

pebble plains are considered by the CDFG to be "a series or association considered rare and worthy of consideration" (CDFG 2001).

Meadow

Small patches of meadow transitioning into upland grassland occur along the lakeshore south of Highway 38. The extent of the meadows could not be determined or mapped in 2002 due to dry conditions. Meadows in the Big Bear Valley may be perennially saturated (i.e., wet meadows) or may have seasonally saturated soils during wet years (i.e., vernal meadows). This vegetation type is generally dominated by sedges (*Carex* spp.), rushes (*Juncus* spp.), and grasses (*Poa* spp., *Elymus* spp.). Dry meadows and the margins of wet meadows may also support big sagebrush (*Artemisia tridentata*) and timberline sagebrush (*Artemisia rothrockii*).

Meadow habitat in the San Bernardino Mountains is not officially recognized as a special status vegetation type by the CDFG but it is known to support several locally endemic plants (e.g., bird's foot checkerbloom [*Sidalcea pedata*], San Bernardino bluegrass [*Poa atropurpurea*], and California dandelion [*Taraxacum californicum*]) and is therefore considered to be of local concern. Additionally, the San Bernardino National Forest recognizes montane meadow habitat as a rare ecological community of concern.

Special Status Plants

The botanical surveys located populations of the ash-gray Indian paintbrush, Parish's rock-cress, Big Bear Valley woollypod (*Astragalus leucolobus*), Heckard's paintbrush (*Castilleja montigena*), and silver haired ivesia on the project site. Additionally, the site contains suitable habitat for the Bear Valley sandwort, Munz's mariposa lily (*Calochortus palmeri* var. *munzii*), Palmer's mariposa lily (*Calochortus palmeri* var. *palmeri*), San Bernardino Mountain owl's clover (*Castilleja applegatei* ssp. *martinii*), San Bernardino Mountains dudleya (*Dudleya abramsii* ssp. *affinis*), leafy buckwheat (*Eriogonum foliosum*), southern mountain buckwheat, Baldwin Lake linanthus (*Linanthus killipii*), San Bernardino Mountain monkeyflower (*Mimulus exiguus*), Bear Valley phlox (*Phlox dolichantha*), San Bernardino bluegrass, Parish's checkerbloom (*Sidalcea hickmanii* ssp. *parishii*), bird's foot checkerbloom, southern jewelflower (*Streptanthus campestris*), and California dandelion and the majority of these species were determined to have a moderate to high likelihood to occur on the project site. The following section describes the localities, habitats, and associated species of the special status plant locations on the project site.

Ash-Gray Indian Paintbrush (*Castilleja cinerea*)

Ash-gray Indian paintbrush is a federally-listed Threatened and CNPS List 1B species. It is a root parasite on other plants, often parasitizing the federally-listed Threatened southern mountain buckwheat and the mat-forming Wright's matting buckwheat. It is a perennial herb, and typically blooms between May and August. It occurs in pebble plains, meadows, seeps, and open pinyon or Jeffrey pine forest from approximately 5,900 to 9,300 feet above msl and is endemic to the eastern San Bernardino Mountains (Big Bear Valley, Holcolmb Valley, Onyx Summit, Snow Valley, and Sugarloaf Ridge). This species was reported and mapped on the project site by Michael Brandman Associates (MBA) (MBA 2000) and in the California Natural Diversity Data Base (CDFG 2001). Botanical surveys in 2002 identified populations of this species throughout approximately 11.8 acres of pebble plain and open Jeffrey pine forest in the western half of the project site where it appears to be parasitizing Wright's matting buckwheat (see Exhibit 3). Populations of this species were found to be more widespread than reported previously and would be expected to occur in higher concentrations within the mapped Wright's matting buckwheat areas during normal rainfall years.

Parish's Rock Cress (*Arabis parishii*)

Parish's rock cress is a CNPS List 1B species. It is a perennial herb that typically blooms in April or May. It occurs in pebble plains or rocky sites with carbonate soils within pinyon juniper woodlands and montane coniferous forests from approximately 5,800 to 9,500 feet above msl. This species is endemic to the San Bernardino Mountains. It has been reported on the project site (CDFG 2001) and was observed uncommonly in scattered patches throughout pebble plain and open Jeffrey pine forest habitats on the project site.

Heckard's Paintbrush (*Castilleja montigena*; *C. applegatei* ssp. *martinii*)

Heckard's paintbrush is a CNPS List 4 species that typically flowers between May and August. This perennial herb occurs in montane forests from approximately 6,400 to 9,200 feet above msl. It is endemic to the San Bernardino Mountains where it occurs commonly in forest habitats throughout the mountain range. This species was observed in Jeffrey pine forest habitat throughout the project site.

Bear Valley Woollypod (*Astragalus leucolobus*)

Bear Valley Woollypod is a CNPS List 1B species that typically blooms between May and July. This perennial herb occurs in rocky soils of lower montane coniferous forest, pebble plain, pinyon and juniper woodland, and upper montane coniferous forest from approximately 5,700 to 8,750 feet above msl. It is endemic to the high mountains of southern California (San Bernardino, San Gabriel, San Jacinto, and Santa Rosa mountains). The entire project site is considered suitable habitat for this species and it was observed in small patches throughout the project site.

Silver-Haired Ivesia (*Ivesia argyrocoma*)

Silver-haired ivesia is a CNPS List 1B species that typically blooms between June and August. This perennial herb occurs in alkaline meadows and seeps, pebble plains, and upper montane coniferous forest from approximately 4,900 to 8,800 feet above msl. It occurs in the San Bernardino Mountains and a disjunct population occurs in the mountains of Baja California. This species was reported on the project site by MBA (MBA 2000) and was observed throughout mapped pebble plain habitat on the project site during the 2002 botanical surveys.

Bear Valley Sandwort (*Arenaria ursina*)

Bear Valley sandwort is a federally-listed Threatened and CNPS List 1B species that typically blooms from May to August. It is a perennial herb that occurs on pebble plains from approximately 6,400 to 6,900 feet above msl. This species is endemic to Big Bear Valley in the San Bernardino Mountains. Bear Valley sandwort was not encountered during the 2002 botanical surveys. However, this species has a high potential to occur given the presence of suitable habitat within pebble plains on the project site.

Munz's Mariposa Lily (*Calochortus palmeri* var. *munzii*)

Munz's mariposa lily is a CNPS List 1B species that typically blooms between June and July. This perennial, bulbiferous herb occurs in chaparral and lower montane coniferous forests from approximately 3,900 to 7,200 feet above msl. It is a California endemic found in Riverside County. This species was not observed during the 2002 botanical surveys. However, it has a moderate potential to occur on the project site given the availability of marginally suitable habitat throughout the project site.

Palmer's Mariposa Lily (*Calochortus palmeri* var. *palmeri*)

Palmer's mariposa lily is a CNPS List 1B species that typically blooms between May and July. This perennial, bulbiferous herb occurs in mesic chaparral, lower montane coniferous forest, meadows and seeps from approximately 3,200 to 7,200 feet above msl. It is a California endemic found in the South Coast and Transverse ranges in Kern, Los Angeles, Riverside, Santa Barbara, San Bernardino, San Luis Obispo, and Ventura counties. This species was not observed during the 2002 botanical surveys. However, it has a moderate potential to occur on the project site given the availability of marginally suitable habitat in mesic portions of Jeffrey pine forest.

San Bernardino Mountain Owl's Clover (*Castilleja applegatei* ssp. *martinii*)

San Bernardino Mountain owl's clover is a CNPS List 1B species that typically blooms between June and August. This hemiparasitic, annual herb occurs in mesic chaparral, meadows and seeps, pebble plain, and upper montane coniferous forests from approximately 4,200 to 7,850 feet above msl. It is a California endemic found in Riverside and San Bernardino counties. This species was not observed during the 2002 botanical surveys. However, it has a high potential to occur on the project site given the availability of suitable habitat throughout the project site, especially within pebble plains and open Jeffrey pine forest where Wright's matting buckwheat occurs.

San Bernardino Mountains Dudleya (*Dudleya abramsii* ssp. *affinis*)

San Bernardino Mountains dudleya is a CNPS List 1B species that typically blooms between May and June. This perennial herb occurs in granitic, quartzite, or carbonate soils of pebble plain, pinyon and juniper woodland, and upper montane coniferous forests from approximately 5,200 to 28,000 feet above msl. It is endemic to the San Bernardino Mountains. This species was not observed during the 2002 botanical surveys. However, it has a moderate potential to occur on the project site given the presence of marginally suitable habitat within the pebble plain vegetation type.

Leafy Buckwheat (*Eriogonum foliosum*)

Leafy buckwheat is a CNPS List 1B species that typically blooms between July and October. This annual herb occurs in sandy soils of chaparral, lower montane coniferous forest, and pinyon and juniper woodland from approximately 3,900 to 7,200 feet above msl. It occurs in Riverside, San Bernardino, and San Diego counties. This species was not observed during the 2002 botanical surveys. However, it has a high potential to occur throughout the project site given the presence of suitable habitat.

Southern Mountain Buckwheat (*Eriogonum kennedyi* var. *austromontanum*)

Southern mountain buckwheat is a federally-listed Threatened and CNPS List 1B species that typically blooms between June and August. It is a mat-forming, woody perennial endemic to pebble plain habitats in Big Bear and Holcomb valleys in the San Bernardino Mountains from approximately 5,800 to 7,500 feet above msl. This species often serves as a host plant for the hemi-parasitic ash-gray Indian paintbrush and is also a food plant for the recently described, locally-endemic San Bernardino blue butterfly (*Euphilotes bernardino bernardino*). It is very similar to the more common Wright's matting buckwheat which is common on the project site. Several flowers and dried inflorescences of mat-forming buckwheats found throughout the project site were examined and identified as Wright's matting buckwheat. Southern mountain buckwheat was not seen during the 2002 botanical surveys and it has not been reported on the project site by other botanists (MBA 2000; CDFG 2001). However, it is considered to have a low potential to occur given that suitable habitat occurs within pebble plains on the project site.

Baldwin Lake Linanthus (*Linantus killipii*)

Baldwin Lake linanthus is a CNPS List 1B species that typically blooms between May and July. It is an annual herb that occurs in alkaline meadows and seeps, pebble plain, pinyon and juniper woodland, and upper montane coniferous forest from approximately 5,500 to 7,900 feet above msl. It is endemic to the San Bernardino Mountains. This species was not observed during the 2002 botanical surveys. However, it is considered to have a high potential to occur on the project site given the presence of suitable habitat in the open Jeffrey pine and pebble plain vegetation types.

San Bernardino Mountain Monkeyflower (*Mimulus exiguus*)

San Bernardino Mountain monkeyflower is a CNPS List 1B species that typically blooms between June and July. This annual herb occurs in mesic clay soils of meadows and seeps, pebble plain, and upper montane coniferous forest from approximately 5,900 to 7,600 feet above msl. It occurs in the San Bernardino Mountains and in Baja California. This species was not observed during the 2002 botanical surveys. However, it is considered to have a high potential to occur on the project site given the presence of suitable habitat, particularly within the pebble plain vegetation type.

Bear Valley Phlox (*Phlox dolichantha*)

Bear Valley phlox is a CNPS List 1B species that typically blooms between May and July. This perennial herb occurs in pebble plain and open montane coniferous forest from approximately 6,000 to 9,750 feet above msl. It is endemic to the San Bernardino Mountains. This species was not observed during the 2002 botanical surveys. However, it is considered to have a high potential to occur on the project site given the presence of suitable habitat in the pebble plain and open Jeffrey pine forest vegetation types.

San Bernardino Bluegrass (*Poa atropurpurea*)

San Bernardino bluegrass is a federally-listed Endangered and CNPS List 1B species that typically blooms between May and June. This rhizomatous, perennial grass occurs in mesic meadows and seeps from approximately 4,400 to 8,100 feet above msl. It is known only from the San Bernardino Mountains and Laguna Mountains (San Diego County). Marginally suitable habitat for this species occurs along the lakeshore areas of the project site. This species was not observed during the 2002 botanical surveys. However, it is considered to have a low to moderate potential for occurrence on the project site given the presence of marginally suitable habitat.

Parish's Checkerbloom (*Sidalcea hickmanii* ssp. *parishii*)

Parish's checkerbloom is a CNPS List 1B and state-listed Rare species and Candidate for federal listing as Threatened or Endangered. It is a stout perennial herb that typically blooms between June and August. This species occurs in chaparral, woodlands, and forests from approximately 3,200 to 8,200 feet above msl and appears to germinate following fires. It is known from a few sites in the Santa Ana River Canyon of the San Bernardino Mountains, and in a few localities in Santa Barbara and San Luis Obispo counties. This species was not observed during the 2002 botanical surveys. However, it is considered to have a low potential to occur given the presence of suitable habitat and the project site's distance to known populations.

Bird's Foot Checkerbloom (*Sidalcea pedata*)

Bird's foot checkerbloom is a federally- and state-listed Endangered species and CNPS List 1B species that typically blooms between May and July. It occurs in meadows and seeps from approximately 5,200 to 8,100 feet above msl and is endemic to the San Bernardino Mountains.

Marginally suitable habitat occurs along the lakeshore. No bird's foot checkerbloom were encountered during the 2002 botanical surveys. However, it is considered to have a moderate potential to occur on the project site given the presence of suitable habitat.

Southern Jewelflower (*Streptanthus campestris*)

Southern jewelflower is a CNPS List 1B species that typically blooms between May and July. This perennial herb occurs in rocky soils of chaparral, lower montane coniferous forest, and pinyon and juniper woodland from approximately 2,950 to 7,550 feet above msl. It occurs in the Transverse and Peninsular mountain ranges of Riverside, San Bernardino, and San Diego counties. This species was not observed during the 2002 botanical surveys. However, it is considered to have a high potential to occur throughout the project site.

California Dandelion (*Taraxacum californicum*)

California dandelion is a federally-listed Endangered and CNPS List 1B species that typically blooms between May and July. It is a perennial herb endemic to the Big Bear Valley in the San Bernardino Mountains that occurs in meadows and seeps from approximately 6,300 to 7,800 feet above msl. This species was not observed during the 2002 botanical surveys. However, this species has a low to moderate potential to occur in marginally suitable habitat (degraded meadows) near the lakeshore.

Grey-Leaved Violet (*Viola pinetorum* ssp. *grisea*)

Grey-leaved violet is a CNPS List 1B species that typically blooms between April and July. It is a perennial herb occurring in meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest from approximately 4,900 to 11,200 feet above msl. This species is found in the Sierra Nevada Mountains in Fresno, Kern, and Tulare counties and in the San Bernardino Mountains. This species was not observed during the 2002 botanical surveys. However, it is considered to have a high potential to occur in mesic portions of Jeffrey pine forest within the project site.

SUMMARY

One special status vegetation type (pebble plain) and five special status plant species, including one federally-listed Threatened species (ash-gray Indian paintbrush), three CNPS List 1B species (Parish's rock cress, Bear Valley woollypod, and silver-haired ivesia), and one CNPS List 4 species (Heckard's paintbrush), were identified on the project site during the 2002 botanical surveys. Populations of ash-gray Indian paintbrush and Parish's rock cress were found to be widespread throughout an approximately 11.8 acre area of open Jeffrey pine forest with an herbaceous layer of Wright's matting buckwheat in the western half of the project site. The approximately 0.64 acre of pebble plain habitat was included in this area. Silver haired ivesia was found to be concentrated entirely within the mapped pebble plain habitat. Heckard's paintbrush and Bear Valley woollypod were found in patches scattered throughout Jeffrey pine forest habitat on the project site. It is expected that population sizes for these species on the project site would be considerably larger during a normal rainfall year (i.e., at least 40 percent of average annual rainfall). Surveys during a normal rainfall year would be required to determine the extent of these species on the project site.

There is potential for several special status botanical resources on the project site that were not detectable this spring due to the dry conditions. Botanical resources potentially occurring on the project site include one special status vegetation type (meadow), one federally- and state-listed Endangered and CNPS List 1B species (bird's foot checkerbloom), two federally-listed Endangered and CNPS List 1B species (San Bernardino bluegrass and California dandelion), two federally-listed

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Threatened and CNPS List 1B species (Bear Valley sandwort and southern mountain buckwheat), one CNPS List 1B and state-listed Rare species and Candidate for federal listing as Threatened or Endangered (Parish's checkerbloom), and 10 CNPS List 1B species (Munz's mariposa lily, Palmer's mariposa lily, San Bernardino Mountain owl's clover, San Bernardino Mountains dudleya, leafy buckwheat, Baldwin Lake linanthus, San Bernardino Mountain monkeyflower, Bear Valley phlox, southern jewelflower, and grey-leaved violet). Surveys during a normal rainfall year would be required to determine presence or absence and the extent of these species on the project site.

Thank you for the opportunity to assist on this project. If you have any questions or comments, please contact either Ann Johnston or Sam Stewart at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING



Ann M. Johnston
Principal, Biological Services



Samuel C. Stewart IV
Assistant Project Manager/Ecologist

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Attachments: Exhibits 1, 2 and 3
Appendices A, B, and C

cc: Scott White

REFERENCES

- Abrams, L. 1923-1951. *Illustrated Flora of the Pacific States*, Volumes I, II, and III. Stanford University Press, Stanford, California.
- Abrams, L. & R. Ferris. 1960. *Illustrated Flora of the Pacific States*, Volume IV. Stanford University Press, Stanford, California.
- California Department of Fish and Game. 2000. Guidelines for assessing the effects of proposed projects on rare, threatened, and endangered plants and plant communities. Unpublished. California Department of Fish and Game, Sacramento California.
- California Department of Fish and Game. March 2001. *RareFind Database*, record search for special status plants, animals, and habitats on the USGS Fawnskin, Big Bear City, Big Bear Lake, Butler Peak, Keller Peak, and Moonridge quads. California Department of Fish and Game, Natural Heritage Division, Sacramento, California.
- California Department of Fish and Game. 2002A. List of Special Plants. Heritage Section, California Department of Fish and Game, Sacramento, California.
- California Department of Fish and Game. 2002B. List of Special Plants. Heritage Section, California Department of Fish and Game, Sacramento, California.

California Native Plant Society (CNPS). 2002. *Electronic Inventory of Rare and Endangered Vascular Plants of California*, records search for special status plants on the USGS Fawnskin, Big Bear City, Big Bear Lake, Butler Peak, Keller Peak, and Moonridge quads. California Native Plant Society, Sacramento, California.

Cronquist, A., A.H. Holmgren, N.H. Holmgren, J. Reveal, & P.K. Holmgren. 1972-1977. *Intermountain Flora: Vascular Plants of the Intermountain West, USA*. Vols I, VI. New York Botanical Garden, New York, NY.

Derby, J.A. and R.C. Wilson. 1978. Floristics of pavement plains of the San Bernardino Mountains. *Aliso* 9:462-474.

Fiedler, P. and B. Ness. 1993. *Calochortus*. Pages 1183-1189 in J.C. Hickman (ed.). *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California.

Hickman, J.C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Non-game Heritage Program, State of California Department of Fish and Game, Sacramento, California.

Krantz, T. No date. A guide to the rare and unusual wildflowers of the Big Bear Valley Preserve. Friends of the Big Bear Valley Preserve, Big Bear City, California.

Krantz, T. 1994. Phytogeography of the San Bernardino Mountains, San Bernardino County, California. Unpublished PhD dissertation, UC Berkeley.

Mayer, K.E., and W.F. Laudenslayer, Jr. (eds.). 1988. *A guide to wildlife habitats of California*. California Department of Fish and Game, Sacramento, California.

McBride, J.R. 1988. Jeffrey pine. Pages 54-55 in K.E. Meyer & W.F. Laudenslayer, eds., *Guide to the wildlife habitats of California*. California Department of Fish and Game, Sacramento, California.

Michael Brandman Associates (MBA). 2000. Biological assessment of the Moon Camp property in Fawnskin, California. Unpublished report prepared for Urban Environments, Redlands, California.

Munz, P.A. 1959. *A California Flora*. University of California Press, Berkeley, California.

Munz, P.A. 1974. *A Flora of Southern California*. University of California Press, Berkeley, California.

Neel, M. and K. Barrows. 1990. Pebble Plain Habitat Management Guide and Action Plan. USDA Forest Service, Pacific Southwest Region, San Bernardino National Forest and The Nature Conservance, California Field Office. 60 p.

Sanders, A.C., R.F. Thorne, and T. Krantz. 2000. Vascular Plants of the San Bernardino Mountains. Unpublished working draft manuscript.

Sawyer, J.O. and Keeler-Wolf, T. 1995. *A Manual of California Vegetation*. California Native Plant Society.

- Simpson, M.G. and J.P. Rebman. 2001. *Checklist of the vascular plants of San Diego County*, 3rd edition. San Diego State University Press, San Diego, California.
- Stephenson, John R.; Calcarone, Gena M. 1999. *Southern California Mountains and Foothills Assessment: Habitat and Species Conservation Issues*. General Technical Report GTR-PSW-172. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 402 p.
- Tibor, D. 2001. *Inventory of Rare and Endangered Plants of California*. Special Publication No. 1, 6th Ed., California Native Plant Society, Sacramento, California.
- USDI Fish and Wildlife Service. 1984. Endangered and threatened wildlife and plants; determination of endangered status for *Thelypodium stenopetalum* (slender-petaled thelypodium) and *Sidalcea pedata* (pdeate checker-mallow). Federal Register 49:34497-34500. (August 31).
- USDI Fish and Wildlife Service. 1998. Endangered and threatened wildlife and plants; determination of endangered or threatened status for six plants from the mountains of southern California. Federal Register 63:49006-49022 (September 14; addresses *Poa atropurpurea*, *Taraxacum californicum*, *Arenaria ursina*, *Castilleja cinera*, *Eriogonum kennedyi* var. *austromontanum*).
- USDI Fish and Wildlife Service. 1999. Endangered and threatened wildlife and plants; review of plant and animal taxa that are candidates or proposed for listing as endangered or threatened. Federal Register 64:57534-57547 (October 25).

APPENDIX A

Special status plants known to occur in the region excluded from consideration due to lack of suitable habitat or outside of range.

Common name	Latin name	Reason for exclusion
White-margined everlasting	<i>Antennaria marginata</i>	Outside geogr. range (only local occurrences in Barton Flats area)
San Bernardino rock-cress	<i>Arabis breweri</i> var. <i>pecuniaria</i>	Well below elev. range (occurs in San Gorgonio Wilderness)
Pinyon rock-cress	<i>Arabis dispar</i>	Outside geogr. range (only local occurrences on desert-facing slopes)
Shockley's rock-cress	<i>Arabis shockleyi</i>	Outside geogr. range (only local occurrences on desert-facing slopes)
Cushenbury milk-vetch	<i>Astragalus albens</i>	No suitable habitat (carbonate)
Parish's small-scale	<i>Atriplex parishii</i>	No suitable habitat (alkali sink)
Fremont barberry	<i>Berberis fremontii</i>	No local occurrences (presumed extinct in Cushenbury area)
Scalloped moonwort	<i>Botrychium crenulatum</i>	No suitable habitat (marshes, bogs)
Plummer's mariposa lily	<i>Calochortus plummerae</i>	Above elev. range (below ± 5500 ft.)
San Jacinto Mts. daisy	<i>Erigeron breweri jacintus</i>	Well below elev. range (occurs in San Gorgonio Wilderness)
Parish's daisy	<i>Erigeron parishii</i>	No suitable habitat (carbonate)
Limestone daisy	<i>Erigeron uncialis</i>	No San Bernardino Mountain occurrences (local reports erroneous)
Southern alpine buckwheat	<i>Eriogonum kennedyi</i> var. <i>alpiginum</i>	Well below elev. range (occurs in San Gorgonio Wilderness)
Cushenbury buckwheat	<i>Eriogonum ovalifolium</i> var. <i>vineum</i>	No suitable habitat (carbonate)
Hot springs fimbrystalis	<i>Fimbrystalis thermalis</i>	No suitable habitat (alkaline meadows, hot springs)
Moss gentian	<i>Gentiana fremontii</i>	Well below elev. range (occurs in San Gorgonio Wilderness)
Los Angeles sunflower	<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Well above elev. range (below about 4000 ft. elev.)
Barton Flats horkelia	<i>Horkelia wilderae</i>	Outside geogr. range (endemic to Barton Flats area)
Parry's hulsea	<i>Hulsea vestita</i> ssp. <i>parryi</i>	Outside geogr. range (only local occurrences on desert-facing slopes)
Pygmy hulsea	<i>Hulsea vestita</i> ssp. <i>pygmaea</i>	Well below elev. range (occurs in San Gorgonio Wilderness)
San Bernardino Mtn. bladderpod	<i>Lesquerella kingii</i> ssp. <i>bernardinus</i>	No habitat (carbonate)

APPENDIX A (Continued)

Special status plants known to occur in the region excluded from consideration due to lack of suitable habitat or outside of range.

Common name	Latin name	Reason for exclusion
Ocellated Humboldt lily	<i>Lilium humboldtii</i> var. <i>ocellatum</i>	Above elev. range (below about 5900 ft.)
Adder's mouth	<i>Malaxis monophyllos</i> ssp. <i>brachypoda</i>	Well below elev. range (occurs in San Geronio Wilderness)
Hall's monardella	<i>Monardella macrantha</i> hallii	Outside geogr. range (In San Bern. Mts., occurs only in southern part of range)
Cienega Seca oxythexca	<i>Oxytheca parishii</i> var. <i>cienegensis</i>	Outside geogr. range (known only from Cienega Seca area)
Cushenbury oxytheca	<i>Oxytheca parishii</i> var. <i>goodmaniana</i>	No habitat (carbonate)
Mountain oxytrope	<i>Oxytropis oreophila</i>	Well below elev. range (occurs in San Geronio Wilderness)
Frosted mint	<i>Poliomintha incana</i>	No suitable habitat (desert dunes and sandy flats)
Krukeberg's sword fern	<i>Polystichum krukebergii</i>	No San Bernardino Mountain occurrences (local reports unverified)
Narrow-leaved cottonwood	<i>Populus angustifolia</i>	No San Bernardino Mountain occurrences (local reports unverified)
Southern mountain skullcap	<i>Scutellaria bolanderi</i> ssp. <i>austromontanum</i>	No San Bernardino Mountain occurrences (local reports unverified)
Davidson's stonecrop	<i>Sedum niveum</i>	No suitable habitat (rock ledges & cliffs)
Slender-petaled thelypodium	<i>Thelypodium stenopetalum</i>	No habitat (alkaline meadows)

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APPENDIX B

Special status plants known to occur in the region with potential to occur on the project site.

Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
<i>Abronia nana</i> ssp. <i>covillei</i> Coville's dwarf abronia	Carbonate and sandy soils within pinon-juniper woodlands; San Bernardino Mts. and mountains of E Mojave, ±5,200-9,200 ft.	May - August	Fed: none Calif: S3.2 CNPS: List 4 R-E-D:1-2-1	Low (marginally suitable habitat)
<i>Allium parishii</i> Parish's onion	Open shrublands & woodlands, gen. loose soil of bajada or mountain slopes, often carbonate soils, about 3,000 - 6,000 ft. elev.	Apr - May	Fed: none Calif: S3.3? CNPS: List 4 R-E-D:1-1-2	Low (suitable habitat, but above known elev. range)
<i>Arabis parishii</i> Parish's rock cress	Pebble plains; open dry sites in coniferous forest; about 5,800-9,500 ft. elev.; San Bernardino Mts. endemic	April - May	Fed: none Calif: S2.1 CNPS: List 1B R-E-D:2-2-3	Occurs
<i>Arenaria lanuginosa</i> ssp. <i>saxosa</i> (<i>A. confusa</i>) Rock sandwort	Streamsides, sandy soils in meadows, about 5,900 to 9,000 ft. elev.; San Bernardino Mts. and mts. of N Baja Calif.	July - Aug	Fed: none Calif: S1.3 CNPS: 2 R-E-D:3-1-1	Moderate (moderately suitable habitat)
<i>Arenaria ursina</i> Bear Valley sandwort	Pebble plains, carbonate soils, about 6,400 - 6,900 ft. elev.; San Bernardino Mts. endemic	May - July	Fed: THR Calif: S2.1 CNPS: 1B R-E-D:2-2-3	High (suitable habitat occurs)
<i>Astragalus bicristatus</i> Crested milk vetch	Rocky slopes, montane coniferous forests; 5,500-8,200 ft. elev.; San Bernardino, San Gabriel, and San Jacinto Mts	May - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	High (suitable habitat occurs)
<i>Astragalus lentiginosus</i> var. <i>sierrae</i> Big Bear Valley milk vetch	Rocky meadows, pine woodlands, 5,800-8,500 ft. elev.; San Bernardino Mts. endemic	April - August	Fed: none Calif: S1? CNPS: List 1B R-E-D:2-2-3	High (suitable habitat occurs)
<i>Astragalus leucolobus</i> Bear Valley woollypod	Rocky soils, pine forests and sagebrush scrub, 5,700-8,750 ft. elev.; San Bernardino, San Gabriel, San Jacinto, and Sta Rosa Mts.	May - July	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Occurs
<i>Calochortus palmeri</i> vars. <i>palmeri</i> and <i>munzii</i> Palmer's & Munz's mariposa lilies	Meadows and other sites where water available in spring, ±3,200-7,200 ft. elev.; S Coast Ranges, Transverse Ranges	May - June	Fed: none Calif: S2.1 CNPS: List 1B R-E-D:2-2-3	Moderate (marginally suitable habitat)

APPENDIX B (Continued)

Special status plants known to occur in the region with potential to occur on the project site.

Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
<i>Castilleja cinerea</i> Ash-gray Indian paintbrush	Pebble plains, dry meadows, about 5,900 to 9,300 ft. elev.; San Bernardino Mountains endemic	May - August	Fed: THR Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Occurs
<i>Castilleja lasiorhyncha</i> (syn. <i>Orthocarpus l.</i>) San Bernardino Mountain owl's clover	Meadows, streamsides, seeps, other mesic sites, ±4,200-7,850 ft. elev.; S Calif. mtns.	June - August	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	High (suitable habitat occurs)
<i>Castilleja applegatei</i> ssp. <i>martinii</i> × <i>C. angustifolia</i> (syn. <i>C. montigena</i> , <i>C. martinii</i> var. <i>ewanii</i>) Heckard's paintbrush	Coniferous forest; San Bernardino Mountains endemic [Note: described as a species by Heckard <i>et al.</i> (1980), considered a hybrid by Chuang & Heckard <i>in</i> Hickman (ed., 1993)]	May - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	Occurs (Jeffrey pine forest)
<i>Dryopteris filix-mas</i> Male fern	Widespread in N hemisphere, esp. at high latitudes; only two widely separated locations in Calif., incl. one in Holcomb Valley	July - Sept.	Fed: none Calif: S1.3 CNPS: List 2 R-E-D:3-1-1	Low (local rarity)
<i>Dudleya abramsii</i> ssp. <i>affinis</i> San Bernardino Mts. dudleya	Pebble plains & rock outcrops (often on carbonate); pinyon woodland, open pine forests, 5,800-8,500 ft. elev.; San Bernardino Mts. endemic	May - June	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Moderate (marginal habitat)
<i>Eriogonum foliosum</i> Leafy buckwheat	Sand; chaparral, lower montane forest, pinyon wld., 3,900-7,200 ft. elev.; scattered locations, Big Bear Valley to N Baja Calif.	July - Oct.	Fed: none Calif: SH CNPS: 1B R-E-D:3-2-2	High (suitable habitat occurs)
<i>Eriogonum kennedyi</i> var. <i>austromontanum</i> Southern mountain buckwheat	Pebble plains and similar soils, about 5,800 - 7,500 ft. elev.; nearly endemic to Big Bear Valley area but also occurs at Mt. Pinos	June - August	Fed: THR Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Low (field survey)
<i>Eriophyllum lanatum</i> var. <i>obovatum</i> Southern Sierra woolly sunflower	Open montane coniferous forests, 4,200-8,100 ft. elev.; S Sierra Nevada and western San Bernardino Mts.	June - July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	Low-moderate (margin of geogr. range)
<i>Galium jepsonii</i> (syn. <i>G. angustifolium</i> var. <i>subglabrum</i>) Jepson's bedstraw	Sandy or gravelly soils, montane coniferous forest, 6,500-8,100 ft. elev.; San Gabriel and San Bernardino Mts	July - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	High (suitable habitat occurs)

APPENDIX B (Continued)

Special status plants known to occur in the region with potential to occur on the project site.

Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
<i>Galium johnstonii</i> (syn. <i>G. angustifolium</i> var. <i>pinetorum</i>) Johnston's bedstraw	Dry rocky slopes, open mixed conifer forest, 5,300-7,500 ft. elev.; San Gabriel and San Bernardino Mts.	June - July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	Low-moderate (suitable habitat occurs; margin of elev. range)
<i>Gilia leptantha</i> ssp. <i>leptantha</i> San Bernardino Mtn. gilia	Sandy or gravelly soils in open pine forest; endemic to upper Santa Ana Riv. watershed, San Bernardino Mts., about 5,000 to 7,700 ft. elev.	June - Aug	Fed: none Calif: S2.3 CNPS: List 1B R-E-D:2-1-3	Low (probably outside geogr. range)
<i>Heuchera hirsutissima</i> Shaggy-haired alum root	Steep rocky slopes in montane forest above about 5,000 ft.; endemic to San Jacinto & Santa Rosa Mts (records from San Bernardino Mts. not confirmed)	May - July	Fed: none Calif: S2.3 CNPS: List 1B R-E-D:3-1-3	Low (poorly suitable habitat)
<i>Heuchera parishii</i> Parish's alumroot	Rocky places, montane coniferous forests and alpine boulderfields, above 4,800 ft. elev.; San Bernardino Mts endemic	June - July	Fed: none Calif: S2.3 CNPS: List 1B R-E-D:2-1-3	Low (poorly suitable habitat)
<i>Ivesia argyrocoma</i> Silver-haired ivesia	Pebble plains, dry or seasonally moist meadows and drainages; about 4,900-8,800 ft. elev.; San Bernardino Mts and a long-disjunct site in Baja Calif mts	June - August	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-2	Occurs
<i>Juncus duranii</i> Duran's rush	Meadows or other wet places, montane coniferous forest, 5,800-9,000 ft. elev.; San Bernardino, San Gabriel, and San Jacinto Mts	July - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	Moderate (suitable habitat occurs)
<i>Lewisia brachycalyx</i> Short-sepaled lewisia	Wet meadows, forest openings, 4,500-7,500 ft. elev.; San Bernardino Mts to Baja Calif, Utah, New Mex.	May - June	Fed: none Calif: S3.2 CNPS: List 2 R-E-D:2-2-1	Low-Moderate (marginal habitat)
<i>Lilium parryi</i> Lemon lily	Meadows and streambanks above about 4,000 ft. elev.; mts. of S Calif. and SE Arizona	July - August	Fed: none Calif: S2.1 CNPS: List 1B R-E-D:2-2-2	Low (marginal habitat)
<i>Linanthus killipii</i> Baldwin Lake linanthus	Pebble plains, alkaline meadows, forest openings, 5,500-7,900 ft. elev.; San Bernardino Mts endemic	May - July	Fed: none Calif: S2.1 CNPS: List 1B R-E-D:2-2-3	High (suitable habitat occurs)

APPENDIX B (Continued)

Special status plants known to occur in the region with potential to occur on the project site.

Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
<i>Mimulus exiguus</i> San Bernardino Mountain monkeyflower	Meadows, seeps, drainages, 5,900-7,600 ft. elev.; San Bernardino Mts and high mts of Baja Calif.	June - July	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-2	High (suitable habitat occurs)
<i>Mimulus purpureus</i> var. <i>purpureus</i> Purple monkeyflower	Meadow edges, forests, drainages, seeps, 6,100-7,600 ft. elev.; San Bernardino Mts and high mts of Baja Calif.	May - July	Fed: none Calif: S2.2 CNPS: List 2 R-E-D:2-2-2	High (suitable habitat occurs)
<i>Navarretia peninsularis</i> Baja navarretia	Open, seasonally wet places in coniferous forests, 4,900-7,550 ft. elev.; mts of central and S Calif. and N Baja Calif.	June - August	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-2	Low (small patches of marginal habitat)
<i>Oxytheca caryophylloides</i> Chickweed oxytheca	Sandy soils in conifer forests, 3,900-8,500 ft. elev.; S Sierra Nevada, Transverse Ranges, San Jacinto Mts.	July - Sept.	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	High (suitable habitat occurs)
<i>Perideridia parishii</i> ssp. <i>parishii</i> Parish's yampah	Meadows, moist areas in coniferous forest above about 6,500 ft. elev.; San Bernardino Mountains and (disjunct) Arizona and New Mex.	June - August	Fed: none Calif: S2.2? CNPS: List 2 R-E-D:2-2-1	High (suitable habitat occurs)
<i>Phacelia exilis</i> (syn. <i>P. mohavensis</i> var. <i>exilis</i>) Transverse Range phacelia	Sandy or gravelly soils, forest openings, meadows, pebble plains, 3,500-8800 ft. elev.; S Sierra Nevada and Transverse Ranges	May - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	High (suitable habitat occurs)
<i>Phacelia mohavensis</i> Mojave phacelia	Sandy or gravelly soils, woodlands, conifer forests, dry meadows and streambeds, 4,500-8,100 ft. elev.; San Gabriel & San Bernardino Mts	April - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	High (suitable habitat occurs)
<i>Phlox dolichantha</i> Bear Valley phlox	Montane coniferous forest; 6,500-8,800 ft. elev.; San Bernardino Mts endemic	June - July	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	High (suitable habitat occurs)
<i>Poa atropurpurea</i> San Bernardino bluegrass	Open, flat meadows, 4,400-8,100 ft. elev.; San Bernardino Mts and Laguna Mts (San Diego Co.)	May - June	Fed: END Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Low - moderate (marginally suitable habitat occurs)

APPENDIX B (Continued)

Special status plants known to occur in the region with potential to occur on the project site.

Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
<i>Pyrrocoma uniflora</i> ssp. <i>gossypina</i> (<i>Haplopappus uniflorus</i> ssp. <i>gossypinus</i>) Bear Valley pyrrocoma	Meadows (usually alkaline), pebble plains, about 5,200 - 7,600 ft. elev.; San Bernardino Mts endemic	July - August	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Low - moderate (marginally suitable habitat occurs)
<i>Rupertia rigida</i> (syn. <i>Psoralea rigida</i>) Parish's rupertia	Chaparral, forests, and woodlands, below ±8,100 ft. elev.; San Bernardino Mts, Peninsular Ranges, Baja Calif.	June - July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-2	High (suitable habitat occurs)
<i>Selaginella asprella</i> Bluish spike-moss	Rocks, crevices, & rocky soils, dry sites in coniferous forests, 5,200-8,800 ft. elev.; scattered mtn. ranges of cent. & S Calif., Baja Calif.	July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-2	Low (marginal habitat)
<i>Senecio bernardinus</i> San Bernardino butterweed	Dry meadows (sometimes alkaline), 5,800-7,500 ft. elev.; San Bernardino Mts endemic	May - July	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Low (marginally suitable habitat)
<i>Senecio ionophyllus</i> Tehachapi ragwort	Crevices, rocky places in dry coniferous forest, 4,800-8,900 ft. elev.; S Sierra Nevada, San Gabriel and San Bernardino Mts	June - July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	Low (marginally suitable habitat)
<i>Sidalcea hickmanii</i> ssp. <i>parishii</i> Parish's checkerbloom	Chaparral, oak shrublands, pine forests; San Bernardino Mts and a few Santa Barbara Co sites, about 3,200-8,200 ft. elev.	June - August	Fed: Candidate Calif: Rare , 1.2 CNPS: List 1B R-E-D:3-2-3	Low (marginally suitable habitat)
<i>Sidalcea pedata</i> Bird's foot checkerbloom	Meadows (freshwater or alkaline clay), sometimes streambanks, 5,200-8,100 ft. elev.; San Bernardino Mts endemic	May - July	Fed: END Calif: END , 1.1 CNPS: List 1B R-E-D:3-3-3	Low - moderate (suitable habitat occurs)
<i>Sphenopholis obtusata</i> Prairie wedge grass	Riparian woodlands, wet meadows, streambanks; a few widely scattered locations in Calif. but widespread in North America	April - July	Fed: none Calif: S2.2 CNPS: List 2 R-E-D:2-2-1	High (suitable habitat occurs)
<i>Streptanthus bernardinus</i> Laguna Mountains jewelflower	Chaparral, hardwood forests, coniferous forest, about 3,900-8,100 ft. elev.; mts. of S Calif. (San Bern. Mtn. records much farther west)	June - July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	High (suitable habitat occurs)

APPENDIX B (Continued)

Special status plants known to occur in the region with potential to occur on the project site.

Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
<i>Streptanthus campestris</i> Southern jewelflower	Rocky sites, chaparral, coniferous forest, pinyon woodland, 2,950-7,550 ft. elev.; Transverse and Peninsular Ranges, Baja Calif.	May - July	Fed: none Calif: S2.3 CNPS: List 1B R-E-D:2-1-2	High (suitable habitat occurs)
<i>Swertia neglecta</i> (syn. <i>Frasera neglecta</i>) Pine green-gentian	Coniferous forests and pinyon woodland., 4,500-8,100 ft. elev.; S Coastal Ranges and Transverse Ranges	May - July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D: 1-1-3	High (suitable habitat occurs)
<i>Taraxacum californicum</i> California dandelion	Wet meadows, 6,300-7,800 ft. elev.; San Bernardino Mts endemic	May - July	Fed: END Calif: S2.1 CNPS: List 1B R-E-D: 3-2-3	Low - moderate (suitable habitat occurs)
<i>Thelypodium stenopetalum</i> Slender-petaled thelypodium	Meadows (mesic, alkaline clay), about 6,200 - 7,200 ft. elev.; San Bernardino Mts endemic to Big Bear and Holcomb Valleys	June - July	Fed: END Calif: END , 1.1 CNPS: List 1B R-E-D:3-3-3	Absent (no alkaline meadow habitat)
<i>Trichostema micranthum</i> Small-flowered bluecurls	Dry margins of lakes, meadows, and streams, 6,500-7,500 ft. elev., San Bernardino Mts and Baja Calif.	July - Sept.	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-1	High (suitable habitat occurs)
<i>Viola pinetorum</i> ssp. <i>grisea</i> Grey-leaved violet	Conifer forests, about 4,800-11,100 ft. elev.; S Sierra Nevada and possibly San Bernardinos (unconfirmed reports)	April - July	Fed: none Calif: S1.3 CNPS: List 1B R-E-D:3-1-3	High (suitable habitat occurs)

General references: CDFG 2001, CNPS 2001, Rarefind 2000, Hickman (ed.) 1993, Munz 1974, Sanders et al. 1995, Tibor 2001, US Fish and Wildlife Service 1999.

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APPENDIX B (Continued)

Special status plants known to occur in the region with potential to occur on the project site.

Federal designations: (federal Endangered Species Act, US Fish and Wildlife Service). Note that some agencies, but not FWS, continue to use "SOC" as a federal status designation. Until 1996, FWS maintained a list of "category 2 candidates," described as species of concern, but for which insufficient data were available to support listing. This list is no longer maintained and FWS has no "SOC" category.

END: Federally listed, endangered.

THR: Federally listed, threatened.

Candidate: Sufficient data are available to support federal listing, but not listed at this time.

Proposed: Formally proposed for federal status shown.

State designations: (California Endangered Species Act, California Dept. of Fish and Game)

END: State listed, endangered.

THR: State listed, threatened.

RARE: State listed as rare (Listed "rare" animals have been re-designated as threatened, but rare plants have retained the rare designation.)

CDF&G Natural Diversity Data Base Designations: Applied to special status plants and sensitive plant communities; where correct category is uncertain, CDF&G uses two categories or question marks.

S1: Fewer than 6 occurrences or fewer than 1000 individuals or less than 2000 acres.

S1.1: Very threatened

S1.2: Threatened

S1.3: No current threats known

S2: 6-20 occurrences or 1000-3000 individuals or 2000-10,000 acres (decimal suffixes same as above).

S3: 21-100 occurrences or 3000-10,000 individuals or 10,000-50,000 acres (decimal suffixes same as above).

S4: Apparently secure in California; this rank is clearly lower than S3 but factors exist to cause some concern, i.e., there is some threat or somewhat narrow habitat. No threat rank.

S5: Demonstrably secure or ineradicable in California. No threat rank.

California Native Plant Society (CNPS) designations. Note: CNPS (Tibor, ed., 2001 p. 54-55) asserts that plants on Lists 1A, 1B, and 2 meet definitions as threatened or endangered and "are eligible" for state listing.

List 1A: Plants presumed extinct in California.

List 1B: Plants rare and endangered in California and throughout their range.

List 2: Plants rare, threatened or endangered in California but more common elsewhere in their range.

List 3: Plants about which we need more information; a review list.

List 4: Plants of limited distribution; a watch list.

CNPS R-E-D Code:

Rarity 1: Rare, but sufficient numbers and distribution that the potential for extinction is presently low.

2: Occurrence confined to several populations or one extended population.

3: Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Endangerment 1: Not endangered.

2: Endangered in a portion of its range.

3: Endangered throughout its range.

Distribution 1: More or less widespread outside California.

2: Rare outside California.

3: Endemic to California (i.e., does not occur outside California).

Definitions of occurrence probability:

Occurs: Observed on the site by qualified biologists.

High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.

Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.

Low: Site is within the known range of the species but habitat on the site is rarely used by the species.

Absent: A focused study failed to detect the species, or, no suitable habitat is present.

Unknown: No focused surveys have been performed in the region, and the species' distribution and habitat are poorly known.

APPENDIX C: SPECIES LIST

Latin Name	Common Name
CUPRESSACEAE	CYPRESS FAMILY
<i>Calocedrus decurrens</i>	Incense cedar
<i>Juniperus occidentalis</i>	Western juniper
PINACEAE	PINE FAMILY
<i>Abies concolor</i>	White fir
<i>Pinus jeffreyi</i>	Jeffrey pine
<i>Pinus monophylla</i>	Pinyon pine
APIACEAE	CELERY FAMILY
<i>Lomatium nevadense</i>	Nevada lomatium
<i>Tauschia parishii</i>	Parish tauschia
ASTERACEAE	ASTER FAMILY
<i>Achillea millefolium</i>	California yarrow
<i>Agoseris retrorsa</i>	Spear-leaved agoseris
<i>Antennaria dimorpha</i>	Low everlasting
<i>Artemisia dracunculus</i>	Tarragon
<i>Artemisia ludoviciana</i>	Western mugwort
<i>Artemisia tridentata</i>	Great Basin sagebrush
<i>Aster frondosus</i>	Short-rayed alkali aster
<i>Chrysothamnus nauseosus</i>	Common rabbitbrush
<i>Chrysothamnus viscidiflorus</i>	Curlleaf rabbitbrush
<i>Cirsium occidentale</i>	California thistle
var. <i>californicum</i>	
* <i>Cirsium vulgare</i>	Bull thistle
<i>Erigeron breweri</i>	Brewer's daisy
<i>Eriophyllum confertiflorum</i>	Golden yarrow
<i>Gnaphalium canescens</i>	Perennial cudweed
* <i>Gnaphalium luteo-album</i>	Pearly everlasting
<i>Hymenopappus filifolius</i>	Columbia cutleaf
* <i>Lactuca serriola</i>	Prickly lettuce
<i>Lessingia filaginifolia</i>	Chaparral aster
(<i>Corethrogyne filaginifolia</i>)	
<i>Madia elegans</i>	Elegant tarplant
* <i>Senecio vulgaris</i>	Common groundsel
<i>Solidago californica</i>	Calif. goldenrod
* <i>Sonchus oleraceus</i>	Common sow thistle
* <i>Taraxacum officinale</i>	Common dandelion
<i>Tetradymia comosa</i>	Hairy horsebrush
* <i>Tragopogon dubius</i>	Oyster plant, salsify
BORAGINACEAE	BORAGE FAMILY
<i>Cryptantha micrantha</i>	Purple root cryptantha
BRASSICACEAE	MUSTARD FAMILY
<i>Arabis holboellii</i> (?)	Holboell's rock-cress
<i>Descurainia pinnata</i>	Tansy mustard
<i>Erysimum capitatum</i>	Douglas wallflower
* <i>Lepidium virginicum</i> v. <i>pubescens</i>	Wild peppergrass
* <i>Sisymbrium altissimum</i>	Tumble mustard

Alien species indicated by asterisk, special status species indicated by two asterisks. This list includes only species observed on the site. Others may have been overlooked or unidentifiable due to season. Plants were identified using keys, descriptions, and illustrations in Abrams (1923-1951), Hickman (1993), and Munz (1974). Taxonomy and nomenclature generally follow Hickman.

APPENDIX C: SPECIES LIST

CACTACEAE	CACTUS FAMILY
<i>Opuntia basilaris</i> var. <i>basilaris</i>	Common beavertail cactus
CAPRIFOLIACEAE	HONEYSUCKLE FAMILY
<i>Symphoricarpos rotundifolius</i> var. <i>parishii</i>	Parish snowberry
CARYOPHYLLACEAE	CARNATION FAMILY
<i>Silene verecunda</i> ssp. <i>platyota</i>	Cuyamaca campion
CHENOPODIACEAE	GOOSEFOOT FAMILY
* <i>Chenopodium album</i> (?)	Common goosefoot
* <i>Salsola tragus</i>	Russian thistle, tumbleweed
CONVOLVULACEAE	MORNING GLORY FAMILY
<i>Calystegia malacophylla</i> ssp. <i>fulcrata</i> (C. <i>fulcrata</i>)	Morning glory
ERICACEAE	MANZANITA FAMILY
<i>Arctostaphylos patula</i>	Greenleaf manzanita
EUPHORBIACEAE	SPURGE FAMILY
<i>Chamaesyce albomarginata</i>	Rattlesnake spurge
<i>Euphorbia palmeri</i>	Wood spurge
FABACEAE	PEA FAMILY
<i>Amorpha californica</i>	Calif. false indigo
** <i>Astragalus leucolobus</i> (?)	Bear Valley woollypod - WL
<i>Astragalus purshii</i> var. <i>tinctus</i> (?)	Pursh's woollypod
<i>Lotus argyraeus</i>	Silver lotus
<i>Lotus nevadensis</i>	Nevada lotus
<i>Lupinus</i> cf. <i>breweri</i>	Silver mat lupine
<i>Lupinus excubitus</i> var. <i>austromontanus</i> (?)	Southern mountain lupine
<i>Lupinus lepidus</i> v. <i>confertus</i> (<i>Lupinus confertus</i>)	Prairie lupine
* <i>Medicago lupulina</i>	Black medick
* <i>Melilotus alba</i>	White sweet-clover
FAGACEAE	OAK FAMILY
<i>Quercus kelloggii</i>	California black oak
GERANIACEAE	GERANIUM FAMILY
* <i>Erodium cicutarium</i>	Red-stemmed filaree
HYDROPHYLLACEAE	WATERLEAF FAMILY
<i>Eridictyon trichocalyx</i>	Yerba santa
<i>Phacelia distans</i> (?)	Common phacelia
<i>Phacelia imbricata</i>	Broad-sepaed phacelia
LAMIACEAE	MINT FAMILY
<i>Monardella linoides</i> (?) (or <i>M. odoratissima</i>)	Flax-leaved monardella
<i>Scutellaria siphocampyloides</i> (<i>S. austinae</i>)	Austin's skullcap
LOASACEAE	STICK-LEAF FAMILY
<i>Mentzelia</i> sp.	Unid. stick-leaf
MALVACEAE	MALLOW FAMILY
* <i>Malva parviflora</i>	Cheeseweed
ONAGRACEAE	EVENING PRIMROSE FAMILY
<i>Epilobium brachycarpum</i> (<i>E. paniculatum</i>)	Summer cottonweed
<i>Epilobium ciliatum</i>	Willow-herb

APPENDIX C: SPECIES LIST

POLEMONIACEAE

Eriastrum densifolium
ssp. densifolium
Eriastrum sapphirinum (?)
Linanthus breviculus
Phlox gracilis

POLYGONACEAE

Eriogonum davidsonii
(= *E. molestum* var. *davidsonii*)
Eriogonum wrightii ssp.
subscaposum
Eriogonum umbellatum v. *munzii*
* *Polygonum arenastrum*
* *Rumex crispus*
Rumex salicifolius

PORTULACACEAE

Lewisia rediviva

RANUNCULACEAE

Delphinium sp.
* *Ranunculus sceleratus*

RHAMNACEAE

Ceanothus cordulatus
Ceanothus greggii
Ceanothus integerrimus

ROSACEAE

Amelanchier utahensis
(incl. *A. pallida*)
Cercocarpus betuloides
Cercocarpus ledifolius
Horkelia rydbergii
(*H. bolanderi* s. *parryi*)
** *Ivesia argyrocoma*
Potentilla anserina
Potentilla biennis
Potentilla gracilis

RUBIACEAE

Galium sp.

SALICACEAE

Populus balsamifera trichocarpa
Salix laevigata (?)
Salix lasiolepis (?)

SCROPHULARIACEAE

** *Castilleja cinera*
** *Castilleja montigena*
Collinsia parviflora (?)
Penstemon eatonii
* *Verbascum thapsus*

STERCULIACEAE

Fremontodendron californicum

TAMARICACEAE

Tamarix ramosissima

PHLOX FAMILY

Mojave woolly-star

Sapphire woollystar
Mojave linanthus
Slender phlox

BUCKWHEAT FAMILY

Davidson buckwheat

Wright's buckwheat

Munz sulfur buckwheat

Common knotweed

Curly dock

Willow dock

PURSLANE FAMILY

Bitter root

BUTTERCUP FAMILY

Unid. larkspur

Cursed buttercup

BUCKTHORN FAMILY

Mountain whitethorn

Cupleaf ceanothus

Deerbrush

ROSE FAMILY

Service berry

Birch-leaf mountain mahogany

Curleaf mountain mahogany

Transverse range horkelia

Silver-haired ivesia

Silverweed

Biennial cinquefoil

Slender cinquefoil

COFFEE FAMILY

Unid. bedstraw

WILLOW FAMILY

Black cottonwood

Red willow

Arroyo willow

SNAPDRAGON FAMILY

Ash-gray paintbrush

Heckard's paintbrush

Small-flowered blue-eyed Mary

Eaton firecracker

Common muellin

CACAO FAMILY

Flannel bush

TAMARISK FAMILY

Mediterranean tamarisk

APPENDIX C: SPECIES LIST

VIOLACEAE

Viola douglasii
Viola pinetorum ssp. *pinetorum*
 or *V. purpurea*

VIOLET FAMILY

Douglas violet
 Mountain violet

CYPERACEAE

Carex athrostachya

SEDGE FAMILY

Slender-beaked sedge

JUNCACEAE

Juncus mexicanus
 (incl. *J. balticus*)

RUSH FAMILY

Wire-grass

LILIACEAE

Allium parryi
Calochortus kennedyi

LILY FAMILY

Parry's onion
 Kennedy's mariposa lily

POACEAE

Agrostis sp.
Alopecurus aequalis
Bromus carinatus
 * *Bromus tectorum*
Elymus elymoides
 (*Sitanion hystrix* v. *hystrix*)
Hordeum jubatum
 * *Koeleria macrantha*
Melica stricta
Muhlenbergia rigens
Poa fendleriana
Poa secunda
 * *Polypogon monspeliensis*
Pucinellia nuttalliana
Stipa coronata ssp. *depauperata*
 (*Achnatherum parishii*)
Stipa lettermannii
Vulpia microstachys
 (*Festuca microstachys*, *F. reflexa*, *F. pacifica*, *F. confusa*)

GRASS FAMILY

Unid. bentgrass
 Short-awn foxtail
 California brome
 Cheat grass
 Bottlebrush squirreltail

 Foxtail barley
 Junegrass
 Nodding melic
 Deergrass
 Fendler bluegrass
 Nodding bluegrass
 Rabbitfoot grass
 Alkali grass
 Parish needlegrass

 Letterman's needlegrass
 Annual fescue

APPENDIX C: SPECIES LIST

terisks. This list includes only
able due to season. Plants
51), Hickman (1993), and

VERTEBRATE ANIMALS

AMPHIBIA

SALAMANDRIDAE

Taricha torosa

PLETHODONTIDAE

Ensatina eschscholtzii

Aneides lugubris

Batrachoseps pacificus

PELOBATIDAE

** *Scaphiopus hammondi*

BUFONIDAE

Bufo boreas

Bufo woodhousei

** *Bufo microscaphus*

Bufo punctatus

HYLIDAE

Hyla cadaverina

Hyla regilla

RANIDAE

** *Rana aurora*

** *Rana pipiens*

* *Rana catesbeiana*

AMPHIBIANS

NEWTS

California newt

LUNGLESS SALAMANDERS

Ensatina

Arboreal salamander

Pacific slender salamander

SPADEFoot TOADS

Western spadefoot

TRUE TOADS

Western toad

Woodhouse toad

Southwestern toad

Red-spotted toad

TREEFROGS

California treefrog

Pacific treefrog

TRUE FROGS

Red-legged frog

Northern leopard frog

Bullfrog

REPTILIA

EMYDIDAE

** *Clemmys marmorata*

TESTUDINIDAE

** *Gopherus agassizii*
(*Xerobates agassizi*)

TRIONYCHIDAE

Trionyx spiniferus

GEKKONIDAE

Coleonyx variegatus

** *Coleonyx swainsoni*

Phyllodactylus xanti

IGUANIDAE

Dipsosaurus dorsalis

Sauromalus obesus

Callisaurus draconoides

** *Uma notata ssp. notata*

** *Uma inornata*

** *Uma scoparia*

Crotaphytus insularis

Gambelia wislizenii

Sceloporus magister

Sceloporus orcutti

Sceloporus occidentalis

Sceloporus graciosus

Uta stansburiana

Urosaurus graciosus

Petrosaurus mearnsi

REPTILES

BOX AND WATER TURTLES

Western pond turtle

LAND TORTOISES

Desert tortoise

SOFTSHELL TURTLES

Spiny softshell

GECKOS

Western banded gecko

Barefoot gecko

Leaf-toed gecko

IGUANID LIZARDS

Desert iguana

Common chuckwalla

Zebra-tailed lizard

Colorado desert fringe-toed lizard

Coachella valley fringe-toed lizard

Mojave fringe-toed lizard

Desert collared lizard

Long-nosed leopard lizard

Desert spiny lizard

Granite spiny lizard

Western fence lizard

Sagebrush lizard

Side-blotched lizard

Long-tailed brush lizard

Banded rock lizard

** <i>Phrynosoma coronatum</i> <i>ssp. blainvillei</i>	San Diego horned lizard
<i>Phrynosoma platyrhinos</i>	Desert horned lizard
** <i>Phrynosoma mcallii</i>	Flat-tailed horned lizard
XANTUSIIDAE	NIGHT LIZARDS
<i>Xantusia henshawi</i>	Granite night lizard
<i>Xantusia vigilis</i>	Desert night lizard
SCINCIDAE	SKINKS
<i>Eumeces skiltonianus</i>	Western skink
<i>Eumeces gilberti</i>	Gilbert skink
TEIIDAE	WHIPTAILS
** <i>Cnemidophorus hyperythrus</i>	Orange-throated whiptail
** <i>Cnemidophorus tigris</i>	Western whiptail
ANGUIDAE	ALLIGATOR LIZARDS
<i>Gerrhonotus multicarinatus</i>	Southern alligator lizard
ANNIELLIDAE	LEGLESS LIZARDS
** <i>Aniella pulchra ssp. pulchra</i>	Silvery legless lizard
LEPTOTYPHLOPIDAE	SLENDER BLIND SNAKES
<i>Leptotyphlops humilis</i>	Western blind snake
BOIDAE	BOAS AND PYTHONS
** <i>Charina bottae ssp. umbratica</i>	Southern rubber boa
<i>Lichanura trivirgata</i>	Rosy boa
COLUBRIDAE	COLUBRIDS
** <i>Diadophis punctatus</i>	Ringneck snake
<i>Phyllorhynchus decurtatus</i>	Spotted leaf-nosed snake
<i>Coluber constrictor</i>	Racer
<i>Masticophis flagellum</i>	Coachwhip
<i>Masticophis lateralis</i>	California whipsnake
** <i>Salvadora hexalepis</i>	Western patch-nosed snake
<i>Arizona elegans</i>	Glossy snake
<i>Pituophis melanoleucus</i>	Gopher snake
<i>Lampropeltis getulus</i>	Common kingsnake
** <i>Lampropeltis zonata ssp. pulchra</i>	San Bernardino Mountain kingsnake
<i>Rhinocheilus lecontei</i>	Long-nosed snake
<i>Thamnophis sirtalis</i>	Common garter snake
<i>Thamnophis elegans</i>	Western terrestrial garter snake
** <i>Thamnophis hammondi</i>	Two-striped garter snake
VIPERIDAE	VIPERS
<i>Crotalus atrox</i>	Western diamondback rattlesnake
** <i>Crotalus ruber</i>	Red diamond rattlesnake
<i>Crotalus mitchellii</i>	Speckled rattlesnake
<i>Crotalus cerastes</i>	Sidewinder
<i>Crotalus viridis</i>	Western rattlesnake
<i>Crotalus scutulatus</i>	Mojave rattlesnake
AVES	BIRDS
GAVIIDAE	LOONS
<i>Gavia immer</i>	Common loon
PODICIPEDIDAE	GREBES
<i>Podilymbus podiceps</i>	Pied-billed grebe
<i>Podiceps nigricollis</i>	Eared grebe
<i>Aechmophorus occidentalis</i>	Western grebe
<i>Aechmophorus clarkii</i>	Clark's grebe

PELECANIDAE

Pelecanus erythrorhynchos

** *Pelecanus occidentalis*

PHALACROCORACIDAE

Phalacrocorax auritus

ARDEIDAE

Botaurus lentiginosus

Ardea herodias

Casmerodius albus

Egretta thula

Bubulcus ibis

Butorides striatus

** *Nycticorax nycticorax*

THRESKIORNITHIDAE

** *Plegadis chihi*

ANATIDAE

Anser albifrons

Chen caerulescens

Chen rossii

Branta canadensis

Anas crecca

Anas platyrhynchos

Anas acuta

Anas discors

Anas cyanoptera

Anas clypeata

Anas strepera

Anas americana

Aythya valisineria

Aythya americana

Aythya collaris

Aythya affinis

Bucephala clangula

Bucephala albeola

Mergus merganser

Mergus serrator

Oxyura jamaicensis

RALLIDAE

Rallus longirostris

Rallus limicola

Porzana carolina

Gallinula chloropus

Fulica americana

CATHARTIDAE

Cathartes aura

ACCIPITRIDAE

** *Pandion haliaetus*

** *Elanus caeruleus*

** *Aquila chrysaetos*

** *Haliaeetus leucocephalus*

** *Circus cyaneus*

** *Accipiter striatus*

** *Accipiter cooperii*

PELICANS

American white pelican

Brown pelican

CORMORANTS

Double-crested cormorant

HERONS

American bittern

Great blue heron

Great egret

Snowy egret

Cattle egret

Green-backed heron

Black-crowned night heron

IBISES AND SPOONBILLS

White-faced ibis

DUCKS, GEESE AND SWANS

Greater white-fronted goose

Snow goose

Ross' goose

Canada goose

Green-winged teal

Mallard

Northern pintail

Blue-winged teal

Cinnamon teal

Northern shoveler

Gadwall

American wigeon

Canvasback

Redhead

Ring-necked duck

Lesser scaup

Common goldeneye

Bufflehead

Common merganser

Red-breasted merganser

Ruddy duck

RAILS, GALLINULES, COOTS

Clapper rail

Virginia rail

Sora

Common moorhen

American coot

VULTURES

Turkey vulture

HAWKS, EAGLES, HARRIERS

Osprey

Black-shouldered kite

Golden eagle

Bald eagle

Northern harrier

Sharp-shinned hawk

Cooper's hawk

<i>Buteo lineatus</i>	Red-shouldered hawk
** <i>Buteo swainsoni</i>	Swainson's hawk
<i>Buteo jamaicensis</i>	Red-tailed hawk
** <i>Buteo regalis</i>	Ferruginous hawk
<i>Buteo lagopus</i>	Rough-legged hawk
FALCONIDAE	FALCONS
<i>Falco sparverius</i>	American kestrel
** <i>Falco columbarius</i>	Merlin
** <i>Falco peregrinus</i>	Peregrine falcon
** <i>Falco mexicanus</i>	Prairie falcon
PHASIANIDAE	GROUSE AND QUAIL
<i>Alectoris chukar</i>	Chukar
<i>Phasianus colchicus</i>	Ring-necked pheasant
<i>Callipepla gambelii</i>	Gambel's quail
<i>Callipepla californica</i>	California quail
<i>Oreortyx pictus</i>	Mountain quail
CHARADRIIDAE	PLOVERS
<i>Pluvialis squatarola</i>	Black-bellied plover
** <i>Charadrius alexandrinus</i>	Snowy plover
<i>Charadrius semipalmatus</i>	Semipalmated plover
<i>Charadrius vociferus</i>	Killdeer
** <i>Charadrius montanus</i>	Mountain plover
RECURVIROSTRIDAE	STILTS AND AVOCETS
<i>Himantopus mexicanus</i>	Black-necked stilt
<i>Recurvirostra americana</i>	American avocet
SCOLOPACIDAE	SANDPIPERS
<i>Tringa melanoleuca</i>	Greater yellowlegs
<i>Tringa flavipes</i>	Lesser yellowlegs
<i>Catoptrophorus semipalmatus</i>	Willet
<i>Actitis macularia</i>	Spotted sandpiper
<i>Numenius phaeopus</i>	Whimbrel
<i>Numenius americanus</i>	Long-billed curlew
<i>Limosa fedoa</i>	Marbled godwit
<i>Arenaria interpres</i>	Ruddy turnstone
<i>Arenaria melanocephala</i>	Black turnstone
<i>Calidris canutus</i>	Red knot
<i>Calidris alba</i>	Sanderling
<i>Calidris pusilla</i>	Semipalmated sandpiper
<i>Calidris mauri</i>	Western sandpiper
<i>Calidris minutilla</i>	Least sandpiper
<i>Calidris alpina</i>	Dunlin
<i>Limnodromus griseus</i>	Short-billed dowitcher
<i>Limnodromus scolopaceus</i>	Long-billed dowitcher
<i>Gallinago gallinago</i>	Common snipe
<i>Phalaropus tricolor</i>	Wilson's phalarope
<i>Phalaropus lobatus</i>	Red-necked phalarope
LARIDAE	GULLS AND TERNS
<i>Larus philadelphia</i>	Bonaparte's gull
<i>Larus delawarensis</i>	Ring-billed gull
<i>Larus californicus</i>	California gull
<i>Larus argentatus</i>	Herring gull
<i>Larus occidentalis</i>	Western gull
<i>Sterna caspia</i>	Caspian tern

Sterna hirundo
Sterna forsteri
 COLUMBIDAE
Columba livia
Columba fasciata
 * *Streptopelia chinensis*
Zenaida asiatica
Zenaida macroura
Columbina passerina
 CUCULIDAE
Geococcyx californianus
 TYTONIDAE
Tyto alba
 STRIGIDAE
Otus kennicottii
Bubo virginianus
 ** *Speotyto cunicularia*
 ** *Asio otus*
 CAMPRIMULGIDAE
Chordeiles acutipennis
Chordeiles minor
Phalaenoptilus nuttallii
 APODIDAE
Chaetura vauxi
Aeronautes saxatalis
 TROCHILIDAE
Archilochus alexandri
Calypte anna
Calypte costae
Selasphorus rufus
Selasphorus sasin
 ALCEDINIDAE
Ceryle alcyon
 PICIDAE
Melanerpes formicivorus
Melanerpes lewis
Sphyrapicus nuchalis
Sphyrapicus thyroideus
Picoides scalaris
Picoides nuttallii
Picoides pubescens
Picoides villosus
Picoides albolarvatus
Colaptes auratus
 TYRANNIDAE
Contopus borealis
Contopus sordidulus
Empidonax traillii
Empidonax hammondii
Empidonax oberholseri
Empidonax wrightii
Empidonax difficilis
Sayornis nigricans

Common tern
 Forster's tern
 PIGEONS AND DOVES
 Rock dove
 Band-tailed pigeon
 Spotted dove
 White-winged dove
 Mourning dove
 Common ground-dove
 CUCKOOS
 Greater roadrunner
 BARN OWLS
 Common barn-owl
 TYPICAL OWLS
 Western screech-owl
 Great horned owl
 Burrowing owl
 Long-eared owl
 NIGHTJARS
 Lesser nighthawk
 Common nighthawk
 Common poorwill
 SWIFTS
 Vaux's swift
 White-throated swift
 HUMMINGBIRDS
 Black-chinned hummingbird
 Anna's hummingbird
 Costa's hummingbird
 Rufous hummingbird
 Allen's hummingbird
 KINGFISHERS
 Belted kingfisher
 WOODPECKERS
 Acorn woodpecker
 Lewis' woodpecker
 Red-naped sapsucker
 Williamson's sapsucker
 Ladder-backed woodpecker
 Nuttall's woodpecker
 Downy woodpecker
 Hairy woodpecker
 White-headed woodpecker
 Northern flicker
 TYRANT FLYCATCHERS
 Olive-sided flycatcher
 Western wood-pewee
 Willow flycatcher
 Hammond's flycatcher
 Dusky flycatcher
 Gray flycatcher
 Western flycatcher
 Black phoebe

<i>Sayornis saya</i>	Say's phoebe
<i>Myiarchus cinerascens</i>	Ash-throated flycatcher
<i>Tyrannus vociferans</i>	Cassin's kingbird
<i>Tyrannus verticalis</i>	Western kingbird
ALAUDIDAE	LARKS
<i>Eremophila alpestris</i>	Horned lark
HIRUNDINIDAE	SWALLOWS
<i>Tachycineta bicolor</i>	Tree swallow
<i>Tachycineta thalassina</i>	Violet-green swallow
<i>Stelgidopteryx serripennis</i>	Northern rough-winged swallow
<i>Hirundo pyrrhonota</i>	Cliff swallow
<i>Hirundo rustica</i>	Barn swallow
CORVIDAE	CROWS AND JAYS
<i>Cyanocitta stellari</i>	Stellar's jay
<i>Aphelocoma coerulescens</i>	Scrub jay
<i>Gymnorhinus cyanocephalus</i>	Pinyon jay
<i>Nucifraga columbiana</i>	Clark's nutcracker
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	Common raven
PARIDAE	CHICKADEES AND TITMICE
<i>Parus gambeli</i>	Mountain chickadee
<i>Parus inornatus</i>	Plain titmouse
REMIZIDAE	VERDINS
<i>Auriparus flavipes</i>	Verdin
AEGITHALIDAE	BUSHTITS
<i>Psaltiriparus minimus</i>	Bushtit
SITTIDAE	NUTHATCHES
<i>Sitta canadensis</i>	Red-breasted nuthatch
<i>Sitta carolinensis</i>	White-breasted nuthatch
<i>Sitta pygmaea</i>	Pygmy nuthatch
CERTHIIDAE	CREEPERS
<i>Certhia americana</i>	Brown creeper
TROGLODYTIDAE	WRENS
<i>Campylorhynchus brunneicapillus</i>	Cactus wren
** <i>Campylorhynchus brunneicapillus</i>	Coastal cactus wren
<i>Salpinctes obsoletus</i>	Rock wren
<i>Catherpes mexicanus</i>	Canyon wren
<i>Thryomanes bewickii</i>	Bewick's wren
<i>Troglodytes aedon</i>	House wren
<i>Cistothorus palustris</i>	Marsh wren
CINCLIDAE	DIPPERS
<i>Cinclus mexicanus</i>	American dipper
MUSCICAPIDAE	THRUSHES AND ALLIES
<i>Ixoreus naevius</i>	Varied thrush
<i>Regulus calendula</i>	Ruby-crowned kinglet
<i>Polioptila caerulea</i>	Blue-gray gnatcatcher
** <i>Polioptila melanura</i>	Black-tailed gnatcatcher
** <i>Polioptila californica</i>	California gnatcatcher
<i>Sialia mexicana</i>	Western bluebird
<i>Sialia currucoides</i>	Mountain bluebird
<i>Myadestes townsendi</i>	Townsend's solitaire
<i>Catharus ustulatus</i>	Swainson's thrush
<i>Catharus guttatus</i>	Hermit thrush

Turdus migratorius
Chamaea fasciata
 MIMIDAE
Mimus polyglottos
Oreoscoptes montanus
Toxostoma redivivum
 ** *Toxostoma crissale*
 ** *Toxostoma lecontei*
 MOTACILLIDAE
Anthus spinoletta
 BOMBYCILLIDAE
Bombycilla cedrorum
 PTILOGONATIDAE
Phainopepla nitens
 LANIIDAE
Lanius ludovicianus
 STURNIDAE
 * *Sturnus vulgaris*
 VIREONIDAE
 ** *Vireo bellii*
 ** *Vireo vicinior*
Vireo solitarius
Vireo huttoni
Vireo gilvus
 EMBERIZIDAE
Vermivora celata
Vermivora ruficapilla
Vermivora luciae
 ** *Dendroica petechia*
Dendroica coronata
Dendroica nigrescens
Dendroica occidentalis
Dendroica townsendi
Oporornis tolmiei
Geothlypis trichas
Wilsonia pusilla
 ** *Icteria virens*
 ** *Piranga rubra*
Piranga ludoviciana
Pheucticus melanocephalus
Guiraca caerulea
Passerina amoena
Pipilo chlorurus
Pipilo erythrophthalmus
Pipilo crissalis
Pipilo aberti
Aimophila ruficeps
Spizella passerina
Spizella breweri
Spizella atrogularis
Pooecetes gramineus
Chondestes grammacus
Amphispiza bilineata

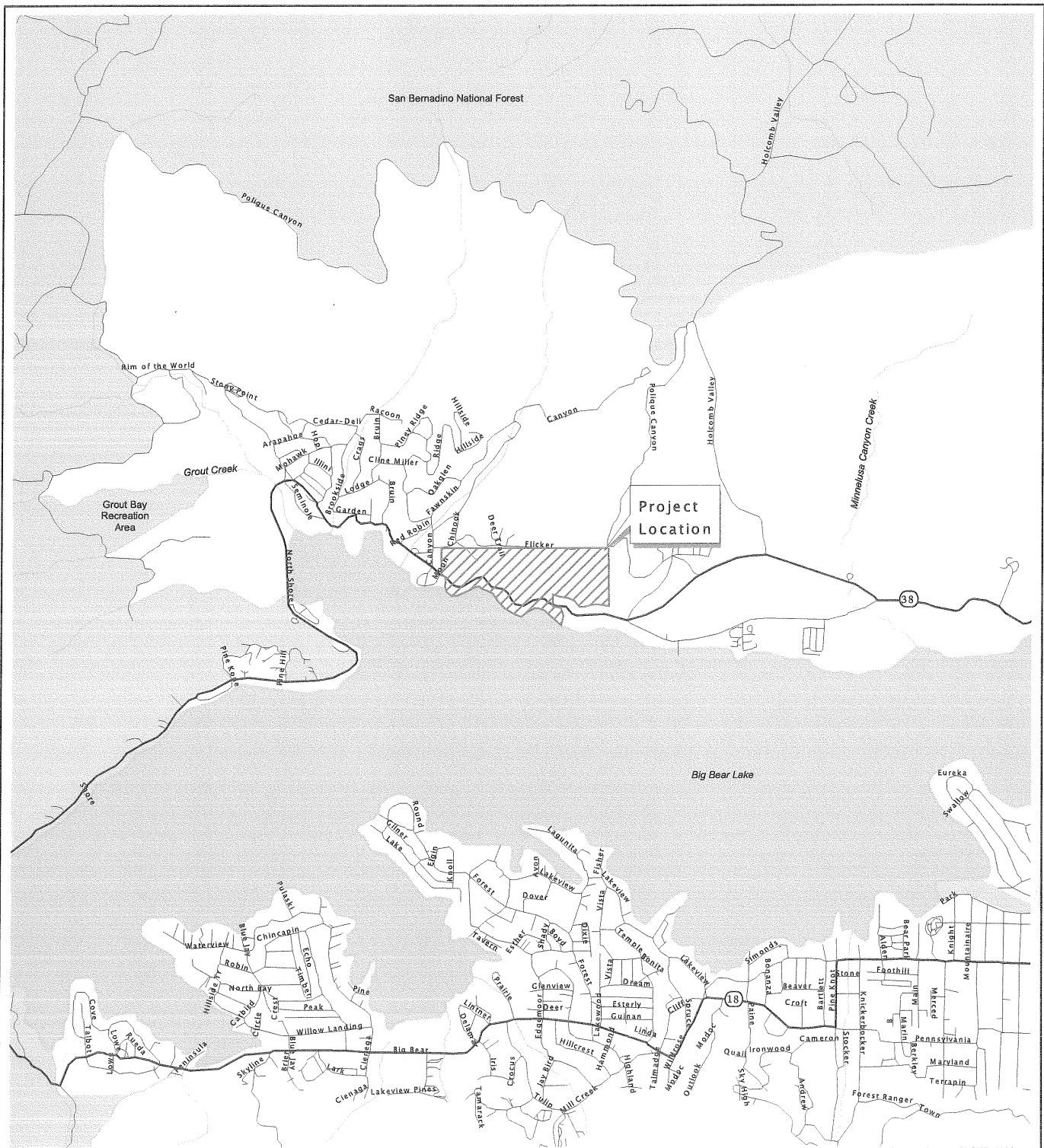
American robin
 Wren tit
 MOCKINGBIRDS AND THRASHERS
 Northern mockingbird
 Sage thrasher
 California thrasher
 Crissal thrasher
 Le Conte's thrasher
 WAGTAILS AND PIPITS
 American pipit
 WAXWINGS
 Cedar waxwing
 SILKY FLYCATCHERS
 Phainopepla
 SHRIKES
 Loggerhead shrike
 STARLINGS
 European starling
 VIREOS
 Bell's vireo
 Gray vireo
 Solitary vireo
 Hutton's vireo
 Warbling vireo
 SPARROWS, WARBLERS, TANAGERS
 Orange-crowned warbler
 Nashville warbler
 Lucy's warbler
 Yellow warbler
 Yellow-rumped warbler
 Black-throated gray warbler
 Hermit warbler
 Townsend's warbler
 MacGillivray's warbler
 Common yellowthroat
 Wilson's warbler
 Yellow-breasted chat
 Summer tanager
 Western tanager
 Black-headed grosbeak
 Blue grosbeak
 Lazuli bunting
 Green-tailed towhee
 Rufous-sided towhee
 California towhee
 Abert's towhee
 Rufous-crowned sparrow
 Chipping sparrow
 Brewer's sparrow
 Black-chinned sparrow
 Vesper sparrow
 Lark sparrow
 Black-throated sparrow

<i>Amphispiza belli</i>	Sage sparrow
<i>Passerculus sandwichensis</i>	Savannah sparrow
<i>Passerella iliaca</i>	Fox sparrow
<i>Melospiza melodia</i>	Song sparrow
<i>Melospiza lincolnii</i>	Lincoln's sparrow
<i>Zonotrichia atricapilla</i>	Golden-crowned sparrow
<i>Zonotrichia leucophrys</i>	White-crowned sparrow
<i>Junco hyemalis</i>	Dark-eyed junco
<i>Agelaius phoeniceus</i>	Red-winged blackbird
** <i>Agelaius tricolor</i>	Tricolored blackbird
<i>Sturnella neglecta</i>	Western meadowlark
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird
<i>Euphagus cyanocephalus</i>	Brewer's blackbird
<i>Quiscalus mexicanus</i>	Great-tailed grackle
<i>Molothrus ater</i>	Brown-headed cowbird
<i>Icterus cucullatus</i>	Hooded oriole
<i>Icterus galbula</i>	Northern oriole
<i>Icterus parisorum</i>	Scott's oriole
FRINGILLIDAE	FINCHES
<i>Carpodacus purpureus</i>	Purple finch
<i>Carpodacus cassinii</i>	Cassin's finch
<i>Carpodacus mexicanus</i>	House finch
<i>Carduelis pinus</i>	Pine siskin
<i>Carduelis psaltria</i>	Lesser goldfinch
<i>Carduelis lawrencei</i>	Lawrence's goldfinch
<i>Carduelis tristis</i>	American goldfinch
PASSERIDAE	WEAVERS
* <i>Passer domesticus</i>	House sparrow
MAMMALIA	MAMMALS
DIDELPHIDAE	OPOSSUMS
<i>Didelphis marsupialis</i>	Common opossum
VESPERTILIONIDAE	EVENING BATS
<i>Pipistrellus hesperus</i>	Western pipistrelle
LEPORIDAE	HARES AND RABBITS
<i>Lepus californicus</i>	Black-tailed hare
<i>Sylvilagus audubonii</i>	Audubon cottontail
<i>Sylvilagus bachmani</i>	Brush rabbit
<i>Sylvilagus sp.</i>	Cottontail
SCIURIDAE	SQUIRRELS
** <i>Citellus mohavensis</i>	Mohave ground squirrel
** <i>Citellus tereticaudis ssp. chlorus</i>	Coachella Valley ground squirrel
** <i>Glaucomys sabrinus</i>	Northern flying squirrel
<i>Otospermophilus beecheyi</i>	Beechey ground squirrel
<i>Ammospermophilus leucurus</i>	Antelope ground squirrel
** <i>Ammospermophilus nelsoni</i>	San Joaquin antelope ground squirrel
<i>Eutamias merriami</i>	Merriam chipmunk
<i>Sciurus griseus</i>	Western gray squirrel
GEOMYIDAE	POCKET GOPHERS
<i>Thomomys bottae</i>	Botta pocket gopher
HETEROMYIDAE	POCKET MICE
<i>Perognathus sp.</i>	Pocket mouse
<i>Perognathus longimembris</i>	Little pocket mouse

** <i>Perognathus longimembris ssp. brevinasus</i>	Los Angeles pocket mouse
<i>Perognathus formosus</i>	Long-tailed pocket mouse
<i>Perognathus baileyi</i>	Bailey pocket mouse
<i>Perognathus fallax</i>	San Diego pocket mouse
<i>Perognathus californicus</i>	California pocket mouse
<i>Perognathus spinatus</i>	Spiny pocket mouse
<i>Dipodomys sp.</i>	Kangaroo rat
<i>Dipodomys heermanni</i>	Heermann kangaroo rat
<i>Dipodomys panamintinus</i>	Panamint kangaroo rat
** <i>Dipodomys stephensi</i>	Stephens' kangaroo rat
<i>Dipodomys ingens</i>	Giant kangaroo rat
<i>Dipodomys merriami</i>	Merriam kangaroo rat
** <i>Dipodomys merriami ssp parvus</i>	Cismontsne Merriam kangaroo rat
<i>Dipodomys nitratoides</i>	San Joaquin kangaroo rat
<i>Dipodomys agilis</i>	Pacific kangaroo rat
<i>Dipodomys deserti</i>	Desert kangaroo rat
CASTORIDAE	BEAVERS
<i>Castor canadensis</i>	Beaver
CRICETIDAE	RATS AND MICE
<i>Reithrodontomys megalotis</i>	Western harvest mouse
<i>Peromyscus crinitus</i>	Canyon mouse
<i>Peromyscus californicus</i>	California mouse
<i>Peromyscus eremicus</i>	Cactus mouse
<i>Peromyscus maniculatus</i>	Deer mouse
<i>Onychomys torridus</i>	Southern grasshopper mouse
<i>Neotoma sp.</i>	Wood rat
<i>Neotoma albigula</i>	White-throated wood rat
<i>Neotoma lepida</i>	Desert wood rat
<i>Neotoma fuscipes</i>	Dusky-footed wood rat
<i>Microtus pennsylvanicus</i>	Meadow mouse
<i>Microtus californicus</i>	California meadow mouse
MURIDAE	OLD WORLD RATS AND MICE
* <i>Mus musculus</i>	House mouse
CANIDAE	FOXES, WOLVES AND COYOTES
<i>Canis latrans</i>	Coyote
<i>Vulpes macrotis</i>	Kit fox
<i>Urocyon cinereoargenteus</i>	Gray fox
URSIDAE	BEARS
* <i>Ursus americanus</i>	Black bear
PROCYONIDAE	RACCOONS
<i>Bassariscus astutus</i>	Ringtail
<i>Procyon lotor</i>	Raccoon
MUSTELIDAE	WEASELS AND SKUNKS
<i>Mustela frenata</i>	Long-tailed weasel
** <i>Taxidea taxus</i>	American badger
<i>Spilogale putorius</i>	Spotted skunk
<i>Mephitis mephitis</i>	Striped skunk
FELIDAE	CATS
<i>Felis concolor</i>	Mountain lion
<i>Lynx rufus</i>	Bobcat
EQUIDAE	HORSES, BURROS AND ZEBRAS
* <i>Equus astinus</i>	Feral donkey

CERVIDAE
 Odocoileus hemionus
BOVIDAE
 Ovis canadensis

ELKS, MOOSE, CARIBOU, DEER
 Mule deer
SHEEP AND GOATS
 Bighorn



Local Vicinity

Moon Camp - Tentative Tract 16136

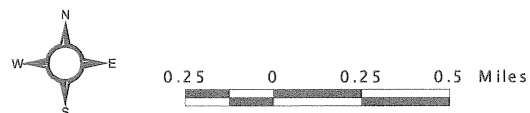


Exhibit 2

Bonterra
CONSULTING

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15.7 Cultural Resources Information

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT

MOON CAMP RESIDENTIAL SUBDIVISION

**Tentative Tract No. 16136
Fawnskin, San Bernardino County**

Submitted to:

Glenn Lajoie, AICP, Vice President
RBF Consulting
14725 Alton Parkway
Irvine, CA 92618-2027

Submitted by:

Bruce Love, Principal
Bai "Tom" Tang, Historian
Daniel Ballester, Archaeologist
Adrián Sánchez Moreno, Archaeologist
CRM TECH
2411 Sunset Drive
Riverside, CA 92506

April 3, 2002

CRM TECH Contract #782
Approximately 62.43 Acres
Fawnskin, Calif., 7.5' Quadrangle
Section 13, T2N R1W, San Bernardino Base Meridian
APNs 0304-082-14, 0304-091-12, 0304-091-13, and 0304-091-21
Site CA-SBR-10635H, Isolate P36-60758

MANAGEMENT SUMMARY

In March, 2002, at the request of RBF Consulting, CRM TECH performed a cultural resources study on approximately 62.43 acres of vacant land in the unincorporated community of Fawnskin, San Bernardino County, California. The subject property of the study, known as Tentative Tract No. 16136 (Moon Camp), is located on the north shore of Big Bear Lake, consisting of a portion of the north half of Section 13, T2N R1W, San Bernardino Base Meridian. The study is part of the environmental review process for the proposed subdivision of the property into single-family residential lots. The County of San Bernardino, as Lead Agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the County with the necessary information and analysis to determine whether the proposed subdivision would result in substantial adverse changes to any historical/archaeological resources that may exist in or around the project area, as mandated by CEQA.

In order to identify and evaluate such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, and carried out an intensive-level field survey. The records search results indicate that a prehistoric isolate, P36-60758, was previously recorded in the project area in 1987, and a possible Native American burial ground has been reported in the general vicinity. The historical research results, meanwhile, suggest that the project area may have hosted one of possibly two early resort camps that dated back at least to the 1920s. The field survey revealed no evidence of P36-60758 or any other prehistoric sites, features, or artifacts, but encountered a historic-period archaeological site in the southeastern portion of the project area, which was subsequently designated CA-SBR-10635H. Consisting of a heavily disturbed scatter of rusted cans, glass fragments, ceramic sherds, and other historic-period artifacts mixed with modern trash, the site lies on the edge of a much larger refuse deposit located mostly on the adjacent property to the east, around an old structure foundation at that location.

Since many of the artifacts at CA-SBR-10635H can be dated to the pre-WWII period, it is possible—and indeed probable—that the refuse scatter was deposited in connection with the early 20th century resort camps known to be in operation in the vicinity. However, due to the limited number and types of the artifacts observed, there is insufficient evidence to establish this association conclusively, or association with any persons or events of recognized historic significance. Furthermore, the site in fact constitutes a minor component of a larger historic-period refuse deposit located outside the project area, and its limited information potential is further diminished by extensive disturbances and the intrusion of modern trash. Based on these considerations, the present study concludes that Site CA-SBR-10635H does not appear to meet the official definition of a "historical resource," as provided by CEQA.

In light of the study results summarized above, CRM TECH recommends that the County of San Bernardino may reach a finding that the project as currently proposed will have *no impact* on any known historical resources. However, because of the reported Native American burial ground in the vicinity and the presence of early resort camps in the 1920s, the project area as a whole remains highly sensitive for possible subsurface archaeological deposits from both the prehistoric and the historic periods. In order to properly identify, evaluate and, if necessary, protect such deposits, any grading, grubbing, trenching, excavations, and/or other earth-moving activities in the project area should be monitored by a qualified archaeologist. Under this condition, the proposed project may be cleared to proceed in compliance with the cultural resources provisions of CEQA.

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INTRODUCTION

In March, 2002, at the request of RBF Consulting, CRM TECH performed a cultural resources study on approximately 62.43 acres of vacant land in the unincorporated community of Fawnskin, San Bernardino County, California (Fig. 1). The subject property of the study, known as Tentative Tract No. 16136 (Moon Camp), is located on the north shore of Big Bear Lake, consisting of a portion of the north half of Section 13, T2N R1W, San Bernardino Base Meridian (Fig. 2). The study is part of the environmental review process for the proposed subdivision of the property into single-family residential lots. The County of San Bernardino, as Lead Agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.).

CRM TECH performed the present study to provide the County of San Bernardino with the necessary information and analysis to determine whether the proposed subdivision would result in substantial adverse changes to any historical/archaeological resources that may exist in or around the project area, as mandated by CEQA. In order to identify and evaluate such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, and carried out an intensive-level field survey. The following report is a complete account of the methods, results, and final conclusion of the study.

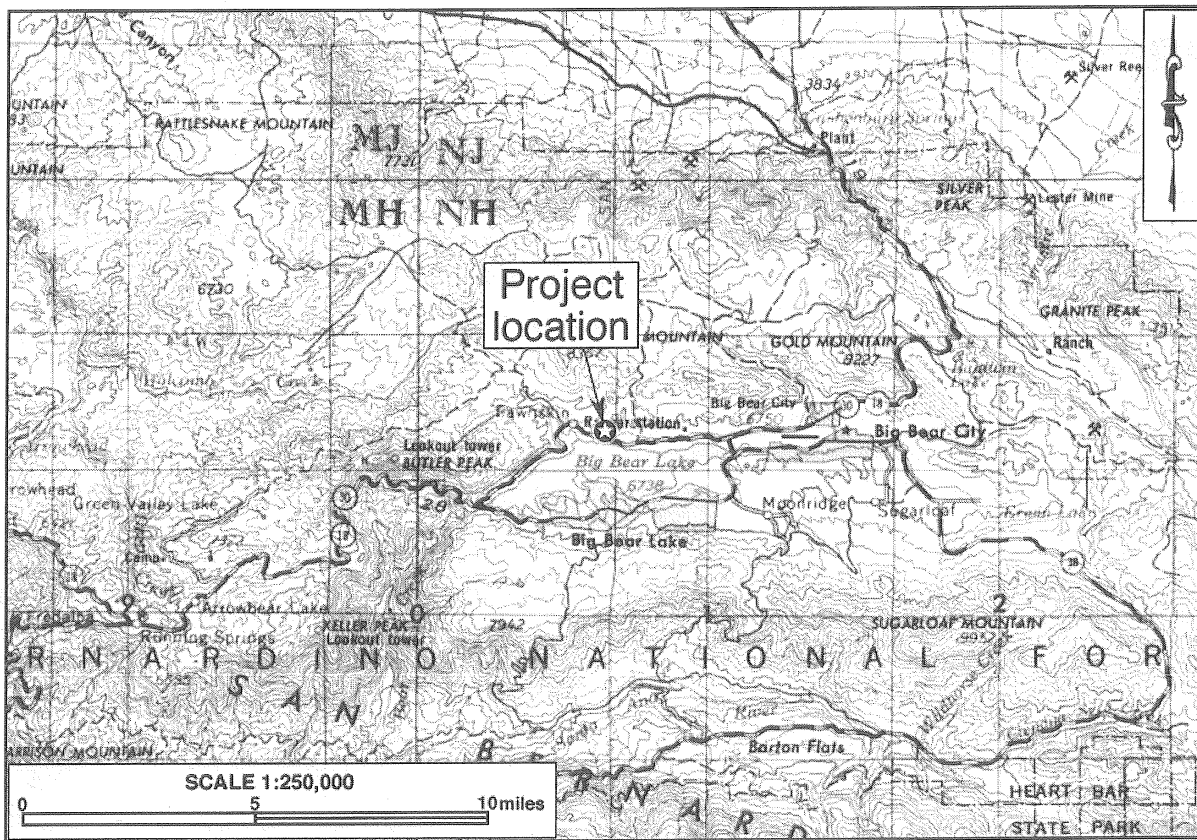


Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., 1:250,000 quadrangle [USGS 1969])



Figure 2. Project area. (Based on USGS Big Bear Lake and Fawnskin, Calif., 1:24,000 quadrangles [USGS 1994a; 1994b])