

DRAFT  
BOTANICAL STUDY

*for the*

Broadwing Communications Services, Inc.  
California Fiber Optic Expansion Project

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# 1 INTRODUCTION

This botanical study was prepared in support of the Final Proponent's Environmental Assessment (in preparation) and will be submitted to the California Public Utilities Commission (CPUC) on behalf of Broadwing Communications Services Inc. (Broadwing). The botanical survey was conducted for the Ontario to San Diego Longhaul Route (project route). The route, which passes through San Bernardino, San Diego, and Riverside counties, is approximately 114 miles in length and traverses habitats ranging from chaparral to riparian (see [Appendix A](#) for route maps). The objectives of this field study were to:

- › Identify the presence or absence of special-status plants along the proposed fiber optic route;
- › Compile a representative plant list for each habitat that exists within the project study corridor;
- › Identify the presence or absence of *Plantago erecta* (dwarf plantain), the host plant for the Endangered Quino checkerspot butterfly.



## 2 STUDY METHODOLOGY

Botanists Amy Taylor and Kevin Taylor conducted the botanical survey during two separate trips. The first visit, which took place from April 9-13, 2001, coincided with the blooming/fruiting periods of the majority of the special-status plants initially identified for the project.

Prior to the first field survey, North State Resources, Inc. (NSR) searched the California Natural Diversity Database (CNDDDB) for documented occurrences of special-status plants that occurred within one mile of the project route. [Table 2-1](#) lists 27 vascular plant taxa and one lichen species that resulted from the initial CNDDDB search. (An asterisk preceding the scientific name indicates those taxa from the initial search.) The taxa are listed as species or species plus variety or subspecies. A taxon is given special status by one or more of the following groups: United States Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and the California Native Plant Society (CNPS). The search includes taxa from CNPS plant lists 1B and 2 (see Skinner and Pavlik 1994 for descriptions). During the initial field visit, the botanists looked specifically for 27 special-status plants and lichen that had the potential to occur in vegetative communities in or adjacent to (within 25 feet of the edge of pavement) the proposed project route.

A second field visit was conducted from July 2-5, 2001 in order to search for those special-status plants among the 27 that had later blooming periods. Included are the following taxa: *Artemisia palmeri* (Palmer sagewort), *Baccharis vanessae* (Encinitas baccharis), *Hemizonia parryi* ssp. *australis* (southern tarplant), *Hemizonia pungens* ssp. *laevis* (smooth tarplant), *Monardella linoides* ssp. *viminea* (willow monardella), and *Brodiaea orcuttii* (Orcutt's brodiaea). Oftentimes a species can only be positively identified when in flower and/or fruit. The second visit was also warranted in order to search for *Plantago erecta* (dwarf plantain, California plantain), the host plant for the Endangered Quino checkerspot butterfly.

Prior to the second field survey, a more exhaustive search was conducted for special-status plants likely to occur in or near the project route. A thorough review of USFWS Threatened and Endangered Species lists, CDFG lists, and CNDDDB queries for special-status plant taxa that occurred within the counties transected by the proposed routes (rather than simply within a mile of the route) resulted in an additional 48 special-status plants to target during the second field visit. [Table 2-1](#) includes the 76 special-status taxa identified as having the potential to be impacted by the project. The second field survey, which took place from July 2-5, 2001, included the search for the additional 48 special-status plants that were not surveyed during the initial field visit.

Before beginning the fieldwork, familiarity with the special-status plants was gained by visiting the San Diego Natural History Museum Herbarium to study specimens of the targeted plant taxa. Additionally, species descriptions from The Jepson Manual (Hickman 1993) and CNPS Inventory of Rare and Endangered Vascular Plants (Skinner and Pavlik 1994) were reviewed.

### 2.1 FIELD SURVEYS

Field surveys along the proposed fiber optic project route were conducted over three to four days for each visit. The botanists drove the route, stopping frequently to walk along the right-of-way and look for special-status plants, as well as to identify non-special-status plants growing in each habitat type. An effort was made to survey each different habitat type along the route, devoting more time to habitats known to contain special-status plants (i.e. chaparral, vernal pools, and riparian areas). At every stop, each botanist walked and inventoried an area 25 feet from the edge of the pavement and typically 200-400 yards in length. To maximize the ground surveyed, the two botanists walked in opposite directions from

the car. Each stop where plant surveys were conducted is mapped on 7.5-minute U.S. Geological Survey quadrangle maps (see [Appendix A](#)) and are numbered from 1 to 48 from north to south. Habitat types associated with each site are also indicated on the USGS maps. In addition to surveying the road rights-of-way, two proposed optical amplification (OP-AMP) station sites were thoroughly inventoried (see Site 8 on [Figure A-7](#) and Site 16 on [Figure A-10](#) in [Appendix A](#)).

At each stop along the proposed route, a plant survey consisted of identifying the habitat type and associated plants and looking for special-status plants. In order to compile a representative plant list, plants in flower or fruit were identified at each site or collected for later identification at the University of California, Davis Herbarium or where a microscope was available. Care was taken to refrain from collecting potential threatened or endangered species.

Two to three days per trip were spent identifying plants with aid of a microscope, The Jepson Manual (Hickman 1993), and by comparison with herbarium specimens. In order to verify or rule out the presence of special-status taxa, plants belonging within the same genus as a special-status plant were identified to species. Voucher specimens of common species will be deposited at the San Diego Natural History Museum Herbarium or other respected herbaria.

Within San Diego County, surveys were conducted only on the side of the road in which installation of the fiber optic conduit is proposed. Due to the lack of engineering plans within Riverside County, both sides of the proposed route were surveyed. Less time was spent surveying in Riverside County relative to San Diego County due to the high frequency of commercial areas with little or no vegetation along large portions of the proposed alignment.

Results of the database search for special-status taxa that have the potential of occurring along the proposed Ontario to San Diego route are presented in [Table 2.1-1](#). The list is based on a search performed by NSR. Taxa preceded by an asterisk (\*) were those initially identified for the project. An additional 48 taxa were later incorporated (see above discussion). The additional taxa are not preceded by an asterisk.

**Table 2.1-1 Results of Database Search for Special-Status Taxa  
Having the Potential to Occur Along the Project Route**

Scientific Name/ Common Name	Blooming Period	Status: USFWS/CDFG/CNPS/Other	Known Habitat Types for Species within California
<i>Acanthomintha ilcifolia</i> San Diego Thorn Mint	Apr-Jun	Threatened/ Endangered/ 1B	Vernal pools, coastal scrub, valley and foothill grassland, chaparral with heavy clay soils.
* <i>Adolphia californica</i> California Adolphia	Dec-Apr	None/ None/ 2	Chaparral, coastal sage scrub, valley and foothill grassland. Known from only Baja California and San Diego County.
* <i>Allium munzii</i> Munz's Onion	Mar-May	Endangered/ Threatened/ 1B	Chaparral, coastal scrub, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland. Found only in Riverside County.
<i>Ambrosia pumilla</i> San Diego Ambrosia	Jun-Sep	Proposed Endangered/ None/ 1B	Vernal pools, coastal scrub, valley and foothill grassland, chaparral.
* <i>Arctostaphylos glandulosa ssp crassifolia</i> Del Mar Manzanita	Dec-Apr	Endangered/ None/ 1B	Chaparral, closed-cone coniferous forest. in California, only in San Diego County.
* <i>Arctostaphylos rainbowensis</i> Rainbow Manzanita	Jan-Feb	None/ None/ 1B	Chaparral. Previously called <i>A. peninsularis</i> or considered a hybrid between <i>A. glandulosa</i> & <i>A. glauca</i> .
<i>Arenaria Paludicola</i> Marsh Sandwort	May-Aug	Endangered/ Endangered/ 1B	Freshwater wetlands, saturated, acidic soils.
<i>Arenaria Ursina</i> Big Bear Valley Sandwort	May-Aug	Endangered/ Endangered/ 1B	Pinyon-juniper woodland, pebble plain. Occurs in rocky soil under moist conditions.
* <i>Artemisia palmeri</i> San Diego Sagewort	Jul-Sep	None/ None/ 2	Coastal scrub, chaparral, riparian forest, riparian woodland. Known only from Baja California and San Diego County.
<i>Astragalus albens</i> Cushenberry Milk-Vetch	Mar-May	Endangered/ None/1B	Joshua tree woodland, pinyon-juniper woodland on granitic carbonate substrate. Known only to occur in the San Bernardino Mountains.
<i>Astragalus brauntonii</i> Braunton's Milk-Vetch	Mar-Jul	Endangered/ None/ 1B	Chaparral, valley grassland and coastal sage scrub. Found on rocky outcrops in carbonate substrate.
<i>Astragalus jaegerianus</i> Lane Mountain Milk-Vetch	Apr-Jun	Endangered/ None/ 1B	Creosote bush scrub, Joshua tree woodland in sandy, gravelly soil on granitic substrate
<i>Astragalus lentigenosus var coachellae</i> Coachella Valley Milk-Vetch	Feb-May	Endangered/ None/ 1B	Creosote bush scrub. Occurs in sandy soil.
<i>Astragalus magdalenae var peirsonii</i> Peirson's Milk Vetch	Dec-Apr	Threatened/ Endangered/ 1B	Desert dunes. Occurs in dune habitats.
* <i>Astragalus pachypus var jaegeri</i> Jaeger's Milk-Vetch	Dec-Jun	Species of Concern/ None / 1B	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland. Endemic to Riverside county.
<i>Astragalus tener var titi</i> Coastal Dunes Milk Vetch	Mar-May	Endangered/ Endangered/ 1B	Coastal strand, Northern coastal scrub, coastal sage scrub.
<i>Astragalus tricarinatus</i> Triple Ribbed Milk-Vetch	Feb-May	Endangered/ None/ 1B	Creosote bush scrub, Joshua Tree woodland. Occurs in sandy, gravelly soil in dune and coastal habitats. Known from four locations near Whitewater and Morongo Valley.
<i>Atriplex coronata var. notatior</i> San Jacinto Valley Crownscale	Apr-Aug	Endangered/ None/ 1B	Vernal pools in alkaline soil. Known from one population in the San Jacinto valley.
* <i>Baccharis vanessae</i> Encinitas Baccharis	Aug-Nov	Threatened/ Endangered/ 1B	Chaparral. Endemic to San Diego County.
<i>Berberis nevini</i> Nevin's Barberry	Mar-Apr	Endangered/ Endangered/ 1B	Chaparral, foothill woodland, coastal sage scrub, riparian scrub. Sandy soil

Scientific Name/ Common Name	Blooming Period	Status: USFWS/CDFG/CNPS/Other	Known Habitat Types for Species within California
<i>Brodiaea filifolia</i> Thread-leaved brodiaea	Mar-Jun	Threatened/ Endangered/ 1B	Vernal pools, valley grassland, foothill woodland, coastal sage scrub in clay soils.
* <i>Brodiaea orcuttii</i> Orcutt's Brodiaea	May-Jul	Species of Concern/ None/ 1B	Vernal pools, valley and foothill grassland, closed-cone coniferous forest, cismontane woodland, chaparral, meadows.
<i>Calochortus dunnii</i> Dunn's Mariposa Lily	May-Jun	None/ Rare/ 1B	Chaparral, closed-cone pine forest. Occurs in volcanic gabbroic substrate.
<i>Castilleja cinerea</i> Ash-Gray Indian Paintbrush	Jun-Jul	Threatened/ None/ 1B	Creosote bush scrub, pinyon-juniper woodland, red fir forest, pebble plain, meadows and seeps. Occurs in clay soil in meadow and opening habitats.
<i>Ceanothus ophiochilus</i> Vail Lake Ceanothus	Feb-Mar	Threatened/ Endangered/ 1B	Chaparral, dry ridge-tops in nutrient poor gabbro soil. Only 3 extant populations known to exist.
* <i>Ceanothus verrucosus</i> Wart-Stemmed Ceanothus	Jan-Apr	Species of Concern/ None/ 2	Chaparral. in California, known only from San Diego County.
<i>Chorizanthe orcuttiana</i> Orcutt's Spineflower	Mar-Apr	Endangered/ Endangered/ 1B	Chaparral, coastal sage scrub, closed cone pine forests in open areas with sandy soils. Known from only one park in San Diego County.
* <i>Chorizanthe polygonoides</i> var <i>longispina</i> Long-Spined Spineflower	Apr-Jul	Species of Concern/ None/ 1B	Chaparral, coastal scrub, meadows, valley and foothill grassland.
* <i>Comarostaphylis diversifolia</i> ssp <i>diversifolia</i> Summer Holly	Apr-Jun	Species of Concern/ None/ 1B	Chaparral in southern California and Baja California.
<i>Cordylanthus maitimus</i> ssp <i>maritimus</i> Salt Marsh Bird's Beak	May-Oct	Endangered/ Endangered/ 1B	Coastal strand, coastal salt marsh. Occurs in salt marsh, dune and coastal habitats.
<i>Deinandra conjugens</i> Otay Tarplant	May-Jun	Threatened/ Endangered/ 1B	Valley grasslands, coastal sage scrub. Occurs in clay soil.
<i>Deinandra mohavensis</i> Mojave Tarplant	Jul-Sep	None/ Endangered/ 1B	Riparian scrub. Occurs in riparian habitats. Last seen in 1933; presumed extinct.
<i>Delphinium hesperium</i> ssp <i>cuyamaca</i> Cuyamaca Larkspur	Jun-Jul	None/ Rare/ 1B	Yellow pine forest, meadows and seeps. Occurs in moist meadow conditions in meadow habitats.
* <i>Dodecahema leptoceras</i> Slender-Horned Spineflower	Apr-Jun	Endangered/ Endangered/ 1B	Chaparral, coastal scrub (alluvial fan sage scrub). Historically from L.A River, and San Bernardino Counties. Extirpated from much of its former range.
<i>Downingia concolor</i> var <i>brevior</i> Cuyamaca Lake Downingia	May-Jul	None/ Endangered/ 1B	Vernal pools, meadows and seeps. Occurs under moist conditions in meadow and vernal pool habitats. Known from only seven occurrences in Cuyumaca Lake area.
<i>Dudleya blochmaniae</i> ssp <i>brevifolia</i> Short- Leaved Dudleya	Apr	Proposed Endangered/ Endangered/ 1B	Chaparral, coastal sage scrub on sedimentary sandstone substrate in opening and coastal habitats. Known from fewer than five occurrences in Del Mar and La Jolla areas.
* <i>Dudleya multicaulis</i> Many-Stemmed Dudleya	May-Jul	Species of Concern/ None/ 1B	Chaparral, coastal scrub, valley and foothill grassland. endemic to southern California.
* <i>Dudleya variegata</i> Variegated Dudleya	May-Jun	Species of Concern/ None/ 1B	Chaparral, coastal scrub, cismontane woodland, valley and foothill grassland, vernal pools. In California, only in San Diego County.
<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i> Santa Ana River Woolly- Star	Jun-Aug	Endangered/ Endangered/ 1B	Chaparral, coastal sage scrub in gravelly riverbeds.
<i>Erigeron parishii</i> Parish's Daisy	May-Jun	Threatened/ None/ 1B	Creosote bush scrub, pinyon-juniper woodland on carbonate substrate. Known only to occur in the San Bernardino Mountains.



Scientific Name/ Common Name	Blooming Period	Status: USFWS/CDFG/CNPS/Other	Known Habitat Types for Species within California
<i>Erigonum ericifolium</i> var <i>thornei</i> Thorne's Buckwheat	Jul-Aug	None/ Endangered/ 1B	Pinyon-juniper pine woodland.
<i>Erigonum Kennedyi</i> var <i>austromontanum</i> Southern Mountain Buckwheat	Jul-Aug	Threatened/ None/ 1B	Yellow pine forest, alpine fell-fields, sagebrush scrub, pinyon-juniper woodland. Occurs in rocky soil under dry conditions in slope habitats between 4921-8530 ft.
<i>Eriogonum ovalifolium</i> var. <i>vineum</i> Cushenbury Buckwheat	May-Jun	Endangered/ None/ 1B	Creosote bush scrub, pinyon-juniper woodland on carbonate substrate. Known to occur only in the San Bernardino Mountains.
* <i>Eryngium aristulatum</i> var <i>parishii</i> San Diego Button Celery	Apr-Jun	Endangered/ Endangered/ 1B	Vernal pools, coastal scrub, valley and foothill grassland. in California, known only from Riverside & San Diego counties.
<i>Fremontodendron</i> <i>mexicanum</i> Mexican Flannelbush	Mar-Jun	Endangered/ Rare/ 1B	Chaparral, foothill woodland, closed-cone pine forest. Occurs in serpentine volcanic gabbroic substrate. Known from fewer than twenty occurrences
* <i>Ferocactus viridescens</i> San Diego Barrel Cactus	May-Jun	Species of Concern/ None/ 2	Chaparral, Diegan coastal scrub, valley and foothill grassland. in California, known only from San Diego County.
<i>Gallium angustifolium</i> ssp <i>borregoense</i> Borrego Bedstraw	Mar	None/ Rare/ 1B	Creosote bush scrub. Occurs in rocky soil. Known from fewer than ten occurrences.
* <i>Harpagonella palmeri</i> Palmer's Grapplinghook	Mar-Apr	Species of Concern/ None/ 2	Chaparral, coastal scrub, valley and foothill grassland.
<i>Hazardia orcuttii</i> Orcutt's Hazardia	Aug-Oct	None/ Candidate/ 1B	Chaparral, coastal sage scrub. Occurs in clay soil. Known from only one location in Lux Canyon.
* <i>Hemizonia parryi</i> ssp <i>australis</i> Southern Tarplant	Jun-Nov	Species of Concern/ None/ 1B	Marshes and swamps (margins), valley and foothill grassland, vernal pools. From southern California and Baja California
* <i>Hemizonia pungens</i> ssp <i>laevis</i> Smooth Tarplant	Apr-Sep	Species of Concern/ None/ 1B	Valley and foothill grassland, chenopod scrub, meadows, playas, riparian woodland.
<i>Lesquerella kingii</i> ssp <i>bernardina</i> San Bernardino Mountains Bladderpod	May-Jun	Endangered/ None/ 1B	Yellow pine forest, pinyon-juniper woodland. Occurs in carbonic substrate. Known from only five occurrences in Big Bear Valley
<i>Limnanthes gracilis</i> ssp <i>parishii</i> Parish's Meadowfoam	Apr-Jun	None/ Endangered/ 1B	Vernal pools in meadows. Seasonally flooded wetlands, stream edges.
* <i>Lasthenia glabrata</i> ssp <i>coulteri</i> Coulter's Goldfields	Feb-Jun	Species of Concern/ None/ 1B	Coastal salt marshes, playas, valley and foothill grassland, vernal pools.
<i>Machaeranthera</i> <i>asteroides</i> var <i>lagunensis</i> Mount Laguna Aster	Jul-Aug	None/ Rare/ 2	Yellow pine forest and foothill woodland Between 0 and 7874 ft. Known from only five occurrences in the Wooded Hill area of Mount Laguna.
* <i>Monardella linoides</i> ssp <i>viminea</i> Willow Monardella	Jun-Aug	Endangered/ Endangered/ 1B	Riparian scrub, riparian woodland, riparian forest, closed-cone coniferous forest, chaparral. Known only from San Diego County and Baja California.
* <i>Muilla clevelandii</i> San Diego Goldenstar	May	Species of Concern/ None/ 1B	Chaparral, coastal scrub, valley and foothill grassland, vernal pools. Known only from San Diego County and Baja California.
* <i>Navarretia fossalis</i> Spreading Navarretia	Apr-Jun	Threatened/ None/ 1B	Vernal pools, chenopod scrub, marshes, swamps, and playas. In California, known only from Riverside and San Diego Counties.
<i>Nolina interrata</i> Dehesa Nolina	Jun-Jul	None/ Endangered/1B	Chaparral. Occurs in serpentine volcanic gabbroic substrate. Known from only 10 occurrences.
* <i>Orcuttia californica</i> California Orcutt Grass	Apr-Jun	Endangered/ Endangered/ 1B	Vernal pools. Known only from southern California and Baja California.

Scientific Name/ Common Name	Blooming Period	Status: USFWS/CDFG/CNPS/Other	Known Habitat Types for Species within California
<i>Ornithostaphylos oppositifolia</i> Baja California Birdbush	Jan-Apr	None/ Endangered/ 2	Chaparral. Known from only one occurrence west of San Ysidro near the Mexican Border.
<i>Oxytheca parishii</i> var <i>goodmaniana</i> Cushenbury Oxytheca	May-Sep	Endangered/ None	Pinyon-juniper woodland. Occurs in carbonate substrate.
<i>Poa atropurpurea</i> San Bernardino Blue Grass	Apr-Jun	Endangered/ None/ 1B	Meadows and seeps. Occurs in carbonate substrate.
* <i>Pogogyne abramsii</i> San Diego Mesa Mint	Apr-Jun	Endangered/ Endangered/ 1B	Vernal pools. Endemic to San Diego County.
<i>Pogogyne nudiuscula</i> Otay Mesa Mint	May-Jun	Endangered/ Endangered/1B	Vernal pools. Known only from Baja California and San Diego County. Known from only six occurrences in Otay Mesa.
<i>Rorippa gambelii</i> Gambel's Water Cress	Apr-Jun	Endangered/ Threatened/ 1B	Freshwater wetlands, coastal sage scrub, chaparral, brackish marsh. Known from only one or two extant occurrences.
<i>Rosa minutifolia</i> Small-Leaved Rose	Jan-Jun	None/ Endangered/ 2	Chaparral. Known from only one occurrence in Otay Mesa.
<i>Senecio ganderi</i> Gander's Ragwort	Apr-May	None/ Rare/ 1B	Chaparral on gabbroic outcrops; burned areas. Known from fewer than fifteen locations in San Diego and Riverside Counties.
<i>Sidalcea hickmanii</i> ssp <i>parishii</i> Parish's Checkerbloom	Jun-Aug	Candidate/ Rare/ 1B	Chaparral, yellow pine forest. Between 164-7217 ft.
<i>Sidalcea pedata</i> Bird-Foot Checkerbloom	May-Aug	Endangered/ Endangered/ 1B	Pebble plain, meadows and seeps. Occurs under moist conditions in meadow habitats. Known from only ten occurrences.
* <i>Stylocline citroleum</i> Oil Neststraw	Apr	Species of Concern/ None/ 1B	Chenopod scrub, coastal scrub.
<i>Taraxacum californicum</i> California Dandelion	May-Aug	Endangered/ None/ 1B	Meadows and seeps. Occurs in moist conditions in meadow habitats. Usually occurs in wetlands.
* <i>Tetracoccus dioicus</i> Parry's Tetracoccus	Apr-May	Species of Concern/ None/ 1B	Chaparral, coastal scrub.
* <i>Texosporium sancti-jacobi</i> Woven-Spored Lichen	N/A	Species of Concern/ None	Chaparral.
<i>Thelypodium stenopetalum</i> Slender-Petaled Thelypodium	May-Aug	Endangered/ Endangered/ 1B	Meadows and seeps, alkaline soil on alkaline substrate under moist conditions in meadow habitats. Known from only eight occurrences.
<i>Trichostema austromontanum</i> ssp <i>compactum</i> Hidden Lake Bluecurls	Jul-Sep	Threatened/ None	Lodgepole forest, red fir forest, closed pine forest. Occurs in lake-margin and edge habitats. Known only from Hidden Lake in San Jacinto mountains.

## 3 RESULTS

### 3.1 SPECIAL-STATUS PLANTS

None of the 76 special-status plants from Table 1 were encountered during the survey. Plants occurring along the route belonging in the same genera as those of the special-status plants were identified to species or subspecies and ruled out as being rare. A *Rosa* sp. (rose) did occur along the route but was not identified to species due to lack of flower or fruits. It was ruled out however, as *Rosa minutifolia* (small-leaved rose), the special-status rose. *Rosa minutifolia* is the only native rose species in California that has small leaflets measuring 3-6 mm in length (Hickman 1993). The rose shrubs encountered along the route had leaflets measuring larger than 15 mm.

Although plants from CNPS List 1B and 2 were not encountered, two occurrences of List 4 species were found. Both *Romneya coulteri* (Coulter's matilija poppy) and *Viguiera laciniata* (San Diego County viguiera) occurred along the route and are on CNPS List 4: Plants of Limited Distribution – A Watch List. Although these plants are not considered “rare” from a statewide perspective, CNPS recommends that they be considered during the preparation of California Environmental Quality Act-related documents (Skinner and Pavlik 1994). The United States Fish and Wildlife Service along with the California Department of Fish and Game have no published recommendations concerning CNPS List 4 species. The two identified List 4 species are:

- *Romneya coulteri* (Coulter's matilija poppy): This rhizomatous subshrub species belonging to the poppy family is endemic to California. Its showy white flowers are the largest of any plant native to California. *Romneya coulteri* is threatened by urbanization, flood control, and road widening (Skinner and Pavlik 1994). This species was encountered in chaparral habitat within Riverside County at Site 2 (see Figure A-5 in Appendix A). The plant had fruits and remnant flowers.
- *Viguiera laciniata* (San Diego County viguiera): A member of the sunflower family, this resinous shrub blooms from February to June. It is locally common in San Diego County but threatened by development (Skinner and Pavlik 1994). The shrub was found within San Diego County in chaparral at Site 48 (see Figure A-19 in Appendix A).

The special-status lichen, *Texosporium sancti-jacobi* (woven-spored lichen) was not observed along the route.

### 3.2 PLANT COMMUNITIES

Habitat types within the project route were consistent with those described in Skinner and Pavlik (1994). The categories of “eucalyptus woodland” and “weedy field” were added. The six habitats types defined below were encountered along the project route:

- *Chaparral*: A dense tangle of evergreen shrubs that is adapted to fire. This habitat was encountered most often. Dominant shrub species observed include *Ceanothus oliganthus* (no common name available), *Eriogonum fasciculatum* (California buckwheat), *Rhus ovata* (sugar bush), *Xylococcus bicolor* (no common name available), and *Salvia mellifera* (black sage). Many of the special-status taxa are known to occur in chaparral. These sites were extensively surveyed.
- *Cismontane woodland*: Deciduous and evergreen trees with open canopies. Oaks (*Quercus* sp.) dominate these communities within the study area, with *Pinus coulteri* (Coulter pine) interspersed at some sites. This habitat type was infrequent along the route, occurring only in small patches adjacent to chaparral.

- ▶ *Eucalyptus woodland*: Closed canopy dominated by eucalyptus trees (*Eucalyptus globulus*); very little diversity and biomass in understory. Common non-native species observed include *Raphanus sativus* (wild radish), and *Erodium* spp. (Storksbill). Eucalyptus woodland typically occurred adjacent to riparian areas.
- ▶ *Riparian woodland*: Broadleaved, deciduous trees having open canopies associated with low- to mid-elevation streams. Dominant species include *Eucalyptus globulus* (Bluegum), *Platanus racemosa* (western sycamore), and *Populus fremontii* (Fremont cottonwood).
- ▶ *Riparian scrub*: Streamside thickets characterized by willows, shrubs, and vines. Dominant shrub species encountered were *Baccharis salicifolia* (mule fat) and *Salix* spp. (willow species). Common non-native species include *Arundo donax* (giant reed), *Nicotiana glauca* (tree tobacco), and *Ricinis communis* (castor bean).
- ▶ *Weedy field*: Disturbed open areas characterized by ruderal species, many of which are non-native plant taxa. These areas were dominated by forbs including *Amsinckia menziesii* (rancher's fireweed), *Bromus tectorum* (brome), *Erodium* spp (storksbill), *Centaurea melitensis* (tocalote, star thistle), and *Raphanus sativa* (radish).

Vernal pools were not encountered. It should also be mentioned that the road rights-of-way are significantly more disturbed than the terrain beyond 25 feet from the edge of the pavement. [Appendix B](#) contains photos of representative habitats of chaparral, cismontane woodland, riparian scrub, and weedy field along the project route.

### 3.3 VASCULAR PLANT TAXA IDENTIFIED ALONG THE PROJECT ROUTE

A total of 141 plant taxa were observed from two field visits within 48 discrete sites. Among them are 36 taxa that are not native to California. Approximately 16 percent of California's flora is non-native (Skinner and Pavlik 1994), while 26 percent of taxa within the impact area of this project are non-native.

The following list presents plant species identified during the field observations or herbarium studies. Nomenclature follows The Jepson Manual (Hickman 1993). Habitat type in which the specimens were found is given for each species. Taxa closely resembling special-status plants were keyed out in the field or herbarium, and ruled out as being rare. The inventory is not exhaustive, but is representative of plants encountered at the sites visited.

Taxa are presented by major plant group: Ferns, Gymnosperms (Conifers), and Angiosperms (flowering plants). Within each group, taxa are listed alphabetically by plant family. The Latin name of each taxon is followed by the common name, if available, in parentheses. The expression "sp." indicates that a taxon was not identified past the genus level ("spp." if multiple species are observed within a genus).

Habitat types where each taxon was observed are indicated by the following abbreviations: chaparral (Ch), cismontane woodland (Ci), Eucalyptus woodland (Ew), riparian woodland (Rw), riparian scrub (Ri), weedy field (Wf). An asterisk (\*) indicates a taxon that is non-native to California.

#### Ferns

##### Pteridaceae

*Pentagramma triangularis* (Goldback Fern): Ch

#### Gymnosperms

##### Pinaceae

*Pinus coulteri* (Coulter Pine): Ch

*Pinus* spp.: Ch

#### Angiosperms

##### Alismataceae

*Alisma plantago-aquatica* (Water Plantain): Rw  
Amaranthaceae  
*Amaranthus* sp.(Pigweed): Ch  
Anacardiaceae  
*Malosma laurina* (Laurel Sumac); Ch  
*Rhus ovata* (Sugar Bush): Ch,Ci  
*Rhus integrifolia* (Lemonadeberry): Ch  
\**Schinus molle* (Peruvian Pepper-Tree): Ch  
*Toxicodendron diversilobum* (Poison Oak): Ri, Ci, Ch  
Apiaceae  
*Bowlesia incana*: Rw  
\**Conium maculatum* (Poison Hemlock): Ri, Rw  
\**Foeniculum vulgare* (Fennel): Wf  
*Sanicula* sp.: Ch  
Asteraceae  
*Ambrosia acanthicarpa* (Annual Bur-sage): Ch  
*Artemisia californica* (California Sagebrush): Ch  
*Baccharis salicifolia* (Mule Fat): Ch, Ri  
\**Centaurea melitensis* (Tocalote, Star Thistle): Ch, Ew, Wf  
\**Chamomilla suaveolens* (Pineapple Weed): Wf, Rw  
\**Chrysanthemum coronarium* (Crown Daisy): Ch  
\**Cotula coronopifolia* (Brass-Buttons): Ri  
*Encelia californica*: Ew  
\**Gazania linearis*: Rw  
*Gutierrezia sarothra* (Broom Snakeweed): Ch  
*Heterotheca grandiflora* (Telegraph Weed): Ch  
*Hemizonia fasciculata* (Tarplant): Ci, Ch  
*Hymenoxys lemmonii*: Ch  
*Lactuca* sp. (Lettuce): Ch  
\**Silybum marianum* (Milk Thistle): Ch  
*Stephanomeria virgata* ssp. *pleurocarpa*: Ch  
*Viguiera laciniata* (San Diego County Viguiera): Ch  
*Xanthium* sp. (Cocklebur): Wf  
Boraginaceae  
*Amsinckia menziesii* (Rancher's Fireweed): Ch, Wf  
*Heliotropium curassavicum* (Heliotrope): Ch  
*Pectocarya linearis*: Ch  
Brassicaceae  
\**Brassica* sp. (Turnip): Ch  
\**Capsella bursa-pastoris* (Shepherd's Purse): Ch  
\**Cardaria* sp. (White-Top): Wf  
\**Chorispora tenella*: Wf  
\**Raphanus sativus* (Radish): Ch, Ew, Wf  
*Rorippa nasturtium-aquaticum* (Water Cress): Ri  
Cactaceae  
*Opuntia* sp. (Prickly-Pear): Ch  
Caprifoliaceae  
*Lonicera subspicata* var. *denudata* (Honeysuckle): Ch, Ew  
*Sambucus mexicana* (Blue Elderberry): Ch  
Caryophyllaceae  
\**Silene gallica* (Campion): Ch

*Silene laciniata* ssp. *major*: Ch  
 Chenopodiaceae  
   \**Salsola* sp.: Wf  
 Convolvulaceae  
   *Calystegia macrostegia* (Morning-Glory): Ch  
 Crassulaceae  
   *Dudleya edulis* (Dudleya): Ch  
   *Dudleya pulverulenta* ssp. *pulverulenta* (Dudleya): Ch  
 Cucurbitaceae  
   *Marah macrocarpus* (Wild Cucumber): Ch  
 Cuscutaceae  
   *Cuscuta* sp. (Dodder): Ch  
 Cyperaceae  
   *Cyperus* sp. (Nutsedge): Ri, Rw  
   *Eleocharis* spp. (Spikerush): Ri, Rw  
   *Scirpus* sp. (Bulrush): Ri  
 Ericaceae  
   *Xylococcus bicolor*: Ch  
 Euphorbiaceae  
   *Eremocarpus setigerus* (Turkey Mullein): Ch, Wf  
   \**Ricinus communis* (Castor Bean): Ri  
 Fabaceae  
   *Lotus scoparius* (California Broom): Ch  
   *Lupinus bicolor* (Miniature Lupine): Ch  
   *Lupinus* sp.: Ch  
   \**Medicago polymorpha* (California Burclover): Wf  
   \**Melilotus alba* (White Sweetclover): Ch  
   \**Melilotus indica* (Sourclover): Rw  
   *Trifolium* sp. (Clover): Ch  
   *Vicia* sp. (Vetch): Ri  
 Fagaceae  
   *Quercus* spp. (Oak): Ci, Ch  
 Geraniaceae  
   *Erodium* spp. (Storksbill): Ch, Ci, Ew, Wf  
 Hydrophyllaceae  
   *Eriodictyon crassifolium* (Yerba Santa): Ch  
   *Eucrypta chrysanthemifolia*: Ch  
   *Phacelia* sp.: Ch  
 Iridaceae  
   *Iris* sp.: Ri, Ch  
   *Sisyrinchium bellum* (Blue-Eyed-Grass): Ch  
 Juncaceae  
   *Juncus* sp. (Rush): Ri, Rw  
 Lamiaceae  
   \**Lamium amplexicaule* (Dead Nettle): Wf  
   \**Marrubium vulgare* (Horehound): Ri, Wf  
   *Salvia apiana* (White Sage): Ch  
   *Salvia columbariae* (Chia): Ch  
   *Salvia mellifera* (Black Sage): Ch  
 Liliaceae  
   *Agave* sp.: Ch

*Calochortus weedii* var. *weedii*: Ch  
*Chlorogalum pomeridianum* var. *pomeridianum* (Soap Plant, Amole): Ch  
*Dichelostemma capitatum* (Blue Dicks): Ch  
*Yucca* (Spanish Bayonet) sp.: Ch  
Malvaceae  
    \**Malva neglecta* (Common Mallow): Wf  
Myrtaceae  
    \**Eucalyptus globulus* (Gum Tree) spp.: Rw, Ew, Ch  
Oleaceae  
    *Fraxinus velutina* (Velvet Ash): Ch  
Onagraceae  
    *Epilobium* sp. (Willow Herb): Ri, Rw  
    *Camissonia bistorta* (California Sun Cup): Wf  
    *Camissonia* sp. (Sun Cup) sp.: Ch  
Oxalidaceae  
    *Oxalis* sp.: Ci, Ew  
Paeoniaceae  
    *Paeonia californica* (Peony): Ch  
Papaveraceae  
    *Eschscholzia californica* (California Poppy): Ch, Wf  
    *Platystemon californicus* (Cream Cups): Ch  
    *Romneya coulteri* (Coulter's Matilija Poppy): Ch  
Phytolaccaceae  
    \**Phytolacca Americana* (Pokeweed): Ri  
Plantaginaceae  
    \**Plantago lanceolata*. (English Plantain): Ew, Rw, WF  
    \**Plantago major* (Common Plantain): Ri  
Platanaceae  
    *Platanus racemosa* (Western Sycamore): Rw  
Poaceae  
    \**Arundo donax* (Giant Reed): Ri  
    \**Avena* sp. (Oats): Ch  
    *Bromus* sp. (Brome): Ch  
    \**Bromus tectorum* (Cheat Grass): Ch,Ci, Wf, Ew, Rw, Ri  
    \**Cenchrus incertus* (Coast Sandbur): Rw  
    \**Cynodon dactylon* (Bermuda Grass): Ch  
    *Elymus* spp.: Ch, Wf  
Polemoniaceae  
    *Navarretia hamata* ssp. *leptantha*:  
Polygonaceae  
    *Eriogonum fasciculatum* (California Buckwheat): Ch  
    *Rumex* sp. (Dock): Ri  
Portulacaceae  
    *Claytonia perfoliata* (Miner's Lettuce): Ri, Ch  
Primulaceae  
    \**Anagallis arvensis* (Poor-Man's Weatherglass): Ch  
Ranunculaceae  
    *Clematis pauciflora* (Ropevine): Ch  
Rhamnaceae  
    *Ceanothus crassifolius* (Hoaryleaf Ceanothus): Ch  
    *Ceanothus oliganthus*: Ch

#### Roseaceae

- Adenostoma fasciculatum* (Chamise): Ch
- Cercocarpus montanus* (Mountain-Mahogany): Ch
- \**Cydonia oblonga* (Quince)(not treated in Jepson Manual): Ci
- Geum* sp.: Ri
- Heteromeles arbutifolia* (Christmas Berry, Toyon): Ch, Ci
- Prunus ilicifolia* ssp. *ilicifolia* (Holly-leaved Cherry); Ch
- Rosa* sp. (Rose): Ri
- Rubus* sp.: Ri

#### Rubiaceae

- Galium angustifolium* ssp. *angustifolium* (Narrow-Leaved Bedstraw): Ch

#### Salicaceae

- Populus fremontii* (Fremont Cottonwood): Rw
- Salix* spp. (Willow): Ri

#### Saururaceae

- Anemopsis californica* (Yerba Mansa); Rw

#### Saxifragaceae

- Lithophragma* sp.: Ch

#### Scrophulariaceae

- Castilleja foliolosa* (Wooly Indian Paintbrush)
- Cordylanthus rigidus* ssp. *setigerus* (Bird's Beak); Ch
- Keckiella cordifolia* (Heart-leaved Penstemon)
- Linaria candensis* (Blue Toadflax): Ch
- Mimulus aurantiacus* (Monkey Flower): Ch, Rw
- Veronica* spp. (Speedwell): Ri

#### Solanaceae

- Datura wrightii* (Jimson Weed): Ch
- \**Nicotiana glauca* (Tree Tobacco): Ri, Rw
- Solanum* sp. (Nightshade): Ch, Rw

#### Tamaricaceae

- \**Tamarix* sp. (Tamarisk): Ri

#### Typhaceae

- Typha* sp. (Cattail): Ri

#### Urticaceae

- Urtica* sp. (Stinging Nettle): Ri

#### Vitaceae

- Vitis* sp. (Grape): Ri

#### Zygophyllaceae

- \**Tribulus terrestris* (Puncture Vine): Ch, Wf

### 3.4 SEARCH RESULTS FOR *PLANTAGO ERECTA*

*Plantago erecta* (dwarf plantain), the primary host plant for the Endangered Quino checkerspot butterfly (*Euphydryas editha quino*) was not encountered along the route. Two non-native plantains were documented: *Plantago lanceolata* (English plantain), and *Plantago major* (common plantain). These species have not been documented as host species according to the literature (Federal Register 1997, 2001). A small patch of *Cordylanthus rigidus* (bird's beak), a secondary host plant, was encountered along the route in San Diego County (Site 21 in [Figure A-11](#) in [Appendix A](#)). In 1999, Quino checkerspot egg clusters were observed on *Cordylanthus rigidus* in southern San Diego County (Federal Register 2001).



## 4 DISCUSSION/SUMMARY

A thorough botanical survey for special-status plants along the Ontario to San Diego Longhaul Route revealed no Threatened or Endangered plant species. The only species of concern encountered were CNPS List 4 species: *Romneya coulteri* (Coulter's matilija poppy) and *Viguiera laciniata* (San Diego County viguiera).

Four special-status plants from [Table 2-1](#) had blooming periods outside of the two field visits. They are discussed below:

- *Arctostaphylos rainbowensis* (rainbow manzanita); blooming period January-February. The genus *Arctostaphylos* is easily recognized in the field by its thick leathery leaves and characteristic smooth reddish bark that often peels off in strips. No *Arctostaphylos* species were encountered during the survey. *Xylococcus bicolor* (mission manzanita) occurs frequently along the route in chaparral. Mission manzanita highly resembles the true manzanitas (*Arctostaphylos* spp.), but differs from the latter by having leaves with margins that are conspicuously enrolled.
- *Baccharis vanessae* (Encinitas baccharis); blooming period August-November. This species is described in The Jepson Manual as a shrub less than 2 meters high that is generally glabrous and sticky with sessile, linear leaves (Hickman 1994). No shrub in vegetative condition along the route fit the species description.
- *Ceanothus ophiochilus* (Vail Lake ceanothus); blooming period February-March. All species of *Ceanothus* in vegetative, flowering, or fruiting condition encountered were positively keyed out to species other than the special-status *Ceanothus ophiochilus* or *Ceanothus verrucosus*.
- *Gallium angustifolium* ssp. *borregoense* (Borrego bedstraw); blooming period March. Fruits, diagnostic for identification, persist long after flowering. *Gallium angustifolium* ssp. *angustifolium* was encountered along the proposed route. It differs from subspecies *borregoense* by having corolla hairs equal to or shorter than those of the herbage (Hickman 1994).

The primary host plant, *Plantago erecta* (dwarf plantain), for the Endangered Quino checkerspot butterfly was not observed along the route. Bird's Beak (*Cordylanthus rigidus*), a secondary host plant, did occur in one chaparral site along the route. The population consisted of roughly 20 to 40 plants in an estimated 80 square-foot area. The species and density of plants is questionable as to whether the site provides suitable habitat for the Quino checkerspot butterfly.

In addition to surveying for special-status plants, a representative plant list was compiled with habitat type(s) indicated for each taxon. Although most sites contained a high percentage of non-native plants, many also contained native vegetation characteristic of the habitat type, especially in chaparral or riparian areas. Care should be taken to minimize impact to any vegetation occurring along the proposed fiber optic route from Ontario to San Diego.



## 5 REFERENCES

- Federal Register, Vol. 62, No. 11, January 16, 1997. Rules and Regulations. Department of the Interior, Fish and Wildlife Service. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Laguna Mountains Skipper and Quino Checkerspot Butterfly. Pages 2313-2322.
- Federal Register, Vol. 66, No. 26, February 7, 2001. Proposed Rules. Department of the Interior, Fish and Wildlife Service. Endangered and Threatened Wildlife and Plants; Proposed Determination of Critical Habitat for the Quino Checkerspot Butterfly. Pages 9476-9507.
- Hickman, J.C., ed. 1993. The Jepson Manual: Higher Plants of California, University of California Press. Berkeley, CA. 1400pp.
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**APPENDIX A - ONTARIO TO SAN DIEGO LONGHAUL ROUTE MAPS BOTANY DATA  
COLLECTION POINTS**

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**APPENDIX B - PHOTOS OF VEGETATION TYPES TAKEN ALONG THE PROJECT ROUTE**