as Whirlwind Valley, invasive species such as Russian thistle (*Salsola kali*), kochia (*Kochia scoparia*), clasping pepperweed (*Lepidium perfoliatum*), and halogeton (*Halogeton glomeratus*) occur.

### **Winterfat Community**

The winterfat (*Krascheninnikovia lanata*) plant community occurs in only about 0.3% of the study corridor. The winterfat community occurs as inclusions or areas around the salt desert shrub community type. This community type is dominated by winterfat and is also characterized by Indian ricegrass and shadscale. The winterfat community is generally located on alluvial flats and lake plains but contains soils that are relatively better drained than in the salt desert shrub community.

### **Greasewood Community**

The greasewood (*Sarcobatus vermiculatus*) community occurs in about 6% of the study corridor. The greasewood community occurs in alluvial flats, similar to the salt desert shrub and winterfat communities. Unlike those communities, the greasewood community occurs on poorly drained soils, which can result in seasonal ponding of water. Greasewood is the dominant species and is well-adapted to ponding and poor drainage, as well as the alkali salt and sodium content of these soils. Forbs, grasses, and other shrubs are generally sparse in the greasewood community but include Great Basin wildrye, inland saltgrass, shadscale, and other halophytes.

Some seasonally ponded areas within this community may qualify as wetlands subject to the jurisdiction of the USACE if they are characterized by hydrophytic vegetation, hydric soils, and wetland hydrology. See Wetlands and Riparian Communities, below, for a discussion of potential wetlands in the study area.

### **Crested Wheatgrass Community**

The crested wheatgrass (*Agropyron cristatum*) community occurs in about 2% of the study corridor. Crested wheatgrass is seeded into big sagebrush or greasewood community types, and is generally used to increase forage cover and fire resistance. The occurrence of the crested wheatgrass community may have

increased in some burned areas as a result of emergency fire rehabilitation efforts made after the fires in the summer of 1999.

### **Pinyon-Juniper Woodland Community**

The pinyon-juniper woodland community occurs in about 13% of the study corridor. Pinyon-juniper woodland generally occupies elevational ranges of 5,000 to 8,000 feet. In the study area, woodland occurs from about 5,000 feet to the upper limits of the route alternative segments; however, most of the woodland occurs above 6,000 feet. Lower elevations are dominated by Utah juniper (*Juniperus osterosperma*), while pinyon (*Pinus monophylla*) increases in importance with elevation. From approximately 6,000 to 7,400 feet, the composition was found to be 56% juniper and 44% pinyon. This was based on five transects taken at and near Henderson Summit.

Most of the pinyon-juniper woodland in the project area is at the higher elevations (e.g., approximately 6,000 to 7,400 feet) and is characterized by a mixture of 56% percent Utah juniper trees and 44% pinyon trees. However, there are some exceptions. Two woodland locations on the Cold Creek Ranch NW quadrangle consist entirely of juniper trees. In addition, trees in one pinyon-juniper woodland in Segment E (Mooney Basin Summit Quad.) had been harvested. This was noted during the vegetation survey. Based on surveys within the region, pinyon-juniper woodland is generally characterized by a density of about 100-200 stems per acre (personal communication with Robin Tausch, U.S. Forest Service, April 11, 2000).

The understory component of the pinyon-juniper woodland is dependent on both the stand and the elevation. However, the woodland is generally characterized by sparser understory vegetation cover than found in most of the other plant communities. The woodland is characterized by a variable distribution of shrubs, including mountain big sage, low sage, rabbitbrush, and wax current (*Ribes cereum*). Additional shrubs that occur less frequently include mountain mahogany (*Cercocarpus ledifolius*), bitterbrush, and serviceberry (*Amelanchier alnifolia*). Characteristic forbs and grasses include penstemons (*Penstemon* spp.), hairy wild cabbage (*Caulanthus pilosus*), arrowleaf balsamroot, buckwheats, Thurber's needlegrass, Sandburg's bluegrass, squirreltail grass, and wheatgrasses (*Agropyron* spp.).

### **Cultivated Land**

Cultivated areas include irrigated hay meadows, alfalfa fields, or other crops. Cultivated lands occur in less than 1% of the study corridor.

### **Developed/Disturbed Community**

Developed and disturbed lands occur in less than 1% of the study corridor. Developed and disturbed areas include roads, gravel pits, buildings, parking lots, and other developed areas. Where a vegetation component occurs, it is generally ruderal (i.e., characterized by cheatgrass, tumble mustard, and other introduced weedy species).

### **Fire-Affected Communities**

In the summer of 1999, over 1.7 million acres of Great Basin lands, primarily in Nevada, were burned in one of the worst fire seasons since the 1940s. Additional fires occurred in 2000. These fires have raised concerns about major transformations occurring in Great Basin ecosystems that affect the region's natural resources, as well as economic and social health. While fire is a natural component of the Great Basin plant communities, the frequency and pattern of fires have changed in post-settlement times.

The interplay of grazing practices, invasive species (e.g., cheatgrass), fire suppression, and post-fire management practices all have contributed to changes in fire frequencies and intensities. These, in turn, have contributed to a changing landscape with many implications. Issues of concern raised in response to the 1999 fires include loss of native plant communities, stability of watersheds and soils, declining

wildlife habitat, increase of noxious weeds and exotic annual grasses, reduced livestock grazing, loss of recreational opportunities, and more dangerous and expensive wildland firefighting (BLM 1999b). Figure 3.4-1 shows areas in the project area that burned during the 1999 and 2000 fires. These fires took place after the baseline field survey data were collected for this project. The burn areas in the study corridor had contained mostly sagebrush, along with some pinyon-juniper woodlands on Segment J. Many fire-affected areas have undergone varying degrees of revegetation since the 1999 burns (BLM 1999a).

## WETLANDS AND RIPARIAN COMMUNITIES

### Wetlands and Other Waters of the U.S.

Potential wetlands were found in the study area at the Humboldt River crossing and near the top of Segment B. The Humboldt River potential wetland area occurs within a riparian plant community, and the potential wetland near Segment B occurs within a greasewood plant community. Potential wetlands are shown in the oversized maps in the Vegetation Survey Report (SEI and Tetra Tech EMI 2000) available at the BLM Ely, Battle Mountain, and Elko Field Offices. Although field surveys were not conducted specifically to identify waters of the U.S., the field surveys that were done for vegetation and wildlife resources (SEI and Tetra Tech EMI 2000) indicated that the number of crossings of Blue-line watercourses shown on the USGS topographic quadrangle and tallied in Table 3.3-2 in Section 3.3, Water Resources, are overestimated. Many of the water courses shown on the 7.5-minute USGS maps used to identify other waters of the U.S. in the project area do not meet the definition of jurisdictional waters of the U.S., since they do not connect with navigable waterways. Other potential waters of the U.S. are shown in the oversized Vegetation Survey report maps (*Ibid*).

### Riparian Communities

Riparian communities occur in less than 1% of the study corridor. High quality riparian habitat can generally support more species than many other habitat types because of the presence of water and a productive, nutrient-rich environment. Due to substantial historic losses of this habitat type, many species dependent on riparian habitat are now considered rare, and several of these are now legally protected, or are being considered for protection, under federal endangered species laws. In the project area, however, most of the riparian communities have been disturbed and the habitat is degraded. Where riparian communities occur along drainages, they are generally avoidable via nearby bridges for vehicle access.

Riparian communities in the project area are associated with seasonal or perennial water sources. They vary in their vegetation characteristics. However, nearly all drainages and any associated riparian communities (both intermittent and perennial streams) show evidence of disturbance, whether from grazing by livestock, the driving of vehicles through streams, or dredging activities associated with improving the flow of a watercourse.

Some of the drainages are characterized by sedges (*Carex* spp.), occasional coyote willow (*Salix exigua*), wild rose (*Rosa woodsii*), yellow currant (*Ribes aureum*), and serviceberry. In addition, there are a variety of forbs such as monkey flower (*Mimulus guttatus*), sheep sorrel (*Rumex crispis*), common dandelion (*Taraxacum officinale*), and stinging nettles (*Urtica dioica*).

Most of the riparian areas occur on private lands generally used by range animals for grazing. These riparian communities are often disturbed wet meadows and pastures characterized by a high percentage of ruderal vegetation. Vegetation associated with these wet meadows includes sedges, rushes (*Juncus* spp.), arrowgrass (*Triglochin concinna* var. *debilis*), creeping wildrye (*Elymus triticoides*), mat muhly (*Muhlenbergia richardsonis*), sticky cinquefoil (*Potentilla glandulosa*), common dandelion, common yarrow (*Achillea millefolium*), and occasional coyote willow. The ruderal component ranges from native and non-

native species to noxious weeds. Non-native species include common mullein (*Verbascum thapsis*), tansy mustard (*Descurainia pinnata*), and non-native horehound (*Marrubium vulgare*). Invasive weeds include Russian knapweed (*Centaurea repens*), Canada thistle (*Cirsium arvense*), and hoary cress (*Cardaria draba*). The Russian knapweed and Canada thistle were located in a few of the wet meadows but were not mapped as they were outside the 500-foot wide survey corridor. Hoary cress was mapped with a high frequency. Invasive weeds are discussed in detail in Section 3.5 of this EIS.

At the proposed Humboldt River crossing, the riparian community is affected by what appears to be one of the most disturbed stretches of the river. The river channel shows signs of dredging and flooding activities. Haul-pack tires were placed in the river, presumably to allow access across the river. Piles of backfilled dirt from these activities were placed along the banks. The vegetative component was predominantly ruderal with dead willow stands as indicators of an apparently lowered water table. The ruderal species were similar to those species listed above.

Portions of a riparian community could qualify as jurisdictional wetlands subject to the jurisdiction of the USACE.

### **3.4.3 ENVIRONMENTAL CONSEQUENCES**

This section contains a discussion of the potential impacts of the project on vegetation resources, including wetlands and riparian communities. Discussions of potential impacts to special-status plant species are provided in Section 3.7, in Section 3.5 for invasive nonnative species (e.g., noxious weeds and cheatgrass), and Section 3.6 for wildlife and wildlife habitat.

### **SIGNIFICANCE CRITERIA**

The following general criteria were considered in determining whether an effect on vegetation resources would be significant:

- Federal or state legal protection of the resource or species;
- Federal or state agency regulations and policies;
- Local regulations and policies;
- Uniqueness or rarity of the resource both locally and regionally;
- Biological importance of resource;
- Magnitude of the disturbance, loss, or effect (e.g., substantial/not substantial); and
- Susceptibility of the affected resource to disturbance.

Based on the NEPA Guidelines and the general criteria identified above, effects on vegetation resources were considered significant if the project would result in any of the following:

- Long-term degradation of a sensitive plant community because of substantial alteration of landform or site conditions (e.g., alteration of wetland hydrology);
- Filling or degradation of wetlands and other waters of the U.S. subject to the jurisdiction of the USACE pursuant to the federal Clean Water Act;
- Substantial loss of a plant community and associated wildlife habitat; and
- Fragmentation or isolation of plant communities with important wildlife habitat values, especially riparian and wetland communities.

**FIGURE 3.4-1: FIRES IN 1999 AND 2000**  
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**FIGURE 3.4-1: FIRES IN 1999 AND 2000**

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## ENVIRONMENTAL IMPACTS – COMPARISON OF ALTERNATIVES

Direct effects on vegetation resources would include temporary and permanent habitat loss associated with construction, operation, and maintenance of the project (e.g., substation expansions, tower structure installation, and a centerline travel route). Indirect effects could result from providing increased access to an area. Some effects would be temporary, occurring during construction, while others would be long-term (e.g., loss of vegetation at tower sites).

### **Impacts Common to all Route Alternatives**

The following section presents impacts to vegetation resources, including wetlands and riparian communities, that would be common to all of the route alternatives.

Vegetation resources could be directly and indirectly affected by construction, operation and maintenance activities. In general, these impacts can be avoided or, where unavoidable, minimized to the extent that they can be successfully mitigated. Construction, operation and maintenance activities that could result in the direct or indirect loss or degradation of vegetation resources include:

- Excavations for towers and anchors;
- Blading and grading of soil for vehicle access and construction areas at tower sites;
- Tree removal and mowing vegetation where needed for construction vehicle access, tower installation, and necessary electrical clearance;
- Temporary stockpiling of soil or construction materials and sidecasting of soil and vegetation;
- Use of designated construction material yards;
- Soil compaction and dust;
- Equipment access through nonsensitive stream channels (defined as streams that do not support sensitive species, critical habitat, or woody riparian vegetation);
- Vehicle traffic and equipment and materials transport along the centerline travel route and construction areas;
- Temporary parking of vehicles outside the construction zone on sites that support sensitive resources (sites not designated as construction material yards); and
- Use of the 12-foot wide centerline travel route for annual line inspections by SPPC workers on ATVs and for as-needed maintenance and emergency repairs.

### **□ Impact Vegetation-1: Temporary Disturbance and/or Loss of Upland and Altered Plant Communities from Construction**

Construction activities would result in the temporary disturbance and/or loss of unburned and recently burned Basin big sagebrush, mountain big sagebrush, Wyoming big sagebrush, black sagebrush, low sagebrush, salt desert shrub, winterfat, pinyon-juniper woodland, greasewood, crested wheatgrass, cultivated, and developed/disturbed plant communities. Estimates of total construction-related ground disturbance are provided in Table 2-3, in Chapter 2. Table 3.4-2 indicates the types of plant communities that would be impacted by the 30-foot wide (maximum) centerline travel route.

**TABLE 3.4-2: ESTIMATED TEMPORARY DISTURBANCE TO PLANT COMMUNITIES BY SEGMENT AND ROUTE ALTERNATIVE WITHIN 30-FOOT CENTERLINE TRAVEL ROUTE (ACRES /PERCENT OF TOTAL AREA)**

Segment		Basin Big Sagebrush	Mountain Big Sagebrush	Wyoming Big Sagebrush	Black Sagebrush	Low Sagebrush	Salt Desert Shrub	Winterfat	Grease-wood	Crested Wheat-grass	Pinyon-Juniper	Cultivated	Riparian	Developed / Disturbed	Hoary Cress / Other Noxious Weeds	Total Segment Corridor
A	Acres	--	--	11.1	--	--	41.2	--	7.2	--	--	--	0.9	--	0.3	60.8
	%	--	--	18.3%	--	--	67.8%	--	11.8%	--	--	--	1.5%	--	0.6%	100%
B (via L)	Acres	0.3	0.3	102.2	24.1	1.4	60.4	--	27.3	3.1	6.4	--	--	--	0.4	225.9
	%	0.1%	0.2%	45.2%	10.6%	0.6%	26.7%	--	12.1%	1.4%	2.8%	--	--	--	0.2%	100%
C	Acres	--	--	77.8	1.6	6.1	22.4	--	10.7	11.3	--	--	--	--	--	129.9
	%	--	--	59.9%	1.2%	4.7%	17.2%	--	8.3%	8.7%	--	--	--	--	--	100%
D	Acres	--	--	47.8	2.3	--	--	--	11.7	9.2	--	--	--	--	0.01	71.0
	%	--	--	67.4%	3.3%	--	--	--	16.4%	12.9%	--	--	--	--	0.0%	100%
E	Acres	10.7	20.9	149.0	39.6	0.6	--	--	3.2	4.4	43.4	--	--	--	--	271.9
	%	3.9%	7.7%	54.8%	14.6%	0.2%	--	--	1.2%	1.6%	16.0%	--	--	--	--	100%
F	Acres	--	3.0	36.4	10.4	--	--	--	--	--	9.6	--	1.7	--	--	61.1
	%	--	5.0%	59.6%	17.0%	--	--	--	--	--	15.7%	--	2.7%	--	--	100%
G	Acres	--	2.6	49.0	14.9	--	--	--	1.3	--	4.6	--	--	--	--	72.4
	%	--	3.5%	67.7%	20.6%	--	--	--	1.7%	--	6.4%	--	--	--	--	99.9%
H	Acres	--	6.8	50.0	6.6	--	--	0.6	--	--	10.0	--	--	--	--	74.0
	%	--	9.2%	67.6%	9.0%	--	--	0.8%	--	--	13.5%	--	--	--	--	100%
I	Acres	--	15.0	26.3	21.8	2.0	17.1	0.3	11.3	1.4	10.7	2.7	0.2	0.7	0.7	110.3
	%	--	13.6%	23.8%	19.8%	1.8%	15.5%	0.3%	10.2%	1.3%	9.7%	2.4%	0.2%	0.7%	0.7%	100%
J	Acres	--	10.2	45.9	34.6	--	--	1.3	0.4	4.8	48.5	--	--	--	0.01	145.7
	%	--	7.0%	31.5%	23.8%	--	--	0.9%	0.3%	3.3%	33.3%	--	--	--	0.0%	100%
<b>ROUTE ALTERNATIVE</b>																
<b>Crescent Valley</b>																
(a)	Acres	0.3	31.1	270.9	105.8	3.4	118.8	1.6	47.4	9.3	79.8	2.7	2.8	0.7	1.5	676.1
	%	0.0%	4.6%	40.1%	15.6%	0.5%	17.6%	0.2%	7.0%	1.4%	11.8%	0.4%	0.4%	0.1%	0.2%	100.0%
(b)	Acres	0.3	35.4	271.9	97.5	3.4	118.8	2.2	46.1	9.3	85.1	2.7	2.8	0.7	1.5	677.8
	%	0.0%	5.2%	40.1%	14.4%	0.5%	17.5%	0.3%	6.8%	1.4%	12.6%	0.4%	0.4%	0.1%	0.2%	100.0%
<b>Pine Valley</b>																
(a)	Acres	0.0	30.8	294.3	85.6	8.1	80.7	1.6	42.5	26.7	73.4	2.7	2.8	0.7	1.1	651.1
	%	0.0%	4.7%	45.2%	13.1%	1.2%	12.4%	0.3%	6.5%	4.1%	11.3%	0.4%	0.4%	0.1%	0.2%	100.0%
(b)	Acres	0.0	35.0	295.3	77.4	8.1	80.7	2.2	41.2	26.7	78.8	2.7	2.8	0.7	1.1	652.8
	%	0.0%	5.4%	45.2%	11.8%	1.2%	12.4%	0.3%	6.3%	4.1%	12.1%	0.4%	0.4%	0.1%	0.2%	100.0%
<b>Buck Mountain</b>																
	Acres	10.7	31.1	283.7	75.9	6.8	63.6	1.3	21.5	20.6	92.0	0.0	0.9	0.0	0.4	608.3
	%	1.8%	5.1%	46.6%	12.5%	1.1%	10.5%	0.2%	3.5%	3.4%	15.1%	0.0%	0.1%	0.0%	0.1%	100.0%

- Long-term impacts cannot be determined at this time because tower locations are unknown.
  - Temporary habitat loss includes primarily clearing activities along the 30-foot wide (maximum) centerline travel route, spur roads, pole assembly and erection areas, and crane pads.
- Source: EDAW GIS using Stantec digital data of 1999-2000 field surveys (SEI and Tetra Tech EMI 2000)

During and after construction, SPPC would implement the activities described in the Reclamation Plan (Appendix E). Mowed areas regrow and achieve reclamation goals substantially faster than bladed areas (KEA 2000). Due to the relative abundance of the affected community types within the region, the relatively small area of temporary disturbance, and the reclamation activities that would be conducted, the impact would be adverse but less-than-significant. However, Mitigation Measure Vegetation-1 described below would further minimize this impact.

□ ***Mitigation Measure Vegetation-1:***

The following would be implemented to reduce construction disturbances to and maximize recovery of plant communities.

- Pre-construction surveys of the potential disturbance areas, access roads, and material yards would be conducted to ensure that sensitive plant communities and invasive weed infestation areas are avoided or mitigated (e.g., erosion and weed control, reseeding).
- During construction, travel would be restricted to the shortest feasible path to minimize environmental impacts while traveling along the access roads, spur roads, centerline travel route, and 500-foot study corridor. As explained in Chapter 2, in some areas, it may be necessary to travel outside the 500-foot corridor; however, this would be kept to a minimum. Construction activity and travel protocols would be clearly specified in the COM Plan.
- Construction activities would be restricted when the soil is too wet to adequately support construction or maintenance equipment. If equipment creates excessive ruts in wet or saturated soils as determined by the BLM Compliance Inspector and/or SPPC's Environmental Compliance Monitor, the soil shall be deemed too wet to adequately support standard construction or maintenance equipment. Where the soil is deemed too wet, Mitigation Measures Vegetation-6 (a-c), Vegetation-7, and Soil-1 apply.
- Vegetation removal would be minimized wherever possible and would be restricted in sensitive resource areas (e.g., areas in erodible soils, sensitive biological resources). These areas would be delineated, staked, and flagged in the field by a qualified resource specialist, and would be specified in the COM Plan. Blading and grading may be required in some areas due to personnel safety and equipment operating requirements. These areas would be primarily on steeper slopes or in rocky terrain.

□ ***Impact Vegetation-2: Long-term Loss of Upland Plant Communities***

Long-term loss of upland plant communities would result from the construction, operation, or maintenance of the transmission line and substation expansion areas. Direct losses of Basin big sagebrush, mountain big sagebrush, Wyoming big sagebrush, black sagebrush, low sagebrush, salt desert shrub, winterfat, pinyon-juniper woodland, and greasewood plant communities would occur through construction of substation facilities, towers, and use of the 12-foot wide centerline travel route for annual line inspections and as-needed maintenance.

These long-term impacts cannot be summarized by plant community type because tower locations are unspecified at this time. However, estimates of the long-term disturbance area for each of the route alternatives is provided in Table 2-6 in Chapter 2. The combined impacts from tower footings, substation facilities, and the 12-foot centerline travel route would be substantially less than the temporary construction-related impacts. The plant communities that occur in the areas where long-term impacts would occur are abundant locally, in the project area and within the region. The communities that would be affected are small relative to their distribution. Thus, long-term impacts to upland plant communities would be less-than-significant. No mitigation would be required.

☐ ***Impact Vegetation-3: Long-term Loss of Altered Plant Communities***

Crested wheatgrass, cultivated, and developed and disturbed plant communities are altered plant communities with low potential for special-status plant occurrences. They generally have lower native species diversity than unaltered plant communities. Direct losses of crested wheatgrass, cultivated, and developed/disturbed plant communities would occur from installation of the tower footings, substation expansions, and use of the 12-foot wide centerline travel route for annual inspection and as-needed maintenance. Long-term impacts to altered plant communities would be less-than-significant because the amount of loss is small relative to their abundance in the region, and because they have a low percentage of native vegetation. No mitigation would be required.

☐ ***Impact Vegetation-4: Effects on Vegetation from Increased Access***

Creation of the 12-foot wide centerline travel route for annual ATV inspections and improvements to existing access roads could increase access and hence human or animal activities in the area following construction, which could in turn affect vegetation resources. As analyzed in Impact Vegetation-2 and -3, long-term losses of upland and altered communities that would be affected are small relative to the distribution of these communities within the project area and within the region. However, loss or degradation of upland and altered plant communities within the study corridor could result from the introduction of invasive weeds, or poor revegetation success. In areas with little to no invasive weed infestations (e.g., no cheatgrass), this loss or degradation could be extensive enough to be a significant impact. Implementation of Mitigation Measure Vegetation-1, the following mitigation measure, and Mitigation Measure Invasive Weeds-1 (in Section 3.5) would reduce the potential impact to a less-than-significant level.

☐ ***Mitigation Measure Vegetation-4***

- Existing barriers (i.e., fences and gates) would be maintained and new spur roads would be blocked or signage placed during construction to discourage unauthorized vehicular traffic.
- After construction, spur roads would be reclaimed, and where needed barriers created, to discourage new entry onto the ROW and disturbance of sensitive areas.

☐ ***Impact Vegetation-5: Impacts to Woodland Species With Commercial Value***

Construction and operation of the transmission line would result in temporary and long-term losses of pinyon and juniper trees. Juniper and pinyon trees would not be uniformly removed, however.

Long-term losses would occur from tree removal around towers and within 55 feet of the centerline, which is needed to maintain electrical clearance. Mid-way between the tower sites, trees over 15 feet in height may need to be cut if they fall within the clearance curve between two towers. On level terrain, shorter trees may not need to be cut near the support towers, because the conductor is higher than mid-span. Conversely, more trees would have to be removed or trimmed in the middle one-third of each span because the wire sags lower to the ground. Pinyon and juniper trees small enough not to affect transmission line operation (as determined by the growth envelope, the terrain, and the clearance curve between towers) would be left in place. In rough terrain, only trees on higher points may need to be removed. Tree trimming would be conducted to allow for a 10-year growth envelope. A percentage of the existing estimated 100 to 200 pinyon and juniper trees per acre would therefore remain.

Pinyon and juniper woodland is widespread and increasing within the region (BLM 1999b) in areas where fire suppression has occurred, but is severely diminished in areas burned by wildfires in recent decades (BLM 1999a). Increases or decreases in pinyon-juniper woodland can provide

a mixture of benefits and detrimental effects, depending on the resource. For instance, increases can be beneficial biologically (e.g., raptor habitat) and culturally (e.g., seed collecting and non-commercial harvesting).

Decreases can also be beneficial biologically where pinyon-juniper woodland has encroached on sagebrush habitat. The BLM RMPs for these areas allow for flexibility in managing this resource to meet different objectives (e.g., maintaining the woodlands for sustained yield, non-commercial harvesting and cultural resource purposes, and for wildlife habitat, and fire protection). The Burned Area Emergency Rehabilitation Plan (BLM 1999a) calls for restoring high productivity and severely burned woodland areas as part of the post-fire management strategy.

The proposed clearing of pinyon and juniper trees would result in an impact that is considered less-than-significant biologically in areas that have experienced fire suppression and are undergoing encroachment by pinyon-juniper woodland. However, in areas where wildfires have severely diminished the extent of woodland, additional clearing may be considered significant. There may also be impacts from the temporary or long-term loss of firewood and pinyon seeds.

Estimates of quantities of trees that must be removed can only be determined after the line design is complete and tower locations are staked in the field. However, for the purposes of this analysis, the relative differences in temporary and long-term tree removal would be proportional to the extent of pinyon-juniper woodland occurring within each segment. Implementation of Mitigation Measures Vegetation-5 would reduce impacts to less-than-significant levels.

#### ☐ **Mitigation Measure Vegetation-5**

The following would be implemented to restore pinyon and juniper trees and compensate for temporary and long-term tree losses:

- SPPC would pay for all woodland products lost due to construction and maintenance. Trees that are heavily damaged or removed would be tallied by species and height prior to or during these activities. The data would be provided to the BLM forester for determination of compensation. SPPC or its tree removal contractor would retain the woodland products paid for.
- Following construction, pinyon and juniper trees would be seeded into those construction disturbance areas that are not needed for future access, operation, and maintenance at a rate to be developed in coordination with BLM. The objective would be to restore woodland species to pre-construction tree densities while enabling access for annual inspections and as-needed maintenance.

### **Wetlands and Riparian Communities**

#### ☐ **Impact Vegetation-6: Possible Removal or Disturbance of Riparian and Wetland Communities**

Riparian and wetland communities that provide important habitat for local and migratory wildlife and fish are considered sensitive resources and are of concern to federal and state agencies. While SPPC would avoid or minimize impacts to riparian and wetland communities, the project construction could result in the temporary removal or disturbance of riparian or wetland vegetation in some areas. This could occur from driving through drainages that support riparian vegetation and have no bridge, crossing, or unvegetated area nearby.

The majority of the route segments are not aligned with well-developed riparian communities, and most of the riparian communities in the study area have been disturbed and the habitat is

degraded from grazing by livestock, the driving of vehicles through streams, or dredging activities associated with improving the flow of a watercourse.

Wetland areas have not been delineated as part of this EIS. A wetland delineation would need to be conducted in accordance with the USACE Wetland Delineation Manual (USACE 1987) once a route has been selected. Temporary and permanent impacts to wetland areas may be quantified at that time. In addition, permits would need to be obtained from the USACE for all discharges of fill material into waters of the U.S., including wetlands, before proceeding.

The transmission line would generally be constructed to span riparian areas and wetlands in the ROW. However, it is possible that some riparian areas or wetlands may not be entirely avoidable. The temporary or long-term loss of riparian and wetland communities would be a significant impact. Implementation of the following mitigation measure would reduce it to a less-than-significant level. Additional measures may also be required as part of the USACE permits obtained for the project.

**☐ *Mitigation Measure Vegetation-6a***

Before construction, qualified resource specialists would stake and flag or fence exclusion zones around all riparian and wetland areas that are avoidable. Exclusion zones would have a 20-foot buffer (approximately) beyond the limits of riparian or wetland vegetation. Depending on site-specific conditions, this buffer may be narrower or wider than 20 feet, as determined by the field resource specialist. Construction-related activities would be restricted within these zones.

Protective fencing would remain in place until all construction activities in the area are complete. Essential vehicle operation on existing roads, bridges, and crossings, as well as foot travel would be permitted. All other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities would be prohibited within the exclusion zone.

In areas where riparian or wetland habitats are unavoidable, the width of the centerline travel route would be narrowed to 20 feet. New spur roads and existing access road improvements would be constructed using BMPs that preserve existing hydrology and minimize disturbances to riparian and wetland habitats. Tower assembly and erection work areas would be minimized where possible. Where riparian vegetation must be removed, photographs and documentation of existing site conditions would be taken during the pre-construction survey. If woody native vegetation is involved, to facilitate regrowth following construction, plants would generally be cut at a height that minimizes damage to the root crown.

To minimize soil compaction and damage to vegetation in seasonal wetlands, construction activities would generally be limited to dry or frozen conditions. In unfrozen areas with perennially moist or saturated soils or in ponded areas, implement Mitigation Measure Soil-1(b) to minimize damage to the substrate and vegetation.

The BLM Compliance Inspector and SPPC's Environmental Compliance Monitor(s) would be responsible for ensuring that transmission line installation activities follow these riparian and wetland mitigation measures. In addition, SPPC would conduct a brief biological resource education program for construction crews covering, in part, the mitigation measures to follow to protect riparian areas, wetlands, and other sensitive resources. This program is discussed further in Mitigation Measure Special-Status Species-11 in Section 3.7.

**☐ *Mitigation Measure Vegetation-6b***

All riparian and wetland areas disturbed during project construction would be restored to ensure a no-net-loss of habitat functions and values. Actions would be implemented during

construction to help re-establish the conditions conducive to natural site regeneration to pre-construction conditions. Consistent with USACE Nationwide Permit No. 12 for utility line discharges, in wetlands that are excavated, the top 12 inches of topsoil from the excavated site would be stockpiled with intact roots, rhizomes, and seed bank.

The topsoil and subsoil would be replaced immediately after construction activities are complete. Following construction, a qualified soil or wetland scientist and restoration ecologist would identify areas that require recontouring of the ground surface to restore pre-construction hydrology and facilitate revegetation.

**☐ Mitigation Measure Vegetation-6c**

Unavoidable losses of riparian and wetland communities would be mitigated by restoration and/or preservation of riparian and wetland habitats. The restoration and/or preservation would take place elsewhere within the 500-foot project study corridor or offsite, if no suitable habitat is available, at a ratio of 1:1. Habitat to be restored would include similar habitat to that which would be lost due to project activities. The restored site would already be degraded (e.g., by past land management practices), but would be available for restoration and protection from future disturbances. The final acreage for compensation would be determined by quantifying the post-construction disturbance area and condition and comparing it to the pre-construction size and baseline condition.

**☐ Impact Vegetation-7: Possible Short-Term Disturbance of Other Waters of the United States**

Equipment access through non-sensitive drainages could result in disturbances to these features, many of which would qualify as “other waters of the U.S.” subject to USACE jurisdiction under Section 404 of the Clean Water Act. Nearly all other waters of the U.S. in the project area are ephemeral drainages that become dry in the summer or are wet only briefly, during rain or snow events. They do not support woody riparian vegetation, sensitive species or critical habitat. Table 3.3-2 in Section 3.3, Water Resources, shows estimates of the number of watercourses that could be affected by project activities. However, many of these may not meet the legal definition of “waters of the U.S.”

Any effects that do occur are expected to be minimal because the disturbances would be relatively brief and would not substantially alter wetland hydrologic functions, native soils, and plant material. This impact would therefore be considered adverse but less-than-significant. Implementation of Mitigation Measure Vegetation-6 (a-c), and the following mitigation measure would further reduce adverse impacts on other waters of the U.S. Additional compensatory, restoration, or avoidance mitigation measures may be identified by regulatory agencies (e.g., USACE, USFWS) as part of the permitting process.

**☐ Mitigation Measure Vegetation-7**

Consistent with the USACE’s Nationwide Permit No. 12 for utility line discharges, the area of waters of the U.S. to be disturbed would be limited to the minimum area necessary to successfully install the transmission line. The following actions would be implemented to minimize effects on and restore other waters of the U.S. and associated plant communities, if any:

- Stabilize exposed slopes and streambanks immediately on completion of installation activities. Other waters of the U.S. would be restored in a manner that encourages vegetation to reestablish to its pre-construction condition and reduces the effects of erosion on the drainage system.

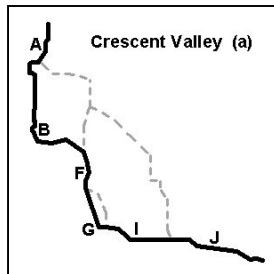
- In highly erodible stream systems, stabilize banks using a nonvegetative material that would bind the soil initially and break down within a few years. If more aggressive erosion control treatments are needed in some areas, geotextile mats, excelsior blankets, or other soil stabilization products could be used.
- During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of drainages to minimize disturbance of the drainage bed and bank.
- New spur roads and improvements to existing access roads would be designed and implemented using BMPs that preserve existing hydrology and avoid permanent disturbances to other waters of the U.S.
- Implement additional measures required by the USACE permits.

These actions and all permit conditions would be incorporated into the COM Plan by reference and implemented by SPPC's construction contractor. BLM's Compliance Inspector and SPPC's Environmental Compliance Monitor(s) would routinely inspect construction activities to verify that these measures and permit conditions have been implemented.

### **Alternative-Specific Impacts**

In addition to the impacts common to all route alternatives, the following presents impacts associated with specific route alternatives. Because the route alternatives differ by one or more segments, these alternative-specific impacts are best discussed in terms of their differentiating segments.

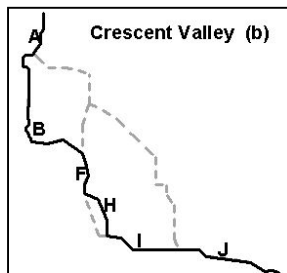
#### **Crescent Valley (a) Route Alternative**



The Crescent Valley (a) route alternative is comprised of Segments A, B, F, G, I, and J. In addition to the impacts common to all route alternatives discussed above (i.e., Impact Vegetation-1 through -7), specific impacts for the Crescent Valley (a) route alternative are described below. According to Table 3.4-2, this route alternative would result in the temporary disturbance of approximately 584 acres of upland plant communities (Sagebrush, Shrub, Winterfat, Greasewood, Crested Wheatgrass), 79.8 acres of Pinyon-Juniper woodland, and 2.8 acres of riparian habitat. Out of all route alternatives, Crescent Valley (a)

would temporarily disturb the greatest amount of upland plant communities, the 3<sup>rd</sup> greatest amount of Pinyon-Juniper woodland, and would temporarily disturb almost 2 more acres of riparian habitat than the Buck Mountain route alternative.

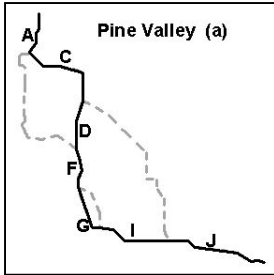
#### **Crescent Valley (b) Route Alternative**



The Crescent Valley (b) route alternative is comprised of Segments A, B, F, H, I, and J. It follows a similar alignment to the Crescent Valley (a) route, except that it uses Segment H instead of Segment G. According to Table 3.4-2, this route alternative would result in the temporary disturbance of approximately 580 acres of upland plant communities (Sagebrush, Shrub, Winterfat, Greasewood, Crested Wheatgrass), 85.1 acres of Pinyon-Juniper woodland, and 2.8 acres of riparian habitat. Out of all route alternatives, Crescent Valley (b) would temporarily disturb the 2<sup>nd</sup> greatest amount of upland plant

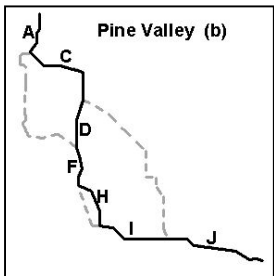
communities, the 2<sup>nd</sup> greatest amount of Pinyon-Juniper woodland, and would temporarily disturb almost 2 more acres of riparian habitat than the Buck Mountain route alternative.

**Pine Valley (a) Route Alternative**



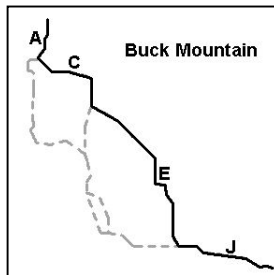
The Pine Valley (a) route alternative is comprised of Segments A, C, D, F, G, I, and J. It follows a similar alignment to the Crescent Valley (a) route, except that it uses Segments C and D instead of Segment B. According to Table 3.4-2, this route alternative would result in the temporary disturbance of approximately 565 acres of upland plant communities (Sagebrush, Shrub, Winterfat, Greasewood, Crested Wheatgrass), 73.4 acres of Pinyon-Juniper woodland, and 2.8 acres of riparian habitat. Out of all of the route alternatives, Pine Valley (a) would temporarily disturb the 3<sup>rd</sup> greatest amount of upland plant communities, the least amount of Pinyon-Juniper woodland, and would temporarily disturb almost 2 more acres of riparian habitat than the Buck Mountain route alternative.

**Pine Valley (b) Route Alternative**



The Pine Valley (b) route alternative is comprised of Segments A, C, D, F, H, I, and J. It follows a nearly identical alignment with the Pine Valley (a) route, except that Pine Valley (b) uses Segment H rather than Segment G, traversing the eastern side of Whistler Mountain rather than the west. According to Table 3.4-2, this route alternative would result in the temporary disturbance of approximately 563 acres of upland plant communities (Sagebrush, Shrub, Winterfat, Greasewood, Crested Wheatgrass), 78.8 acres of Pinyon-Juniper woodland, and 2.8 acres of riparian habitat. Out of all of the route alternatives, Pine Valley (b) would temporarily disturb the 2<sup>nd</sup> least amount of upland plant communities, the 2<sup>nd</sup> least amount of Pinyon-Juniper woodland, and would temporarily disturb almost 2 more acres of riparian habitat than the Buck Mountain route alternative.

**Buck Mountain Route Alternative**



The Buck Mountain route alternative is comprised of Segments A, C, E, and J. According to Table 3.4-2, this route alternative would result in the temporary disturbance of approximately 510 acres of upland plant communities (Sagebrush, Shrub, Winterfat, Greasewood, Crested Wheatgrass), 92 acres of Pinyon-Juniper woodland, and .9 acre of riparian habitat. Out of all of the route alternatives, Buck Mountain would temporarily disturb the least amount of upland plant communities, the greatest amount of Pinyon-Juniper woodland, and would temporarily disturb the least amount of riparian habitat.

**Summary Comparison of Route Alternatives**

**TABLE 3.4-3: SUMMARY OF IMPACTS BY ROUTE ALTERNATIVE**

Impact	Crescent Valley (a)	Crescent Valley (b)	Pine Valley (a)	Pine Valley (b)	BUCK MOUNTAIN
Impact Vegetation-1: Temporary Disturbance and/or Loss of Upland and Altered Plant Communities from Construction	X	X	X	X	X
Impact Vegetation-2: Long-term Loss of Upland Plant Communities	X	X	X	X	X
Impact Vegetation-3: Long-term Loss of Altered Plant Communities	X	X	X	X	X
Impact Vegetation-4: Effects on Vegetation from Increased Access	X	X	X	X	X
Impact Vegetation-5: Impacts to Woodland Species With Commercial Value	X	X	X	X	X
Impact Vegetation-6: Possible Removal or Disturbance of Riparian and Wetland Communities	X	X	X	X	X
Impact Vegetation-7: Possible Short-Term Disturbance of Other Waters of the United States	X	X	X	X	X

**RESIDUAL IMPACTS**

After mitigation and reclamation, residual impacts related to vegetation resources would be minor. Residual effects to vegetation resources would result primarily from a temporary loss of plant communities and a potential elevated level of cheatgrass cover in some project disturbance areas. After reclamation, these impacts should be minimal.

**NO ACTION ALTERNATIVE**

Under the No Action Alternative, impacts to existing plant communities, wetlands, and riparian communities associated with the project would not occur. However, similar impacts could occur in other areas as SPPC and the Nevada PUC would begin emergency planning efforts to pursue other transmission and/or generation projects to meet the projected energy load capacity shortfall.