FIGURE 5 VEGETATION COMMUNITY AND LAND COVER MAP

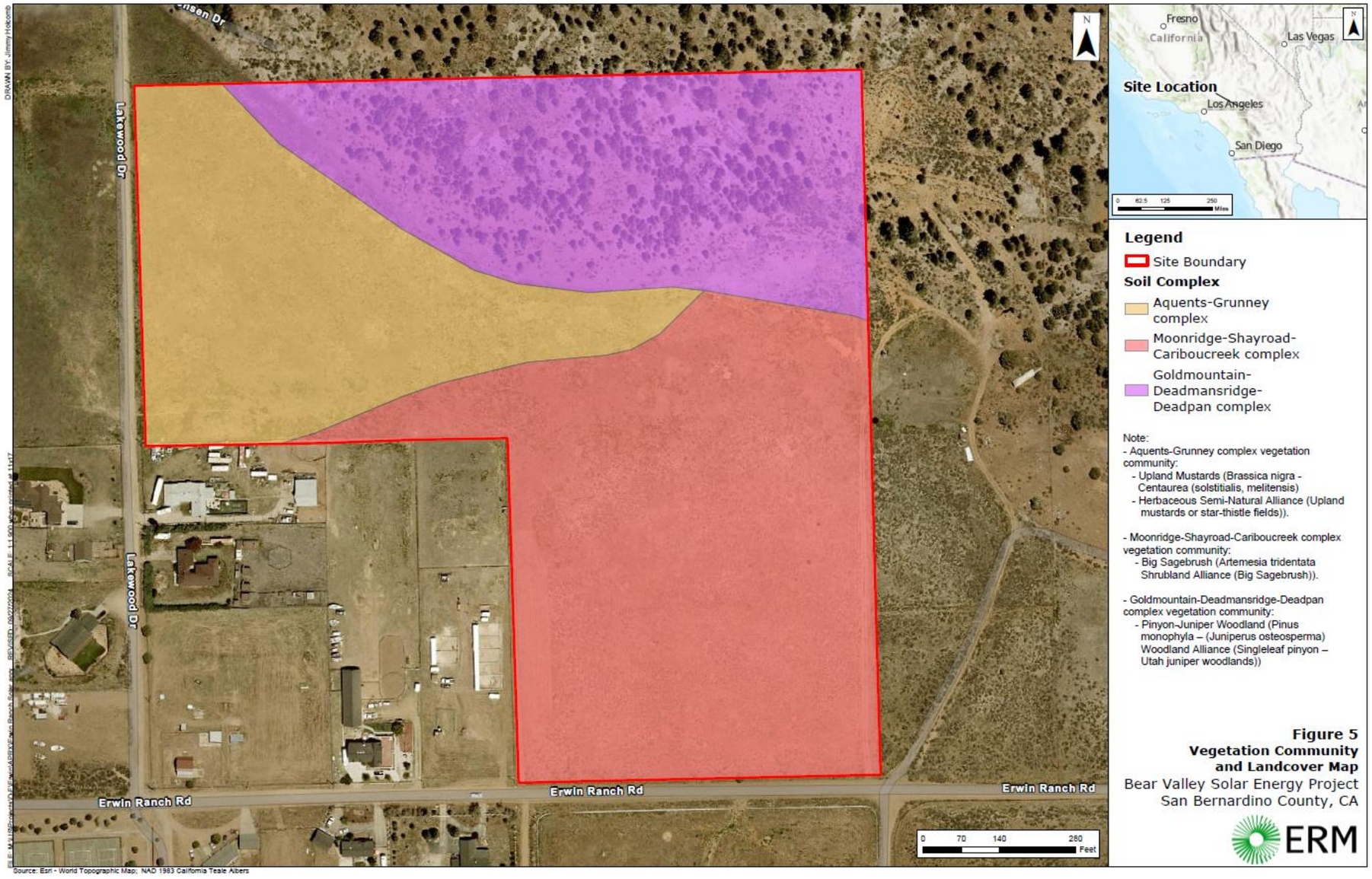


FIGURE 6 SPECIAL STATUS SPECIES RECORDS MAP

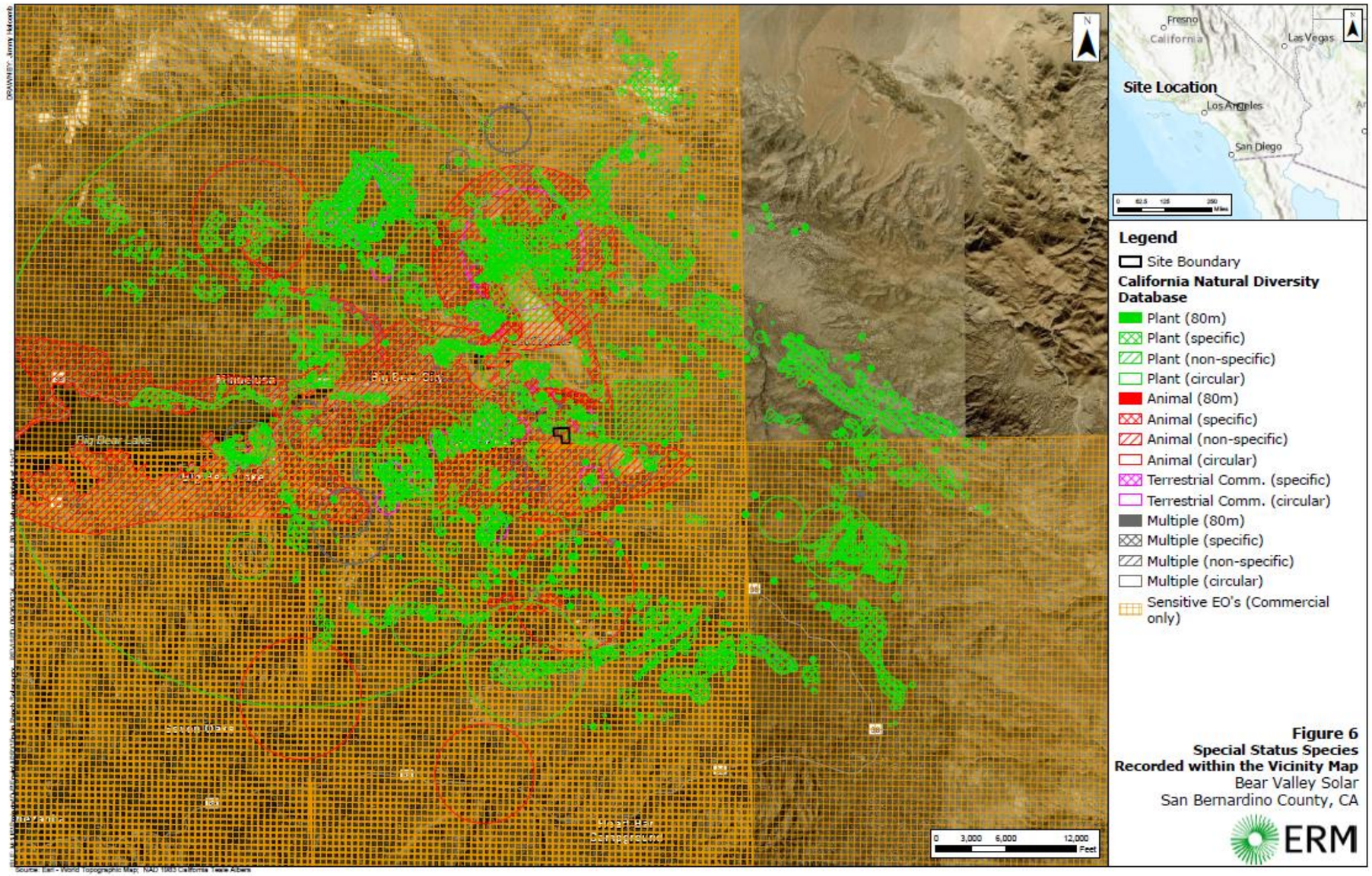
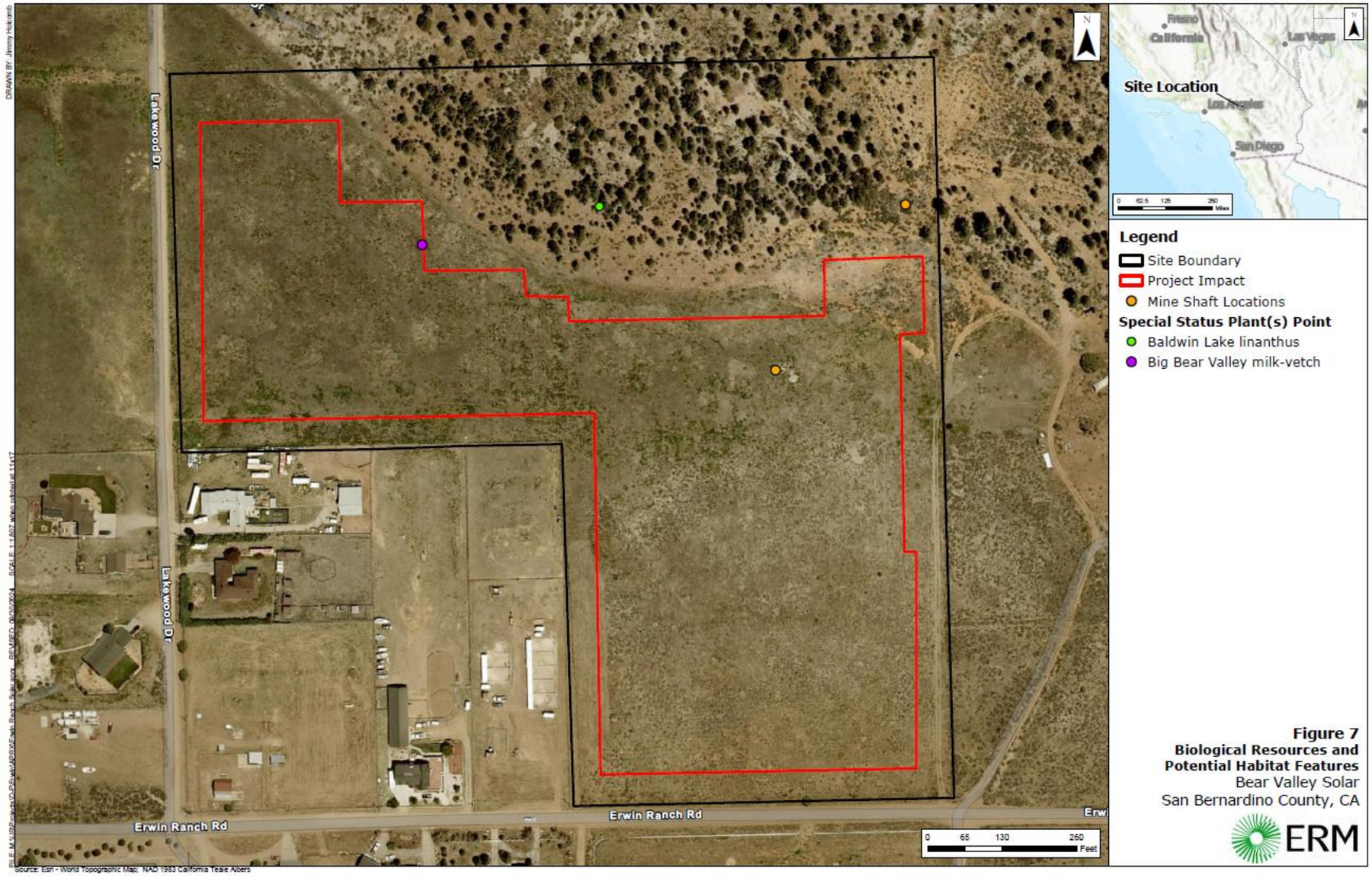


Figure 6
Special Status Species Recorded within the Vicinity Map
Bear Valley Solar
San Bernardino County, CA

FIGURE 7 BIOLOGICAL RESOURCES AND POTENTIAL HABITAT FEATURE



APPENDIX B PHOTOGRAPHS

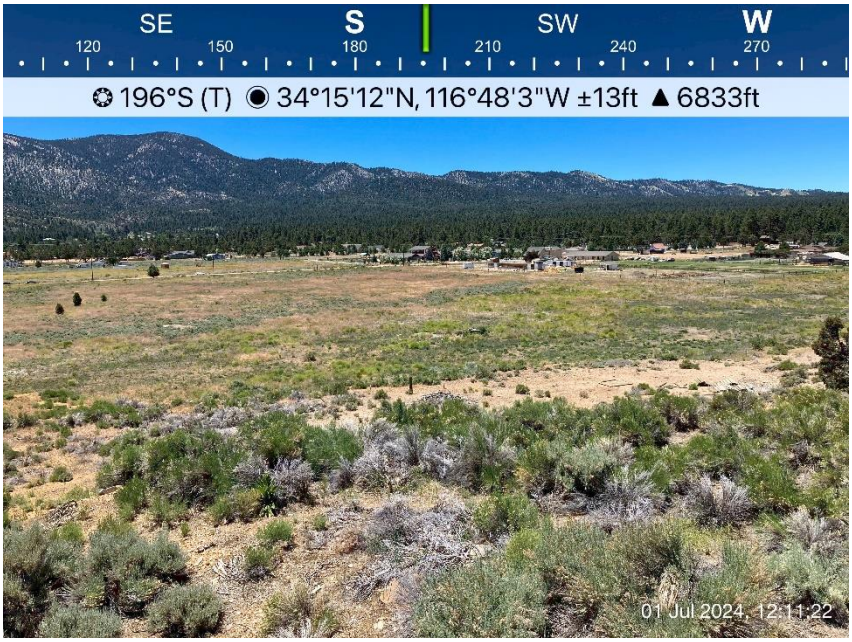


Photo 1. Overview photo of the proposed solar development site taken from the hillside near the northern boundary of the Project Area facing south.

Photo 2. General site overview photo taken from the southeastern area of the site, facing north.

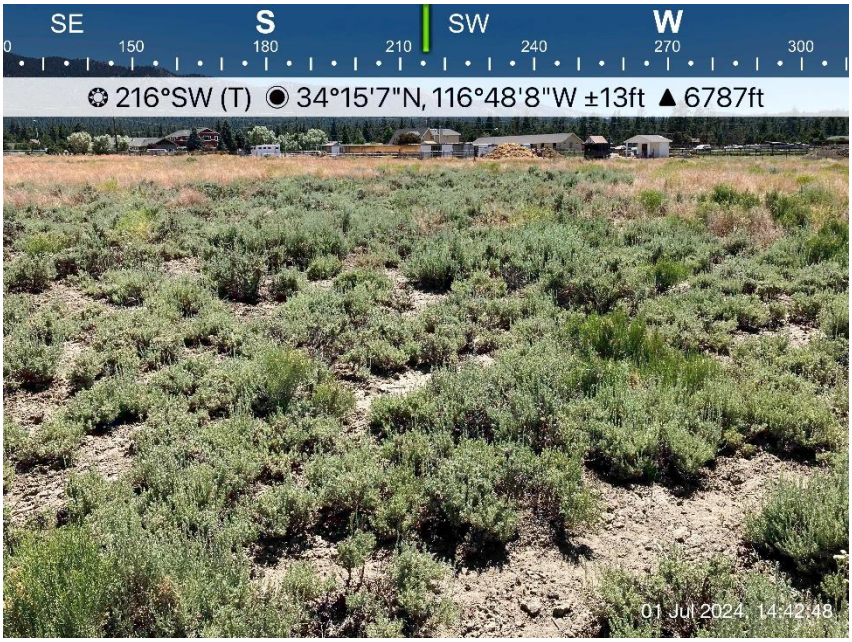


Photo 3. Representative photo of the Big Sagebrush vegetation community with the neighboring equestrian facility in the background facing southwest.

Photo 4. Representative photo of the outer boundary of the Upland Mustard Field vegetation community taken in July 2024, facing east.

Photo 5. Representative photo of the outer boundary of the Upland Mustard Field vegetation community taken in September 2024, facing east.

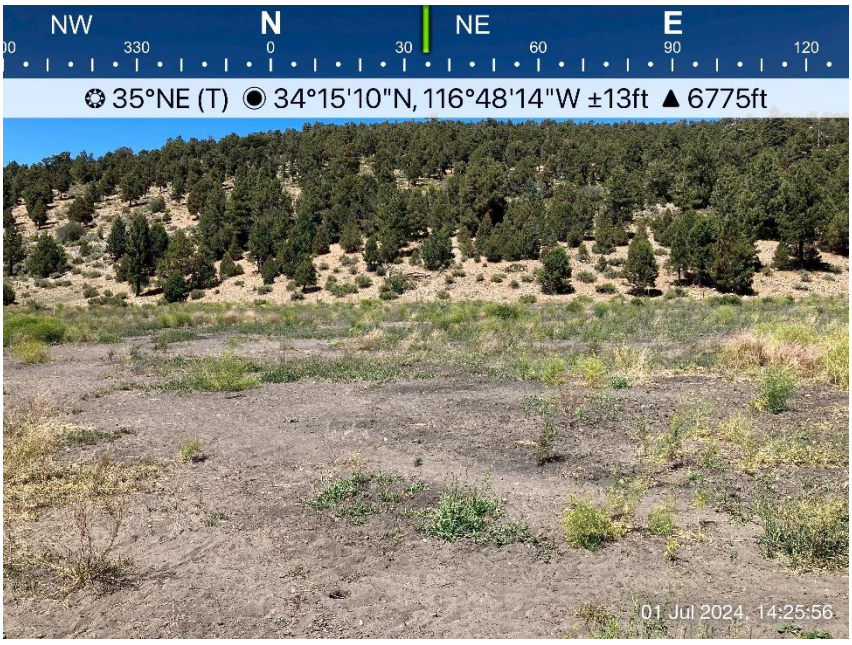


Photo 6. Representative photo of the sparsely vegetated western margin of the Upland Mustard Field vegetation community taken in July 2024, facing northeast.

Photo 7. Representative photo of the sparsely vegetated western margin of the Upland Mustard Field vegetation community inhabited by wild donkeys taken in September 2024, facing west.

Photo 8. Representative photo of the Singleleaf Pinyon – Utah Juniper Woodland on the hillside near the northern boundary of the Project Area, facing north.

Photo 9. Close-up of Big Bear Valley milk vetch (*Astragalus lentiginosus* var. *sierrae*), a CRPR 1B.2 Special Status Plant, facing southeast.

Photo 10. Close-up of desiccated remains of Baldwin Lake linanthus (*Linanthus killpii*), a CRPR 1B.2 Special Status Plant, facing northwest.

Photo 11. Close-up of burrow within the sparsely vegetated area of the Upland Mustard Field, facing southeast.

Photo 12. Close-up of Southern Pacific rattlesnake (*Crotalus oreganus helleri*) within thatch at the base of the Singleleaf Pinyon – Utah Juniper Woodland, facing north.

Photo 13. Abandoned mineshaft containing standing water at a depth of 10 to 15 feet at the time of the field investigation, facing northwest.

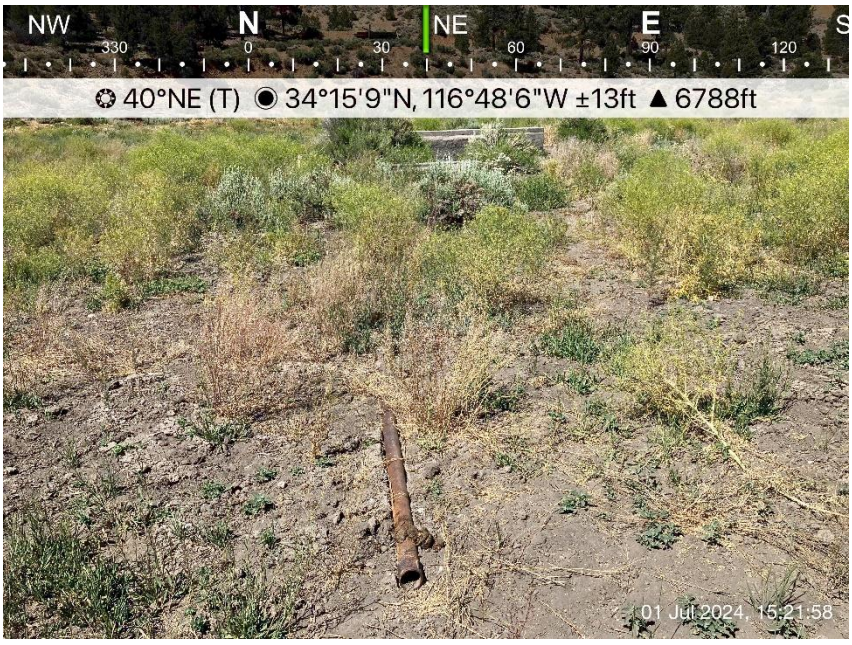


Photo 14. Suspected tailing pipe (foreground) emerging from the abandoned mineshaft (background) in the north central section of the Project Area, facing northeast.

APPENDIX C FLORAL & FAUNAL COMPENDIA

TABLE 4 FLORAL COMPENDIUM

Phylogenetic Category	Family	Scientific Name	Common Name	Lifeform	Native Status
Angiosperms (Eudicots)	Amaranthaceae	*Amaranthus albus*	pigweed amaranth	annual herb	non-native
		Amaranthus biltoides	mat amaranth	annual herb	non-native
	Asteraceae	*Achillea millefolium*	common yarrow	perennial herb	native
		Artemesia ludoviciana	mugwort	perennial herb	native
		Artemesia tridentata	big sagebrush	shrub	native
		Ericameria nauseosa	rubber rabbitbrush	shrub	native
		Gutierrezia sarothrae	broom snakeweed	shrub	native
		Pseudognaphalium canescens	Wright's cudweed	perennial herb	native
		Stephanomeria exigua	small wirelettuce	annual herb	native
		Symphyotrichum spathulatum	western mountain aster	perennial herb	native
	Boraginaceae	*Helitropium curassavicum*	salt heliotrope	perennial herb	native
		Lappula redowskii	stickweed	annual herb	native
	Brassicaceae	*Descurainia sophia*	flix weed	annual herb	non-native
		Sisymbrium altissimum	tall tumble mustard	annual herb	non-native
	Cactaceae	*Echinocereus triglochidiatus mojaviensis*	Mojave kingcup cactus	shrub (stem succulent)	native
		Opuntia polyacantha	plains pricklypear	shrub (stem succulent)	native

Phylogenetic Category	Family	Scientific Name	Common Name	Lifeform	Native Status
	Chenopodiaceae	*Chenopodium berlandieri*	pit seed goosefoot	annual herb	native
		Chenopodium capitatum	strawberry blite	annual herb	non-native
		Krascheninnikovia lanata	winterfat	shrub	native
	Cupressaceae	*Juniperus californica*	California juniper	shrub	native
		Juniperus grandis	sierra juniper	tree	native
	Ephedraceae	*Ephedra viridis*	Mormon tea	shrub	native
	Euphorbiaceae	*Euphorbia albomarginata*	rattlesnake sandmat	perennial herb	native
		Euphorbia lurida	woodland spurge	perennial herb	native
	Fabaceae	*Astragalus lentiginosus* var. *sierrae*	Bear Valley milkvetch	perennial herb	native
		Lupinus excubitus	grape lupine	shrub	native
		Lupinus lepidus	Pacific lupine	perennial herb	native
	Malvaceae	*Malva neglecta*	dwarf mallow	annual, perennial herb	non-native
		Sphaeralcea ambigua	apricot mallow	perennial herb	native
	Namaceae	*Eriodictyon trichocalyx*	hairy yerba santa	shrub	native
	Nyctaginaceae	*Mirabilis laevis*	desert wishbone bush	perennial herb	native
	Onagraceae	*Oenothera californica*	California primrose	perennial herb	native
	Pinaceae	*Pinus jeffreyi*	Jeffrey pine	tree	native
		Pinus monophylla	single leaf pinyon pine	tree	native
	Polemoniaceae	*Linanthus killpii*	Baldwin lake linanthus	annual herb	native

Phylogenetic Category	Family	Scientific Name	Common Name	Lifeform	Native Status
	Polygonaceae	*Eriogonum davidsonii*	Davidson's buckwheat	annual herb	native
	Pteridaceae	*Pellaea mucronata*	birdfoot fern	fern	native
	Rosaceae	*Amelanchier utahensis*	western serviceberry	shrub	native
		Cercocarpus ledifolius	desert mountain mahogany	tree, shrub	native
		Purshia tridentata	antelope bitterbrush	shrub	native
		Rosa woodsii	Woods' rose	shrub	native
	Scophulariaceae	*Verbascum thapsus*	common mullein	perennial herb	non-native
Angiosperms (Monocots)	Iridaceae	*Iris missouriensis*	blue flag iris	perennial herb	native
	Poaceae	*Bromus tectorum*	cheatgrass	annual grass	invasive
		Elymus hispidus	intermediate wheatgrass	perennial grass	non-native
		Elymus repens	quackgrass	perennial grass	non-native
		Poa secunda	one-sided bluegrass	perennial grass	native

TABLE 5 FAUNAL COMPENDIUM

Phylogenetic Category	Scientific Name	Common Name	Native Status
Bird	*Buteo jamaicensis*	Red-tailed hawk	native
	Cathartes aura	Turkey vulture	native
	Calypte anna	Anna's hummingbird	native
	Cyanocitta stelleri	Steller's jay	native
	Gymnorhinus cyanocephalus	Pinyon jay	native
	Haemorhous mexicanus	House finch	native
	Poecile gambeli	Mountain chickadee	native

Phylogenetic Category	Scientific Name	Common Name	Native Status
	Sayornis nigricans	Black phoebe	native
	Stelgidopteryx serripennis	Northern rough-winged swallow	native
	Tachycineta thalassina	Violet-green swallow	native
	Tyrannus vociferans	Cassin's kingbird	native
	Zenaida macroura	Mourning dove	native
Invertebrate	*Heliopetes ericetorum*	Northern white skipper	native
	Vanessa cardui	Painted lady	native
Mammal	*Equus asinus*	Donkey	non-native
	Sciurus griseus	Western gray squirrel	native
	Sylvilagus audubonii	Desert cottontail	native
Reptile	*Crotalus oreganus helleri*	Southern Pacific rattlesnake	native

APPENDIX D SPECIAL-STATUS SPECIES OCCURRENCE POTENTIALS

TABLE 6 SPECIAL-STATUS SPECIES EVALUATED FOR POTENTIAL OCCURRENCE

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Plants						
Abronia nana var. *covillei*	Coville's dwarf abronia	CRPR 4.2	Plant (perennial herb)	Great Basin scrub, Joshua tree "woodland", pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest. Microhabitat: carbonate, sandy. Blooming period: May through August. Elevation: 5,000 to 10,170 feet.	CNDDB, RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. There are 16 records (from 1937 to 2014) of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City) (Calflora 2024, CCH 2024). However, the species was not observed during surveys, which occurred during the blooming period for this species.
Acanthoscyphus parishii var. *cienegensis*	Cienaga Seca oxytheca	CRPR 1B.3	Plant (annual herb)	Joshua tree "woodland", pinyon and juniper woodland, upper montane coniferous forest (granitic, sandy). Blooming period: (May) June through September. Elevation: 6,905 to 8,040 feet.	CNDDB, RPI	**Low Potential.** Pinyon and juniper woodland on site may provide suitable habitat for this species; however, the Project Area is slightly below the elevation range for this species and the nearest known populations are

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						highly localized near Cienega Seca and Coon Creek (Calflora 2024, Jepson eFlora 2024).
Acanthoscyphus parishii var. *goodmaniana*	Cushenbury oxytheca	CRPR 1B.1, FE	Plant (annual herb)	Pinyon and juniper woodland (carbonate, talus). Microhabitat: carbonate, sandy. Blooming period: June through September. Elevation: 4,000 to 7,800 feet.	CNDDB, RPI, IPaC	**Low Potential.** Pinyon-juniper woodland within Project Area may provide suitable habitat for this species. Fifteen CNDDB records (from 1994 to 2019) occur within a 10-mile radius of the site. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Acanthoscyphus parishii var. *parishii*	Parish's oxytheca	CRPR 4.2	Plant (annual herb)	Chaparral, lower montane coniferous forest. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: May through August. Elevation: 4,005 to 8,530 feet.	CNDDB, RPI	**Does Not Occur.** Project Area does not contain suitable habitat (chapparal or lower montane coniferous forest) for this species.
Allium parishii	Parish's onion	CRPR 4.3	Plant (perennial bulbiferous herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: rocky. Blooming period: April through May. Elevation: 2,955 to 5,695 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Androsace elongata ssp. *acuta*	California androsace	CRPR 4.2	Plant (annual herb)	Chaparral, cismontane woodland, coastal scrub, meadows and seeps,	CNDDB, RPI	**Does Not Occur**. Project Area is outside of

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				pinyon and juniper woodland, valley and foothill grassland. Blooming period: March through June. Elevation: 490 to 4,280 feet.		the elevational range for this species.
Antennaria marginata	White-margined everlasting	CRPR 2B.3	Plant (perennial stoloniferous herb)	Lower montane coniferous forest, upper montane coniferous forest. Blooming period: May through August. Elevation: 6,955 to 11,000 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (lower montane coniferous forest and upper montane coniferous forest) for this species absent.
Arctostaphylos parryana ssp. *tumescens*	Interior manzanita	CRPR 4.3	Plant (perennial evergreen shrub)	Chaparral (montane), cismontane woodland. Blooming period: February through April. Elevation: 6,890 to 7,580 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral [montane] and cismontane woodland) for this species absent.
Arenaria lanuginosa var. *saxosa*	Rock sandwort	CRPR 2B.3	Plant (perennial herb)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: mesic, sandy. Blooming period: July to August. Elevation: 4,775 to 8,350 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (subalpine coniferous forest, upper montane coniferous forest) for this species.
Astragalus albens	Cushenbury milk-vetch	CRPR 1B.1, FE	Plant (perennial herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: carbonate (usually), granitic (rarely).	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Blooming Period: March through June. Elevation: 3,595 to 6,560 feet.		
Astragalus bernardinus	San Bernardino milk-vetch	CRPR 1B.2	Plant (perennial herb)	Joshua tree "woodland", pinyon and juniper woodland. Microhabitat: carbonate (often), granitic (often). Blooming Period: April through June. Elevation: 2,955 to 6,560 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Astragalus bicristatus	Crested milk-vetch	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, upper montane coniferous forest. Microhabitat: carbonate (usually), rocky (sometimes), sandy (sometimes). Blooming period: May through August. Elevation: 5,580 to 9,005 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (lower montane coniferous forest, upper montane coniferous forest) for this species.
Astragalus lentiginosus var. *sierrae*	Bear Valley milk-vetch	CRPR 1B.2	Plant (perennial herb)	Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: gravelly (sometimes), rocky (sometimes). Blooming Period: April through August. Elevation: 5,905 to 8,530 feet.	CNDDB, RPI	**Present.** A population comprised of two individuals was observed within the Project Area zone mapped as containing hydric soils during the July 2024 field visit.
Astragalus leucolobus	Big Bear Valley woollypod	CRPR 1B.2	Plant (perennial herb)	Lower montane coniferous forest, pebble (Pavement) plain, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: rocky. Blooming Period: May through July. Elevation: 3,600 to 9,465 feet.	CNDDB, RPI	**Low Potential.** There are 25 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Six CNDDB records occur within a 1-mile radius of the Project

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						Area with the nearest occurrence (2001) documented approximately 0.1 miles northwest. Pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Astragalus tidestromii	Tidestrom's milk-vetch	CRPR 2B.2	Plant (perennial herb)	Mojavean desert scrub. Microhabitat: carbonate, gravelly (sometimes), sandy (sometimes). Blooming Period: (January) April through July. Elevation: 1,970 to 5,855 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Atriplex parishii	Parish's brittlescale	CRPR 1B.1	Plant (annual herb)	Chenopod scrub, playas, vernal pools. Microhabitat: alkaline. Blooming period: June through October. Eleveation: 80 to 6,235 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chenopod scrub, playas, vernal pools, alkaline soils) for this species absent.
Berberis fremontii	Fremont barberry	CRPR 2B.3	Plant (perennial evergreen shrub)	Joshua tree "woodland", pinyon and juniper woodland. Microhabitat: granitic (sometimes), rocky. Blooming period: March through May. Elevation: 3,755 to 5,645 feet.	RPI	**Does Not Occur.** Project Area is outside of the elevational range for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Boechera dispar	Pinyon rock cress	CRPR 2B.3	Plant (perennial herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: granitic, gravelly. Blooming period: March through June. Elevation: 3,935 to 8,335 feet.	CNDDB, RPI	**Moderate Potential.** There are 14 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). One CNDDB record occurs within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.8 miles southeast. Gravelly areas within the pinyon and juniper woodland on site may provide suitable habitat.
Boechera lincolnensis	Lincoln rockcress	CRPR 2B.3	Plant (perennial herb)	Chenopod scrub, Mojavean desert scrub. Microhabitat: carbonate. Blooming period: March through May. Elevation: 3,610 to 8,875 feet.	RPI	**Low Potential.** Suitable habitat (chenopod scrub, Mojavean desert scrub) for this species absent. While CNDDB considers this species presumed extant, the last CNDDB occurrence record was documented in 1928.
Boechera parishii	Parish's rock cress	CRPR 1B.2	Plant (perennial herb)	Pebble (Pavement) plain, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: quartzite on clay, carbonate (sometimes), rocky. Blooming Period: April through	CNDDB, RPI	**High Potential.** There are 7 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Four CNDDB records occur within a 1-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				May. Elevation: 5,805 to 9,810 feet.		mile radius of the Project Area with the nearest specific area occurrence (2012) overlapping the eastern section of the Project Area. Rocky areas within the big sagebrush shrubland – pinyon and juniper woodland ecotone on site may provide suitable habitat.
Boechera peirsonii	San Bernardino rock cress	CRPR 1B.2	Plant (perennial herb)	Subalpine coniferous forest (rocky). Blooming period: March through August. Elevation: 8,860 to 10,500 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Boechera shockleyi	Shockley's rock cress	CRPR 2B.2	Plant (perennial herb)	Pinyon and juniper woodland (carbonate, gravelly, quartzite, rocky). Blooming Period: May through June. Elevation: 2,870 to 7,580 feet.	CNDDB, RPI	**Low Potential.** One CNDDB record occurs approximately 1.2 miles west of Project Area. Pinyon and juniper woodland on site may provide suitable habitat.
Botrychium crenulatum	Scalloped moonwort	CRPR 2B.2	Plant (perennial rhizomatous herb)	Bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps (freshwater), upper montane coniferous forest. Blooming period: June through September. Elevation: 4,160 to 10,760 feet.	RPI	**Low Potential.** Aside for the hydric soils in the northwestern portion of the Project Area, this site does not contain suitable habitat (bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps (freshwater), upper montane

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						coniferous forest) for this species.
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	CRPR 1B.2	Plant (perennial bulbiferous herb)	Chaparral, lower montane coniferous forest, meadows and seeps. Microhabitat: mesic. Blooming Period: April through July. Elevation: 2,330 to 7,840 feet.	CNDDB, RPI	**Low Potential.** Project Area does not contain suitable habitat (chaparral, lower montane coniferous forest, meadows and seeps) for this species.
Calochortus plummerae	Plummer's mariposa lily	CRPR 4.2	Plant (perennial bulbiferous herb)	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Microhabitat: granitic, rocky. Blooming Period: May through July. Elevation: 330 to 5,580 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland) for this species absent.
Calochortus striatus	Alkali mariposa lily	CRPR 1B.2	Plant (perennial bulbiferous herb)	Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps. Microhabitat: alkaline, mesic. Blooming period: April through June. Elevation: 230 to 5,235 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps) for this species absent.
Calyptridium pygmaeum	Pygymy pussypaws	CRPR 1B.2	Plant (annual herb)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: gravelly	CNDDB, RPI	**Does Not Occur.** Project Area does not contain suitable habitat

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				(sometimes), sandy (sometimes). Blooming Period: June through August. Elevation: 6,495 to 10,205 feet.		(subalpine coniferous forest, upper montane coniferous forest) for this species.
Camissonia integrifolia	Kern River evening primrose	CRPR 1B.3	Plant (annual herb)	Chaparral, Mojavean desert scrub. Toeslopes and terraces along drainages. Microhabitat: openings, sandy. Blooming period: (April) May. Elevation: 2,295 to 3,935 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral, chenopod scrub, Mojavean desert scrub, toeslopes and terraces along drainages) for this species absent.
Canbya candida	White pygmy poppy	CRPR 4.2	Plant (annual herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: granitic, gravelly, sandy. Blooming period: March through June. Elevation: 1,970 to 4,790 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Carex occidentalis	Western sedge	CRPR 2B.3	Plant (perennial rhizomatous herb)	Lower montane coniferous forest, meadows and seeps. Blooming period: June through August. Elevation: 5,395 to 10,285 feet.	RPI	**Absent.** Although the Project Area contains suitable habitat (hydric soils) for this species, no hydrophytic graminoids were detected during the site visit.
Carex scirpoidea ssp. *pseudoscirpoidea*	Western single-spiked sedge	CRPR 2B.2	Plant (perennial rhizomatous herb)	Alpine boulder and rock field, meadows and seeps, subalpine coniferous forest (rocky). Microhabitat: carbonate (often),	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				mesic. Blooming period: July through September. Elevation: 9,810 to 12,140 feet.		
Castilleja cinerea	Ash-gray Indian paintbrush	CRPR 1B.2, FT	Plant (perennial hemi-parasitic herb)	Mojavean desert scrub, meadows and seeps, pebble (pavement) plain, pinyon and juniper woodland, upper montane coniferous forest (clay, openings). Blooming period: June through August. Elevation: 5,905 to 9,710 feet.	CNDDB, RPI, IPaC	**Low Potential.** There are 14 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Eight CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.3 miles northeast. Rocky areas within the pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Castilleja lasiorhyncha	San Bernardino Mountains owl's clover	CRPR 1B.2	Plant (annual hemi-parasitic herb)	Chaparral, meadows and seeps, pebble (pavement) plain, riparian woodland, upper montane coniferous forest. Microhabitat: mesic. Blooming period: May through August. Elevation: 4,265 to 7,840 feet.	CNDDB, RPI	**Low Potential.** There are 5 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Two CNDDB records occur within a 1-mile radius of the Project Area with the nearest

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						occurrence (1982) documented approximately 0.3 miles southwest. Open areas along the upland mustard-pinyon and juniper woodland ecotone on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Castilleja montigena	Heckard's paintbrush	CRPR 4.2	Plant (perennial hemi-parasitic herb)	Lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest. Blooming period: May through August. Elevation: 6,400 to 9,185 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within Project Area may provide suitable habitat for this species. There are three records (2019-2021) approximately 2.3 miles south of the site (Calflora 2024, CCH 2024). However, the species was not observed during surveys, which occurred during the blooming period for this species.
Castilleja plagiotoma	Mojave paintbrush	CRPR 4.3	Plant (perennial hemi-parasitic herb)	Great Basin scrub (alluvial), Joshua tree "woodland", lower montane coniferous forest, pinyon and juniper woodland. Blooming period: April through June. Elevation: 985 to 8,205 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. There is one record (Calflora

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						2024) of this species occurring within the Big Bear City USGS 7.5-minute quadrangle.
Chorizanthe spinosa	Mojave spineflower	CRPR 4.2	Plant (annual herb)	Chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, playas. Microhabitat: alkaline (sometimes). Blooming period: March through July. Elevation: 20 to 4,265 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, playas) for this species absent.
Chorizanthe xanti var. *leucotheca*	White-bracted spineflower	CRPR 1B.2	Plant (annual herb)	Coastal scrub (alluvial fans), Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: April through June. Elevation: 985 to 3,935 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Claytonia peirsonii ssp. *bernardinus*	San Bernardino spring beauty	CRPR 1B.1	Plant (perennial herb)	Pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: carbonate, openings (usually), rocky, talus. Blooming Period: March through April. Elevation: 7,745 to 8,090 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Claytonia peirsonii ssp. *californacis*	Furnace spring beauty	CRPR 1B.1	Plant (perennial herb)	Pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: carbonate, openings (usually), rocky, talus. Blooming	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Period: March through May. Elevation: 7,545 feet.		
Cleomella brevipes	Short-pedicelled cleomella	CRPR 4.2	Plant (annual herb)	Meadows and seeps, marshes and swamps, playas. Microhabitat: alkaline. Blooming period: May through October. Elevation: 1,295 to 7,200 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (meadows and seeps, marshes and swamps, playas) for this species.
Cordylanthus eremicus ssp. *eremicus*	Desert bird's-beak	CRPR 4.3	Plant (annual hemi-parasitic herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Blooming period: July through October. Elevation: 3,280 to 9,845 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. The nearest record (1998) occurs approximately 5.3 miles northeast of the site (Calflora 2024, CCH 2024).
Cymopterus multinervatus	Purple-nerve cymopterus	CRPR 2B.2	Plant (perennial herb)	Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: March through April. Elevation: 2,590 to 5,905 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Delphinium parryi ssp. *purpureum*	Mt. Pinos larkspur	CRPR 4.3	Plant (perennial herb)	Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Blooming period: May through June. Elevation: 3,280 to 8,530 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. However, the nearest record (1927), which occurred

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						approximately 6.9 miles west of the site, is 97 years old, suggesting the likelihood of this species occurring on site is low.
Diplacus johnstonii	Johnston's monkey-flower	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest (disturbed areas, gravelly, roadsides, rocky, scree). Blooming period: May through August. Elevation: 3,200 to 9,580 feet.	RPI	**Low Potential.** Pinyon-juniper woodland around the mining disturbance within the Project Area may provide suitable habitat for this species. The nearest record (2011) occurred 10.1 miles northwest of the site (Calflora 2024, CCH 2024).
Diplacus mohavensis	Mojave mokey-flower	CRPR 1B.2	Plant (annual herb)	Joshua tree "woodland", Mojavean desert scrub. Microhabitat: gravelly (sometimes), sandy (sometimes), washes (often). Blooming period: April through June. Elevation: 1,970 to 3,935 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Drymocallis cuneifolia var. *cuneifolia*	Wedgeleaf woodbeauty	CRPR 1B.1	Plant (perennial herb)	Riparian scrub, upper montane coniferous forest. Microhabitat: carbonate (sometimes). Blooming period: June through August. Elevation: 5,905 to 7,925 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (riparian scrub, upper montane coniferous forest) for this species.
Dryopteris filix-mas	Male fern	CRPR 2B.3	Plant (perennial	Upper montane coniferous forest (granitic, rocky). Blooming period:	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
			rhizomatous herb)	July through September. Elevation: 7,875 to 10,170 feet.		species. Suitable habitat (upper montane coniferous forest) for this species absent.
Dudleya abramsii ssp. affinis	San Bernardino Mountains live-forever	CRPR 1B.2	Plant (perennial fern)	Pebble (Pavement) plain, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: quartzite (sometimes), carbonate (sometimes), granitic (sometimes). Blooming period: April through June. Elevation: 4,100 to 8,530 feet.	CNDDB, RPI	**High Potential.** There are 18 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.25 miles east. South facing slopes within the pinyon and juniper woodland on site may provide suitable habitat.
Elymus salina	Salina Pass wild-rye	CRPR 2B.3	Plant (perennial grass)	Pinyon and juniper woodland (rocky). Blooming period: May through June. Elevation: 4,430 to 7,005 feet.	RPI	**Does Not Occur.** Project Area is outside the Jepson geographic range (Desert Mountains) for this species.
Eremogone ursina	Big Bear Valley sandwort	CRPR 1B.2, FT	Plant (perennial herb)	Meadows and seeps, pebble (pavement) plain, pinyon and juniper woodland. Microhabitat: mesic, rocky. Blooming period: May through August. Elevation: 5,905 to 9,515 feet.	CNDDB, RPI, IPaC	**Low Potential.** There are 9 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Four CNDDB records occur within a 1-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.2 miles northeast within USFWS final critical habitat for this species. The most recent occurrence (2021) documented approximately 0.6 miles west. Pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Eremothera boothii ssp. *boothii*	Booth's evening primrose	CRPR 2B.3	Plant (annual herb)	Joshua tree "woodland", pinyon and juniper woodland. Blooming period: April through September. Elevation: 2,675 to 7,875 feet.	RPI	**Does Not Occur.** Project Area is outside the Jepson geographic range (East of Sierra Nevada, White and Inyo Mountains) for this species.
Erigeron breweri var. *jacinteus*	San Jacinto Mountains daisy	CRPR 4.3	Plant (perennial rhizomatous herb)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: rocky. Blooming period: June through September. Elevation: 8,860 to 9,515 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (subalpine coniferous forest, upper montane coniferous forest) for this species absent.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Erigeron parishii	Parish's fleabane	CRPR 1B.1, FT	Plant (perennial herb)	Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: carbonate (usually), granitic (sometimes). Blooming period: May through August. Elevation: 2,625 to 6,560 feet.	CNDDB, RPI, IPaC	**Low Potential**. Although the Project Area is just over 200 feet outside of the elevational range for this species, there are 7 CNDDB records (1988-2014) within a 5-mile radius of the site.
Eriogonum evanidum	Vanishing wild buckwheat	CRPR 1B.1	Plant (annual herb)	Chaparral, cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: July through October. Elevation: 3,610 to 7,300 feet.	CNDDB, RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. Four CNDDB records (1929 to 2008) occur within a 10-mile radius of the Project Area. However, the nearest occurrence approximately 1.4 miles west of site was recorded in 1929. Thus, the probability of this species occurring on site is low.
Eriogonum kennedyi var. *alpigenum*	Southern alpine buckwheat	CRPR 1B.3	Plant (perennial herb)	Alpine boulder and rock field, subalpine coniferous forest. Microhabitat: granitic, gravelly. Blooming period: July through September. Elevation: 8,530 to 11,485 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Eriogonum kennedyi var. *austromontanum*	Southern mountain buckwheat	CRPR 1B.2, FT	Plant (perennial herb)	Lower montane coniferous forest (gravelly), pebble (pavement) plain. Blooming period: June	CNDDB, RPI, IPaC	**Low Potential.** There are 9 CNDDB records of this species within the Project Area's USGS 7.5-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				through September. Elevation: 5,805 to 9,480 feet.		minute quadrangle (Big Bear City). Five CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2008) documented approximately 0.2 miles northeast. Gravelly soils on the periphery of the pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Eriogonum microthecum var. *johnstonii*	Johnston's buckwheat	CRPR 1B.3	Plant (perennial deciduous shrub)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: rocky. Blooming period: July through September. Elevation: 6,000 to 9,600 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (subalpine coniferous forest, upper montane coniferous forest) for this species.
Eriogonum microthecum var. *lacus-ursi*	Bear Lake buckwheat	CRPR 1B.1	Plant (perennial shrub)	Great Basin scrub, lower montane coniferous forest. Microhabitat: clay outcrops, clay. Blooming period: July through August. Elevation: 6,560 to 6,890 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (Great Basin scrub, lower montane coniferous forest, clay outcrops, clay soils) for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Eriogonum microthecum var. *lapidicola*	Inyo Mountains buckwheat	CRPR 4.3	Plant (perennial deciduous shrub)	Pinyon and juniper woodland, subalpine coniferous forest. Microhabitat: carbonate, rocky. Blooming period: July through September. Elevation: 8,530 to 10,170 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Eriogonum ovalifolium var. *vineum*	Cushenbury buckwheat	CRPR 1B.1, FE	Plant (perennial herb)	Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: carbonate. Blooming period: May through August. Elevation: 4,595 to 8,005 feet.	CNDDB, RPI, IPaC	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. Ten CNDDB records (1979 to 2021) occur within a 5-mile radius of the Project Area, with the nearest occurrence approximately 2.6 miles northeast. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Eriogonum umbellatum var. *minus*	Alpine sulfur-flowered buckwheat	CRPR 4.3	Plant (perennial herb)	Subalpine coniferous forest, upper montane coniferous forest. Microhabitat: gravelly. Blooming period: June through September. Elevation: 5,905 to 10,065 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (subalpine coniferous forest, upper montane coniferous forest) for this species.
Eriophyllum lanatum var. *obovatum*	Southern Sierra woolly sunflower	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, upper montane coniferous forest. Microhabitat: loam, sandy. Blooming period: June through	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (lower montane coniferous

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				July. Elevation: 3,655 to 8,205 feet.		forest, upper montane coniferous forest) for this species.
Erythranthe exigua	San Bernardino Mountains monkey-flower	CRPR 1B.2	Plant (annual herb)	Meadows and seeps, pebble (pavement) plain, upper montane coniferous forest. Microhabitat: clay, mesic. Blooming period: May through July. Elevation: 5,905 to 7,595 feet.	CNDDB, RPI	**Does Not Occur.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area. Two occurrences documented in 1980 observed approximately 0.4 miles north and southwest; however, not observed in subsequent surveys. The nearest recent occurrence (2000) occurred 0.7 miles west. Suitable substrate is not present.
Erythranthe purpurea	Little purple monkey-flower	CRPR 1B.2	Plant (annual herb)	Meadows and seeps, pebble (pavement) plain, upper montane coniferous forest. Blooming Period: May through June. Elevation: 6,235 to 7,545 feet.	CNDDB, RPI	**Does Not Occur.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). One CNDDB record occurs within a 1-mile radius of the Project Area with the nearest occurrence (1980) approximately 0.4 miles southwest. The Project

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						site is east of all but one record for the species and meadow/ seep, pebble (pavement) plain, upper montane coniferous forest habitat is absent.
Euphorbia platysperma	Flat-seeded spurge	CRPR 1B.2	Plant (annual herb)	Desert dunes, Sonoran desert scrub (sandy). Blooming period: February through September. Elevation: 215 to 330 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and Jepson geographic range (Sonoran Desert) for this species.
Frasera neglecta	Pine green gentian	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest. Blooming period: May through July. Elevation: 4,595 to 8,205 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. The nearest recent record (2017) occurs approximately 3.1 miles northwest of the site (Calflora 2024).
Fritillaria pinetorum	Pine fritillary	CRPR 4.3	Plant (perennial bulbiferous herb)	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest. Microhabitat: granitic (sometimes), metamorphic (sometimes). Blooming period: May through July (September). Elevation: 5,695 to 10,825 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within the Project Area may provide suitable habitat for this species. The nearest record (2020) occurs approximately 1.5 miles southwest of the site (Calflora 2024, CCH 2024).

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Funastrum utahense	Utah vine milkweed	CRPR 4.2	Plant (perennial herb)	Mojavean desert scrub, Sonoran desert scrub. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: (March) April through June (September to October). Elevation: 330 to 4,710 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and Jepson geographic range (Desert Mountains, Mojave Desert, Sonoran Desert) for this species.
Galium angustifolium ssp. *gabrielense*	San Antonio Canyon bedstraw	CRPR 4.3	Plant (perennial herb)	Chaparral, lower montane coniferous forest. Microhabitat: granitic, rocky (sometimes), sandy (sometimes). Blooming period: April through August. Elevation: 3,935 to 8,695 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (chaparral, lower montane coniferous forest) for this species.
Galium angustifolium ssp. *gracillimum*	Slender bedstraw	CRPR 4.2	Plant (perennial herb)	Joshua tree "woodland", Sonoran desert scrub. Microhabitat: granitic, rocky. Blooming period: April through June (July). Elevation: 425 to 5,085 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Galium jepsonii	Jepson's bedstraw	CRPR 4.3	Plant (perennial rhizomatous herb)	Lower montane coniferous forest, upper montane coniferous forest. Microhabitat: granitic, gravelly (sometimes), rocky (sometimes). Blooming period: July through August. Elevation: 5,055 to 8,205 feet.	RPI	**Does Not Occur.** Project Area does not contain suitable habitat (lower montane coniferous forest, upper montane coniferous forest) for this species.
Galium johnstonii	Johnston's bedstraw	CRPR 4.3	Plant (perennial herb)	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, riparian woodland. Blooming period: June through July. Elevation: 4,005 to 7,545 feet.	RPI	**Low Potential.** Pinyon-juniper woodland within Project Area may provide suitable habitat for this species. The nearest record (2006) occurs approximately 2.7 miles

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						southwest of the site (Calflora 2024, CCH 2024).
Gentiana fremontii	Fremont's gentian	CRPR 2B.3	Plant (annual herb)	Meadows and seeps (mesic), upper montane coniferous forest. Blooming period: June through August. Elevation: 7,875 to 8,860 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Gilia leptantha ssp. *leptantha*	Fine flower gilia	CRPR 1B.3	Plant (annual herb)	Lower montane coniferous forest (gravelly, sandy). Blooming period: June through August. Elevation: 4,920 to 8,400.	CNDDB, RPI	**Does Not Occur.** Project Area does not provide suitable habitat (gravelly, sandy lower montane coniferous forest) for this species.
Gilia leptantha ssp. *pinetorum*	Pine gilia	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest (rocky, sandy). Blooming period: May through July. Elevation: 4,920 to 9,185 feet.	RPI	**Does Not Occur.** Project Area does not provide suitable habitat (rocky, sandy lower montane coniferous forest) for this species. Only one quadrangle level record for this species in Moonridge USGS 7.5-minute quadrangle (CalFlora 2024).
Heuchera caespitosa	Urn-flowered alumroot	CRPR 4.3	Plant (perennial rhizomatous herb)	Cismontane woodland, lower montane coniferous forest, riparian forest (montane), upper montane coniferous forest. Microhabitat: rocky. Blooming period: May through August. Elevation: 3,790 to 8,695 feet.	RPI	**Does Not Occur.** Project Area does not provide suitable habitat (cismontane woodland, lower montane coniferous forest, riparian forest (montane), upper

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						montane coniferous forest) for this species. Only one quadrangle level record for this species in Moonridge USGS 7.5-minute quadrangle (CalFlora 2024).
Heuchera parishii	Parish's alumroot	CRPR 1B.3	Plant (perennial herb)	Alpine boulder and rock field, lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest. Blooming period: June through August. Elevation: 4,920 to 12,470 feet.	CNDDB, RPI	**Does Not Occur**. Project Area does not provide suitable habitat (alpine boulder and rock field, lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest) for this species.
Horkelia wilderae	Barton Flats horkelia	CRPR 1B.1	Plant (perennial herb)	Chaparral (edges), lower montane coniferous forest, upper montane coniferous forest. Blooming period: May through September. Elevation: 5,495 to 9,595 feet.	RPI	**Does Not Occur.** Project Area does not provide suitable habitat (chapparal, lower montane coniferous forest, upper montane coniferous forest) for this species. The nearest CNDDB record (2009) is approximately 6.4 miles southwest.
Hulsea vestita ssp. *parryi*	Parry's sunflower	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest. Microhabitat: carbonate (sometimes), granitic	RPI	**Low Potential.** Pinyon-juniper woodlands in Project Area may provide suitable habitat for this species. However, the

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				(sometimes), openings, rocky. Blooming period: April through August. Elevation: 4,495 through 9,500 feet.		nearest record (2006) is approximately 2.7 miles southwest (CalFlora 2024, CCH 2024).
Hulsea vestita ssp. *pygmaea*	Pygmy hulsea	CRPR 1B.3	Plant (perennial herb)	Alpine boulder and rock field, subalpine coniferous forest. Microhabitat: granitic, gravelly. Blooming period: June through October. Elevation: 9,300 to 12,795 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and suitable habitat (alpine boulder and rock field, subalpine coniferous forest) does not occur for this species.
Ivesia argyrocoma var. *argyrocoma*	Silver-haired ivesia	CRPR 1B.2	Plant (perennial herb)	Meadows and seeps (alkaline), pebble (pavement) plain, upper montane coniferous forest. Blooming period: June through August. Elevation: 4,800 to 9,710 feet.	CNDDB, RPI	**Does Not Occur.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Six CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2008) approximately 0.3 miles northeast. Alkaline meadow/ seep, pebble (pavement) plain, upper montane coniferous forest habitat is absent.
Johnstonella holoptera	Winged cryptantha	CRPR 4.3	Plant (annual herb)	Mojavean desert scrub, Sonoran desert scrub. Blooming period: March through April. Elevation: 330 to 5,545 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and does not include suitable habitat (Mojavean desert

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						scrub, Sonoran desert scrub) for this species.
Juncus duranii	Duran's rush	CRPR 4.3	Plant (perennial rhizomatous herb)	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Microhabitat: mesic. Blooming period: July through August. Elevation: 5,800 to 9,200 feet.	RPI	**Low Potential.** Hydric soil associated with seep on site may provide suitable habitat for this species. However, the nearest records (2016) occur in the southern section of the Big Bear Lake USGS 7.5-minute quadrangle, approximately 9.1 miles southwest of site (CalFlora 2024, CCH 2024). Thus, the probability for this species to occur is unlikely.
Lewisia brachycalyx	Short-sepaled lewisia	CRPR 2B.2	Plant (perennial herb)	Lower montane coniferous forest, meadows and seeps. Microhabitat: mesic. Blooming Period: (February) April through June (July). Elevation: 4,495 to 7,545 feet.	CNDDB, RPI	**Low Potential.** Hydric soil associated with seep on site may provide suitable habitat for this species. However, the nearest CNDDB record (1981) occurs approximately 1.8 miles northwest of Project Area and consists of a single individual (CalFlora 2024, CCH 2024). Thus, the probability for this species to occur is unlikely.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Lilium humboldtii ssp. *ocellatum*	Ocellated Humboldt lily	CRPR 4.2	Plant (perennial bulbiferous herb)	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland. Microhabitat: openings. Blooming period: March through July (August). Elevation: 100 to 5,905 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and does not include suitable habitat (chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland) for this species.
Lilium parryi	Lemon lily	CRPR 1B.2	Plant (perennial herb)	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest. Microhabitat: mesic. Blooming period: July through August. Elevation: 4,005 to 9,005 feet.	CNDDB, RPI	**Low Potential.** Hydric soil associated with seep on site may provide suitable habitat for this species. However, the nearest CNDDB record (2014) occurs approximately 2.3 miles south of Project Area and consists of a single individual. Thus, the probability for this species to occur is unlikely.
Linanthus killpii	Baldwin Lake linanthus	CRPR 1B.2	Plant (annual herb)	Joshua tree "woodland", meadows and seeps (alkaline), pebble (pavement) plain, pinyon and juniper woodland. Blooming period: May through July. Elevation: 5,580 to 7,875 feet.	CNDDB, RPI	**Present.** A population comprised of eight desiccated individuals was observed within the Project Area during the September 2024 field visit. Although the field survey was conducted outside the blooming period, surveyors were

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						able to identify the remains of the fruiting structures.
Linanthus maculatus ssp. *maculatus*	Little San Bernardino Mountains linanthus	CRPR 1B.2	Plant (annual herb)	Desert dunes, Joshua tree "woodland", Mojavean desert scrub, Sonoran desert scrub. Microhabitat: sandy. Blooming period: March through May. Elevation: 460 to 4,005 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and does not include suitable habitat (desert dunes, Joshua tree "woodland", Mojavean desert scrub, Sonoran desert scrub) for this species.
Malaxis monophyllos var. *brachypoda*	White bog adder's-mouth	CRPR 2B.1	Plant (perennial bulbiferous herb)	Bogs and fens, meadows and seeps, upper montane coniferous forest. Microhabitat: mesic. Blooming period: June through August. Elevation: 7,220 to 9,000 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Furthermore, seeps within the Project Area are marginal and would doubtfully support this species.
Mentzelia tridentata	Creamy blazing star	CRPR 1B.3	Plant (annual herb)	Mojavean desert scrub. Microhabitat: gravelly, rocky, sandy. Blooming period: March through May. Elevation: 2,295 to 3,855 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (Mojavean desert scrub) not present on site.
Monardella exilis	Mojave monardella	CRPR 4.2	Plant (annual herb)	Chenopod scrub, desert dunes, Great Basin scrub, Joshua tree "woodland", lower montane coniferous forest, Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: sandy.	RPI	**Does Not Occur**. Project Area is slightly above the elevation range for this species. Although the site contains pinyon-juniper woodland, the nearest

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Blooming period: April through September. Elevation: 1,970 to 6,725 feet.		documented occurrence (1927) is approximately 10 miles northwest in the Mojave Desert Region (CalFlora 2024, CCH 2024).
Muilla coronata	Crowned muilla	CRPR 4.2	Plant (perennial bulbiferous herb)	Chenopod scrub, Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland. Blooming period: March through April (May). Elevation: 2,200 to 6,430 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Myosurus minimus ssp. *apus*	Little mousetail	CRPR 3.1	Plant (annual herb)	Valley and foothill grassland, vernal pools (alkaline). Blooming period: March through June. Elevation: 65 to 2,100 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Navarretia peninsularis	Baja navarretia	CRPR 1B.2	Plant (annual herb)	Chaparral (openings), lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland. Microhabitat: mesic. Blooming period: (May) June through August. Elevation: 4,920 to 7,545 feet.	CNDDB, RPI	**Moderate Potential.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Two CNDDB records occurs within a 2-mile radius of the Project Area with the nearest occurrence (2010) documented approximately 1.7 miles southwest. Hydric soils and the pinyon and juniper woodland on site

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						may provide suitable habitat for this species.
Nemacladus gracilis	Slender nemacaldus	CRPR 4.3	Plant (annual herb)	Cismontane woodland, valley and foothill grassland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: March through May. Elevation: 395 to 6,235 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat for this species (cismontane woodland, valley and foothill grassland) not present.
Oreonana vestita	Woolly mountain parsley	CRPR 1B.3	Plant (perennial herb)	Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest. Microhabitat: gravelly (sometimes), talus (sometimes). Blooming period: March through September. Elevation: 5,300 to 11,485 feet.	CNDDB, RPI	**Low Potential.** Nearest CNDDB occurrence (2015) recorded approximately 3.7 miles southwest of Project Area in mixed conifer forest associated with *Pinus monophylla*, the dominant species in the Project Area's pinyon and juniper woodland.
Oxytropis oreophila var. *oreophila*	Mountain oxytrope	CRPR 2B.3	Plant (perennial herb)	Alpine boulder and rock field, subalpine coniferous forest. Microhabitat: gravelly (sometimes), rocky (sometimes). Blooming period: June through September. Elevation: 11,155 feet to 12,470 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Packera bernardina	San Bernardino ragwort	CRPR 1B.2	Plant (perennial herb)	Meadows and seeps (mesic, sometimes alkaline), pebble (pavement) plain, upper montane coniferous forest. Blooming	CNDDB, RPI	**Low Potential.** Although there are 7 CNDDB records of this species within the Project Area's

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				period: May through July. Elevation: 5,905 to 7,545 feet.		USGS 7.5-minute quadrangle (Big Bear City) and 2 CNDDB records within a 1-mile radius of the Project Area, populations of this species tend to occur within wet meadows associated with the mesic shorelines of Baldwin and Erwin Lakes.
Packera ionophylla	Tehachapi ragwort	CRPR 4.3	Plant (perennial herb)	Lower montane coniferous forest, upper montane coniferous forest. Microhabitat: granitic, rocky. Blooming period: June through July. Elevation: 4,920 to 8,860 feet.	RPI	**Low Potential.** One historic occurrence recorded approximately 0.5 miles south of Project Area (CalFlora 2024, CCH 2024). Numerous recent records (from 2008 to 2010) identified populations of this species in the vicinity of Sugarloaf Mountain. Suitable microhabitat conditions (rocky soils) present on site.
Perideridia parishii ssp. *parishii*	Parish's yampah	CRPR 2B.2	Plant (perennial herb)	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Blooming period: June through August. Elevation: 4,805 to 9,845 feet.	CNDDB, RPI	**Low Potential.** There are 3 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City) and one CNDDB record (1984) within a 1-mile radius of the Project Area.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						Populations of this species tend to occur within wet meadows associated with the mesic shorelines of Baldwin and Erwin Lakes.
Phacelia exilis	Transverse Range phacelia	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest, meadows and seeps, pebble (pavement) plain, upper montane coniferous forest. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: May through August. Elevation: 3,610 to 8,860 feet.	RPI	**Low Potential.** Pinyon and Juniper woodland may provide suitable habitat based on a CCH record in similar habitat and soils 0.4-mile northwest of the Project Area. Six records (from 1941 to 2020) occur within a 1-mile radius of Project Area (CalFlora 2024, CCH 2024). However, the species was not observed during surveys, which occurred during the blooming period for this species.
Phacelia mohavensis	Mojave phacelia	CRPR 4.3	Plant (annual herb)	Cismontane woodland, lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland. Microhabitat: gravelly (sometimes), sandy (sometimes). Blooming period: April through August. Elevation: 4,595 to 8,205 feet.	RPI	**Low Potential.** Pinyon and juniper woodlands and hydric soils may provide suitable habitat for this species within Project Area. Nearest occurrence (1979) approximately 2.8 miles north along northern shore of Baldwin Lake in sagebrush scrub (CalFlora

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						2024, CCH 2024). Lack of recent records suggests likelihood of occurrence on site is low.
Phacelia parishii	Parish's phacelia	CRPR 1B.1	Plant (annual herb)	Mojavean desert scrub, playas. Microhabitat: alkaline (sometimes), clay (sometimes). Blooming period: April through May (June to July). Elevation: 1,770 to 3,935 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range and does not contain suitable habitat (Mojavean desert scrub, playas) for this species.
Phlox dolichantha	Big Bear Valley phlox	CRPR 1B.2	Plant (perennial herb)	Pebble (Pavement) plain, upper montane coniferous forest (openings). Blooming period: May through July. Elevation: 6,005 to 9,745 feet.	CNDDB, RPI	**Low Potential.** There are 10 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). One CNDDB record occurs within a 1-mile radius of the Project Area with the nearest occurrence (1991) documented approximately 0.7 miles southwest. Rocky soils in the pinyon and juniper woodland on site may provide suitable habitat. However, the species was not observed during surveys, which occurred during the blooming period for this species.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Physaria kingii ssp. *bernardina*	San Bernardino Mountains bladderpod	CRPR 1B.1, FE	Plant (perennial herb)	Lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest. Microhabitat: carbonate (usually). Blooming period: May through June. Elevation: 6,070 to 8,860 feet.	CNDDB, RPI, IPaC	**Does Not Occur.** There are 2 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). One CNDDB record (2009) occurs within a 1-mile radius of the Project Area. Carbonate substrate is absent.
Plagiobothrys parishii	Parish's popcorn-flower	CRPR 1B.1	Plant (annual herb)	Great Basin scrub, Joshua tree "woodland". Microhabitat: alkaline, mesic. Blooming period: March through June (November). Elevation: 2,460 to 4,595 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Poa atropurpurea	San Bernardino bluegrass	CRPR 1B.2, FE	Plant (perennial rhizomatous grass)	Meadows and seeps (mesic). Blooming period: (April) May through July (August). Elevation: 4,460 to 8,055 feet.	CNDDB, RPI, IPaC	**Low Potential.** There are 7 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (1981) documented in the palustrine emergent wetland immediately west of Lakewood Drive. However, the species was not observed during surveys, which occurred

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						during the blooming period for this species.
Podistera nevadensis	Sierra podistera	CRPR 4.3	Plant (perennial herb)	Alpine boulder and rock field. Blooming period: July through September. Elevation: 9,845 to 13,125 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (alpine boulder and rock field) for this species not present.
Poliomintha incana	Frosted mint	CRPR 2A	Plant (perennial shrub)	Lower montane coniferous forest (mesic). Blooming period: June through July. Elevation: 5,250 to 5,580 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (lower montane conifer forest [mesic]) for this species not present.
Puccinellia parishii	Parish's alkali grass	CRPR 1B.1	Plant (annual grass)	Meadows and seeps (alkaline springs, seeps). Blooming period: April through May. Elevation: 2,295 to 3,280 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Puccinellia simplex	California alkali grass	CRPR 1B.2	Plant (annual grass)	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools. Microhabitat: alkaline, flats, lake margins, vernally mesic. Blooming period: March through May. Elevation: 5 to 3,050 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Pyrrocoma uniflora var. *gossypina*	Bear Valley pyrrocoma	CRPR 1B.2	Plant (perennial herb)	Meadows and seeps, pebble (pavement) plain. Blooming period: July through September. Elevation: 5,250 to 7,545 feet.	CNDDB, RPI	**Low Potential.** There are 7 CNDDB records of this species within the Project Area's USGS 7.5-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the most recent occurrence (1999) documented on the shores of Baldwin Lake approximately 0.9 miles northeast. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Rhinotropis acanthoclada	Thorny milkwort	CRPR 2B.3	Plant (perennial shrub)	Chenopod scrub, Joshua tree "woodland", pinyon and juniper woodland. Blooming period: May through August. Elevation: 2,495 to 7,495 feet.	RPI	**Does Not Occur.** Despite the potential for pinyon and juniper woodlands to provide suitable habitat for this species, Project Area is outside of Jepson geographic range (East of Sierra Nevada). Four CNDDB occurrences (from 1981 to 2008) recorded approximately 12 to 14.5 miles north/northwest of Project Area in Mojave Desert Region.
Rhinotropis intermontana	Inter-mountain milkwort	CRPR 2B.1	Plant (perennial shrub)	Pinyon and juniper woodland. Blooming period: June through July (October). Elevation: 6,595 to 10,105 feet.	RPI	**Does Not Occur.** Despite the potential for pinyon and juniper woodlands to provide suitable habitat

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						for this species, Project Area is outside of Jepson geographic range (East of Sierra Nevada). Nearest CNDDB occurrence (2013) approximately 11.5 miles north in Mojave Desert Region.
Rosa woodsii var. *glabrata*	Cushenbury rose	CRPR 1B.1	Plant (perennial shrub)	Mojavean desert scrub (springs). Blooming period: (April) May through August. Elevation: 2,985 to 4,710 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (Mojavean desert scrub [springs]) lacking on site.
Rupertia rigida	Parish's rupertia	CRPR 4.3	Plant (annual herb)	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, pebble (pavement) plain, valley and foothill grassland. Blooming period: June through August. Elevation: 2,295 to 8,205 feet.	RPI	**Low Potential.** Hydric soils may provide suitable habitat for this species. Six occurrences (from 1930 to 2020) recorded approximately 1.3 miles south of Project Area (CalFlora 2024).
Saltugilia latimeri	Latimer's woodland gilia	CRPR 1B.2	Plant (annual herb)	Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Microhabitat: granitic (often), rocky (sometimes), sandy (sometimes), washes (sometimes). Blooming period: March through June. Elevation: 1,310 to 6,235 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Sedum niveum	Davidson's stonecrop	CRPR 4.2	Plant (perennial	Lower montane coniferous forest, subalpine coniferous forest, upper	RPI	**Low Potential.** Project Area at the lower limits of

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
			rhizomatous herb)	montane coniferous forest. Microhabitat: rocky. Blooming period: June through August. Elevation: 6,810 to 9,845 feet.		this species' elevation range. Numerous occurrences (from 1904 to 2010) documented near Sugarloaf Mountain in Project Area's adjacent USGS 7.5-minute quadrangle (Moonridge) (CalFlora 2024). Suitable habitat (lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest) lacking on site.
Selaginella asprella	bluish spike-moss	CRPR 4.3	Plant (lycophyte)	Cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest. Microhabitat: granitic, rocky. Blooming period: July. Elevation: 5,250 to 8,860 feet.	RPI	**Low Potential.** Pinyon and juniper woodlands may provide suitable habitat for this species. Numerous occurrences documented within a 2-mile radius of Project Area (CalFlora 2024).
Sidalcea hickmanii ssp. *parishii*	Parish's checkerbloom	CRPR 1B.2	Plant (perennial herb)	Chaparral, cismontane woodland, lower montane coniferous forest. Blooming period: (May) June through August. Elevation: 3,200 to 8,200 feet.	RPI	**Low Potential.** Suitable habitat (chaparral, cismontane woodland, lower montane coniferous forest) does not occur within Project Area. Nearest CNDDB occurrence (2005) approximately 5.5 miles southwest.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Sidalcea malviflora ssp. *dolosa*	Dwarf checker-bloom	CRPR 1B.2	Plant (perennial rhizomatous herb)	Lower montane coniferous forest (meadows, seeps), meadows and seeps, riparian woodland, upper montane coniferous forest (meadows, seeps). Blooming period: May through August. Elevation: 4,905 to 8,810 feet.	CNDDB, RPI	**Low Potential.** Relict hydric soils and open areas within Project Area may provide suitable habitat; however, lack of persistent hydrologic conditions may preclude this species' presence. Nearest CNDDB occurrence (2010) recorded approximately 2.5 miles south.
Sidalcea neomexicana	Salt spring checker-bloom	CRPR 2B.2	Plant (perennial herb)	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas. Microhabitat: alkaline, mesic. Blooming period: March through June. Elevation: 50 to 5,020 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species. Suitable habitat (chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas) for this species does not occur.
Sidalcea pedata	Birdfoot checker-bloom	CRPR 1B.1, SE, FE	Plant (perennial herb)	Meadows and seeps (mesic), pebble (pavement) plain. Blooming period: May through August. Elevation: 5,280 to 8,205 feet.	CNDDB, RPI	**Low Potential.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Two CNDDB records occur within a 1-mile radius of the Project Area with the most recent occurrence (2009) documented on the shores of Baldwin Lake approximately 0.9 miles

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						northeast. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Sidotheca caryophylloides	Chickweed oxytheca	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest (sandy). Blooming period: July through September (October). Elevation: 3,655 to 8,530 feet.	RPI	**Low Potential.** Presumed extant within Project Area's adjacent USGS 7.5-minute quadrangle (Big Bear Lake, Fawnskin) (RPI 2024). Lack of suitable habitat (lower montane coniferous forest) and location in a distinct HUC12 subwatershed reduce the likelihood of this species' presence within the Project Area.
Sisyrinchium longipes	Timberland blue-eyed grass	CRPR 2B.2	Plant (perennial herb)	Meadows and seeps. Microhabitat: mesic. Blooming period: June through August. Elevation: 6,760 feet.	RPI	**Low Potential.** Hydric soils and open areas within Project Area may provide suitable habitat for this species. A cluster of 13 occurrences (from 1905 to 2018) documented in a distinct HUC 12 subwatershed approximately 5.2 miles southeast of site (CalFlora 2024; USGS 2024). This difference in watershed location

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						reduces the likelihood of the species' presence on the project site.
Sphenopholis obtusata	Prairie wedge grass	CRPR 2B.2	Plant (perennial herb)	Cismontane woodland, meadows and seeps. Microhabitat: mesic. Blooming period: April through July. Elevation: 985 to 6,560 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Streptanthus bernardinus	Laguna Mountains jewel flower	CRPR 4.3	Plant (perennial herb)	Chaparral, lower montane coniferous forest. Blooming period: May through August. Elevation: 2,200 to 8,205 feet.	RPI	**Low Potential.** One record (CalFlora 2024, CCH 2024) from 1937 documented approximately 3.4 miles northwest of Project Area. Despite the presence of suitable habitat (pinyon and juniper woodland), the lack of subsequent records suggests this species is unlikely to occur on site.
Streptanthus campestris	Southern jewel flower	CRPR 1B.3	Plant (perennial herb)	Chaparral, lower montane coniferous forest, pinyon and juniper woodland. Microhabitat: rocky. Blooming period: (April) May through June. Elevation: 2,955 to 7,545 feet.	CNDDB, RPI	**Low Potential.** Six records (CalFlora 2024) of this species occur within a 10-mile radius of the Project Area. However, only one occurrence documented after the year 2000. Despite the presence of suitable habitat (pinyon and juniper woodland), the lack of recent records

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						suggests this species is unlikely to occur on site.
Streptanthus juneae	June's jewel flower	CRPR 1B.2	Plant (perennial herb)	Chaparral (montane), lower montane coniferous forest. Microhabitat: openings. Blooming period: June through August. Elevation: 7,070 to 7,775 feet.	RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Symphyotrichum defoliatum	San Bernardino aster	CRPR 1B.2	Plant (perennial rhizomatous herb)	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic). Microhabitat: streambanks, near ditches, streams, springs. Blooming period: July through November. Elevation: 5 to 6,695 feet.	CNDDB, RPI	**Does Not Occur**. Project Area is outside of the elevational range for this species.
Taraxacum californicum	California dandelion	CRPR 1B.1, FE	Plant (perennial herb)	Meadows and seeps (mesic). Blooming period: May through August. Elevation: 5,315 to 9,185 feet.	CNDDB, RPI, IPaC	**Low Potential.** There are 8 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (1988) documented approximately 0.6 miles northwest in the palustrine emergent wetland complex on the western side of Lakewood

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						Drive. However, the species was not observed during surveys, which occurred during the blooming period for this species.
Thelypodium stenopetalum	Slender-petaled thelypodium	CRPR 1B.1, SE, FE	Plant (perennial herb)	Meadows and seeps (mesic, alkaline). Blooming period: May through September. Elevation: 5,250 to 8,205 feet.	CNDDB, RPI, IPaC	**Does Not Occur.** There are 4 CNDDB records of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City). Three CNDDB records occur within a 1-mile radius of the Project Area with the nearest occurrence (2019) documented approximately 0.7 miles northwest. Suitable alkaline substrate is absent.
Trichostema micranthum	Small-flowered bluecurls	CRPR 4.3	Plant (annual herb)	Lower montane coniferous forest Meadows and seeps. Microhabitat: mesic. Blooming period: June through September. Elevation: 5,005 to 7,545 feet.	RPI	**Low Potential.** One record (CalFlora 2024, CCH 2024) from 1946 documented approximately 0.3 miles southeast of Project Area. Absence of suitable habitat and subsequent records suggests this species is unlikely to occur on site.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Viola pinetorum ssp. *grisea*	Grey-leaved violet	CRPR 1B.2	Plant (perennial herb)	Meadows and seeps, subalpine coniferous forest, upper montane coniferous forest. Blooming period: April through July. Elevation: 4,920 to 11,155 feet.	CNDDB, RPI	**Low Potential.** One CNDDB record of this species (1886) occurs within the Project Area's USGS 7.5-minute quadrangle (Big Bear City) and overlaps the Project Area. However, the record is from 1886 and the exact location from which it was collected in unknown. Therefore, the record is represented by the CNDDB as occurring somewhere within a 5-mile radius if Big Bear City and described by CNDDB as a "best guess" area. The Project Area is more than 5 miles east of all CCH records and is likely outside of the range for the species.
Invertebrates						
Bombus caliginosus	Obscure bumble bee	SA	Insect	Coastal areas from Santa Barbara County north to Washington state. Food plant genera include *Baccharis*, *Cirsium*, *Lupinus*, *Lotus*, *Grindelia*, and *Phacelia*.	CNDDB	**Low Potential.** While *Lupinus* spp. within the Project Area may provide a food source for this species, the majority of CNDDB records occur along the coast from Santa Barbara northward. One CNDDB record

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						(1933) occurs approximately 9.6 miles southwest of site; however, the age of this record and absence of subsequent occurrences suggests it is unlikely that this species will occur on site.
Bombus crotchii	Crotch's bumble bee	SA	Insect	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Asclepias, Antirrhinum, Chaenactis, Lupinus, Medicago, Salvia, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.*	CNDDB	**Low Potential.** While *Lupinus* spp. and *Eriogonum* spp. within the Project Area may provide a food source for this species, their concentrations are low, suggesting it is unlikely this species will occur on site. Only two CNDDB records (1940, 2019) occur within a 10-mile radius of the site, and the most recent record observed a single individual.
Bombus morrisoni	Morrison bumble bee	SA	Insect	From the Sierra-Cascade ranges eastward across the intermountain west. Food plant genera include *Cirsium, Cleome, Helianthus, Lupinus, Chrysothamnus,* and *Melilotus*.	CNDDB	**Low Potential.** While *Lupinus* spp. within the Project Area may provide a food source for this species, there is only one CNDDB record (1999) within a 10-mile radius of the site.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Danaus plexippus	Monarch Butterfly	FC	Insect	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby. Closed-cone coniferous forests.	IPaC	**Does Not Occur.** Project Area does not provide suitable wintering habitat or provide foraging habitat, as no milkweeds (*Asclepias* spp.) were observed on site. Furthermore, the nearest known CNDDB overwintering sites are located approximately 67 miles southwest of Project Area.
Euchloe hyantis andrewsi	Andrew's marble butterfly	SA	Insect	Lower montane coniferous forest. Inhabits yellow pine forest near Lake Arrowhead and Big Bear Lake, San Bernardino Mtns, San Bernardino Co, 5000-6000 ft. Host plants are *Streptanthus bernardinus* and *Arabis holboellii* var *pinetorum*; larval foodplant is *Descurainia richardsonii*.	CNDDB	**Low Potential.** While the Project Area is within the geographic range for this species, the absence of suitable larval foodplants on site may limit its potential to occur. Only two CNDDB records (1935, 1970) occur within a 10-mile radius of the Project Area, and both records are over 50 years old.
Euphydryas editha quino	Quino checkerspot butterfly	SA, FE	Insect	Chaparral and coastal scrub. Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties. Hills and mesas near the coast. Need high densities of food plants *Plantago erecta*, *P.*	CNDDB	**Does Not Occur.** Suitable habitat for this species (chaparral, coastal scrub habitats, high densities of food plants) does not occur within the Project Area.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				insularis, and *Orthocarpus purpurescens*.		
Hydroporus simplex	Simple hydroporus diving beetle	SA	Insect	Aquatic, Sacramento/San Joaquin flowing waters. Known from aquatic habitats in Tuolumne and San Bernardino counties.	CNDDB	**Does Not Occur.** No water or aquatic habitat available on site; therefore, this species does not occur within the Project Area.
Paranomada californica	California cuckoo bee	SA	Insect	Nest parasite of other solitary, ground-nesting bees. Do not excavate their own nests or collect pollen for their larvae. Instead, the females enter the nests of pollen-collecting species and lay their eggs in the open, unfinished cells while the host females are absent.	CNDDB	**Low Potential.** There are only two known occurrences of this species, one in Yucca Valley (1971) and the other in Pioneertown (2006). However, given that this organism relies on solitary, ground-nesting bees, which could inhabit the Project Area, there is a low probability that this species could occur on site.
Psychomastax deserticola	Desert monkey grasshopper	SA	Insect	Chaparral. Occurs in very arid environments in the vicinity of the San Bernardino Mtns. Known to occur on chamise (*Adenostoma fasciculatum*).	CNDDB	**Does Not Occur.** Suitable habitat (chaparral, chamise) for this species does not occur on site. Only two CNDDB records (1919) occur within a 10-mile radius of the Project Area; however, both records are over 100 years old.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Fishes						
Gasterosteus aculeatus williamsoni	Unarmored threespine stickleback	SE, FE, FP	Fish	Aquatic, south coast flowing waters. Weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams. Cool (<24 C), clear water with abundant vegetation.	CNDDB, IPaC	**Does Not Occur.** Suitable habitat (aquatic, flowing waters, weedy pools, backwaters, cool and clear water) for this species does not occur within the Project Area.
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	FE, SC, FP	Fish	Aquatic, south coast flowing waters. Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	CNDDB	**Does Not Occur.** Suitable habitat (aquatic, flowing waters, weedy pools, backwaters, cool and clear water) for this species does not occur within the Project Area.
Siphateles bicolor mohavensis	Mohave tui chub	FE, SE, FP	Fish	Aquatic, artificial flowing waters, artificial standing waters. Endemic to the Mojave River basin, adapted to alkaline, mineralized waters. Needs deep pools, ponds, or slough-like areas. Needs vegetation for spawning.	CNDDB	**Does Not Occur.** Suitable habitat (aquatic, artificial flowing waters, artificial standing waters) for this species does not occur within the Project Area.
Amphibians						
Ensatina eschscholtzii klauberi	Large-blotched salamander	WL	Amphibian	Found in conifer and woodland associations. Found in leaf litter, decaying logs and shrubs in heavily forested areas. Woodland overstory habitat includes canyon	CNDDB	**Low Potential.** Pinyon-juniper woodland may provide suitable habitat for this species; however, the absence of abundant

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				live oak, coulter pine, yellow pine, and incense cedar; oak, toyon, and buckwheat are also common.		leaf litter, a dense overstory, and preferred tree species suggests this species potential to occur within Project Area is low.
Rana muscosa	Southern mountain yellow-legged frog	SE, FE	Amphibian	Disjunct populations known from southern Sierras (northern DPS) and San Gabriel, San Bernardino, and San Jacinto Mtns (southern DPS). Found at 1,000 to 12,000 ft in lakes and creeks that stem from springs and snowmelt. May overwinter under frozen lakes. Often encountered within a few feet of water. Tadpoles may require 2 - 4 yrs to complete their aquatic development.	CNDDB	**Low Potential.** Hydric soils in the northwest corner of the Project Area may provide suitable habitat for this species, as it abuts an off-site NWI feature. Additionally, six CNDDB records (1908 to 2024) occur within a 10-mile radius of the site. However, this species is typically found within a couple meters of water, and the nearest aquatic feature is approximately 350 feet west of the northwestern boundary.
Reptiles						
Anniella stebbinsi	Southern California legless lizard	SSC	Reptile	Broadleaved upland forest, chaparral, coastal dunes, coastal scrub. Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats;	CNDDB	**Low Potential.** Hydric soils in the sparsely vegetated section of the meadow and seep area within the Project Area may provide suitable habitat for this species. However, only one CNDDB record (1961) occurs within a 10-mile

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				generally in moist, loose soil. They prefer soils with a high moisture content.		radius of the site, and only one specimen was documented.
Aspidoscelis tigris stejnegeri	Coastal whiptail	SSC	Reptile	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	CNDDB	**Low Potential.** Suitable habitat (desert and semi-arid areas with sparse vegetation) may be lacking within Project Area. There are no CNDDB records (2024) within a 10-mile radius of the site.
Charina umbratica	Southern rubber boa	SA, ST	Reptile	Meadow & seep, riparian forest, riparian woodland, upper montane coniferous forest, wetland. Found in a variety of montane forest habitats. Previously considered morphologically intermediate, recent (2022) genomic analysis clarifies individuals from Mt Pinos, Tehachapi Mts, and southern Sierra Nevada are southern rubber boa. Found in vicinity of streams or wet meadows; requires loose, moist soil for burrowing; seeks cover in rotting logs, rock outcrops, and under surface litter.	CNDDB	**High Potential.** Hydric soils in the northwest corner of the Project Area may provide suitable habitat for this species, as it abuts an off-site NWI stream and wetland. Furthermore, there are 29 CNDDB records within a 10-mile radius of the site.
Crotalus ruber	Red-diamond rattlesnake	SSC	Reptile	Chaparral, Mojavean desert scrub, Sonoran desert scrub. Chaparral, woodland, grassland, and desert areas from coastal San Diego County to the eastern slopes of the mountains. Occurs in rocky	CNDDB	**Low Potential.** Suitable habitat (eastern slopes of mountains) for this species is marginal within the Project Area. There are no CNDDB records

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				areas and dense vegetation. Needs rodent burrows, cracks in rocks or surface cover objects.		within a 10-mile radius of the site, suggesting its likelihood to occur is low.
Gopherus agassizii	Desert tortoise	FT, ST	Reptile	Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub. Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	CNDDB, IPaC	**Does Not Occur.** Suitable habitat (Joshua tree woodland, Mojavean desert scrub, Sonoran desert scrub, creosote bush) for this species does not occur within Project Area. Although two CNDDB records (1986) occur within a 10-mile radius of the site, both records occur at lower elevations in the Mojave Desert.
Phrynosoma blainvillii	Coast horned lizard	SSC	Reptile	Chaparral, cismontane woodland, coastal bluff scrub, coastal scrub, desert wash, pinon & juniper woodlands, riparian scrub, riparian woodland, valley & foothill grassland. Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	CNDDB	**Moderate Potential.** Pinyon-juniper woodland within the Project Area may provide some suitable habitat for this species. Four CNDDB records (1907 to 2004) occur within a 10-mile radius of site. The nearest CNDDB record (2004) occurred 3.6 miles north of the site.
Thamnophis hammondii	Two-striped gartersnake	SSC	Reptile	Marsh & swamp, riparian scrub, riparian woodland, wetland. Coastal California from vicinity of	CNDDB	**Low Potential.** Suitable habitat (riparian areas and wetlands) for this

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.		species do not occur on site. However, the proximity to a stream to the west of the northwest corner of the Project Area suggests there is a low potential for this species to occur on site. Only one CNDDB record (2001) occur within a 10-mile radius of the site.
Uma scoparia	Mojave fringe-toed lizard	SSC	Reptile	Desert dunes, desert wash, Mojavean desert scrub. Fine, loose, wind-blown sand in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub and desert scrub. Shrubs or annual plants may be necessary for arthropods found in the diet.	CNDDB	**Does Not Occur.** Suitable habitat (desert dunes, desert wash, Mojavean desert scrub) for this species does not occur within the Project Area. There are no CNDDB records within a 10-mile radius of the site.
Birds						
Accipiter cooperii	Cooper's hawk	WL	Bird	Cismontane woodland, riparian forest, riparian woodland, upper montane coniferous forest. Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	CNDDB	**Low Potential - Foraging.** Pinyon-juniper woodland within the Project Area could provide suitable foraging habitat for this species; however, the absence of riparian area suggests the likelihood of occurring is low. There are no CNDDB records within a 10-mile radius of the site.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Accipiter striatus	Sharp-shinned hawk	WL	Bird	Cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland. Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas. North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.	CNDDB	**Does Not Occur.** Suitable habitat (riparian areas with north-facing slopes within 275 ft of water) for this species is not present within the Project Area.
Aquila chrysaetos	Golden eagle	FP, WL	Bird	Broadleaved upland forest, cismontane woodland, coastal prairie, Great Basin grassland, Great Basin scrub, lower montane coniferous forest, pinon & juniper woodlands, upper montane coniferous forest, valley & foothill grassland. Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	CNDDB, IPaC	**Moderate Potential – Foraging.** Pinyon-juniper woodlands within the Project Area may provide suitable foraging habitat for this species. Four CNDDB records (from 1992 to 2010) occur within a 10-mile radius of the site.
Asio otus	Long-eared owl	SSC	Bird	Cismontane woodland, Great Basin scrub, riparian forest, riparian woodland, upper montane coniferous forest. Riparian bottomlands with tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land, productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	CNDDB	**Does Not Occur.** Suitable habitat (cismontane woodlands, Great Basin scrub, riparian woodlands) for this species is not present within the Project Area.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Athene cunicularia	Burrowing owl	SSC	Bird	Coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, valley & foothill grassland. Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	CNDDB	**Does Not Occur.** Suitable habitat (coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, valley & foothill grassland) for this species is not present within Project Area.
Chaetura vauxi	Vaux's swift	SSC	Bird	Lower montane coniferous forest, North coast coniferous forest, old-growth redwood forests. Redwoods, Douglas-fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	CNDDB	**Low Potential - Foraging.** Pinyon-juniper woodland within Project Area may provide suitable foraging habitat for this species. One unprocessed CNDDB record (2024) occurs within Big Bear Lake USGS 7.5-minute quadrangle.
Childonias niger surinamensis	Black tern	SSC	Bird	Freshwater marsh, Great Basin standing waters, wetland. Freshwater lakes, ponds, marshes and flooded ag fields. At coastal lagoons and estuaries during migration. Breeding range reduced. Breeds primarily in Modoc Plateau region, with some breeding in Sacramento and San Joaquin valleys.	CNDDB, IPaC	**Does Not Occur.** Suitable habitat (freshwater marsh, Great Basin standing waters, wetlands) for this species is not present within Project Area.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Circus hudsonius	Northern harrier	SSC	Bird	Annual grasslands, lodgepole pine, and alpine meadow habitats. Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Mostly found in flat, or hummocky, open areas of tall, dense grasses, moist or dry shrubs, and edges for nesting, cover, and feeding. Mostly nests in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water.	CNDDB	**Low Potential - Nesting.** Sagebrush flats within Project Area may provide suitable habitat for this species. There are no CNDDB records within a 10-mile radius of the site.
Contopus cooperi	Olive-sided flycatcher	SSC	Bird	Lower montane coniferous forest, redwood, upper montane coniferous forest. Nesting habitats are mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir and lodgepole pine. Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain.	CNDDB	**Low Potential – Foraging.** Pinyon-juniper woodlands adjacent to open terrain within the Project Area may provide suitable foraging habitat. One unprocessed CNDDB record (2024) occurs within Big Bear Lake USGS 7.5-minute quadrangle.
Cypseloides niger	Black swift	SSC	Bird	Coastal belt of Santa Cruz and Monterey counties; central and southern Sierra Nevada; San Bernardino and San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep	CNDDB	**Does Not Occur.** Suitable habitat (cliffs adjacent to waterfalls, canyons) not present within the Project Area. There are no CNDDB

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				canyons and sea-bluffs above the surf; forages widely.		records within a 10-mile radius of the site.
Epidonax traillii	Willow flycatcher	SE	Bird	Meadow & seep, riparian scrub, riparian woodland, wetland. Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2000-8000 ft elevation. Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches.	CNDDB	**Does Not Occur.** Suitable habitat (riparian woodlands with populations of willow) is not present within Project Area.
Epidonax traillii extimus	Southwestern willow flycatcher	FE, SE	Bird	Riparian woodland, riparian woodlands in Southern California.	CNDDB, IPaC	**Does Not Occur.** Suitable habitat (riparian woodlands with populations of willow) is not present within Project Area.
Eremophila alpestris actia	California horned lark	WL	Bird	Marine intertidal & splash zone communities, meadow & seep. Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	CNDDB	**Low Potential - Foraging.** Meadow and seep within Project Area may provide suitable foraging habitat for this species. One unprocessed CNDDB record (2024) occurs within the Big Bear Lake USGS 7.5-minute quadrangle.
Falco mexicanus	Prairie falcon	WL	Bird	Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, valley & foothill grassland. Inhabits dry,	CNDDB	**Low Potential - Foraging.** Although this species typically inhabits lower elevation

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.		grasslands and deserts, open terrain within the Project Area may provide suitable habitat. Two CNDDB nesting records (1977, 1978) occur within 10-miles of the Project Area.
Haliaeetus leucocephalus	Bald Eagle	FD, SE, FP	Bird	Lower montane coniferous forest, old growth. Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	CNDDB, IPaC	**Low Potential – Nesting, Foraging, Wintering**. No eagle nests were observed during biological suveys. One CNDDB nesting and wintering record (2013) occurs on the south-facing slope of the pinyon-juniper woodland hillside, approximately 0.5 miles north of site and adjacent to Baldwin Lake. Large conifers (Jeffrey pine) within Project Area may provide suitable nesting habitat for this species; however, the site is not adjacent to a persistent water body. Therefore, the project is unlikely to support nesting habitat (tall features near persistent water bodies with prey/fish) or foraging

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						habitat (persistent water bodies with prey/fish).
Icteria virens	Yellow-breasted chat	SSC	Bird	Riparian forest, riparian scrub, riparian woodland. Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	CNDDB	**Does Not Occur.** Suitable habitat (riparian forests, scrub, and woodlands) for this species are not present within the Project Area.
Lanius ludovicianus	Loggerhead shrike	SSC	Bird	Broadleaved upland forest, desert wash, Joshua tree woodland, Mojavean desert scrub, pinyon & juniper woodlands, riparian woodland, Sonoran desert scrub. Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	CNDDB	**Low Potential - Foraging.** Pinyon-juniper woodlands within the Project Area may provide suitable foraging habitat for this species. However, most mapped CNDDB records occur at lower elevations the Project Area, so it is unlikely this species will occur on site.
Leiothlypis virginiae	Virginia's warbler	WL	Bird	Chaparral, riparian scrub, east slope of Southern Sierra Nevada to San Bernardino Mountains. In arid, shrubby, mixed-conifer, pinyon-juniper, montane-chaparral. 7000-9000 ft. Nests on arid slopes with stands of tall shrubs/scattered trees; also, riparian thickets of willow/wild rose along streams.	CNDDB	**Low Potential – Nesting, Foraging.** Pinyon-juniper woodlands within Project Area may provide suitable habitat, although the site is slightly outside of the elevation range for this species. One unprocessed CNDDB record occurs

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						within the Moonridge USGS 7.5-minute quadrangle.
Pandion haliaetus	Osprey	WL	Bird	Riparian forest, ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	CNDDB	**Low Potential - Nesting.** While the Project Area is located approximately 5 miles east of Big Bear Lake, more optimal nesting habitat occurs within a closer proximity to Big Bear Lake. One unprocessed CNDDB record (2024) occurs within the Big Bear Lake USGS 7.5-minute quadrangle.
Pelecanus erythrorhynchos	American white pelican	SSC	Bird	Colonial nester on large interior lakes. Nests on large lakes, providing safe roosting and breeding places in the form of well-sequestered islets.	CNDDB	**Does Not Occur.** Suitable wintering habitat (large interior lakes, well-sequestered islets) for this species does not occur within the Project Area.
Piranga flava	Hepatic tanager	WL	Bird	Upper montane coniferous forest, white fir-pinyon forest on desert peaks, 5300-8100 ft elevation. Understory of xerophytic shrubs.	CNDDB	**Low Potential - Foraging.** Pinyon-juniper woodlands within the Project Area may provide suitable foraging habitat for this species within the Project Area. While there is one unprocessed CNDDB record (2024)

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						within the Project Area's USGS 7.5-minute quadrangle (Big Bear City), the nearest mapped CNDDB record is approximately 100 miles east of the site.
Piranga rubra	Summer tanager	SSC	Bird	Riparian forest. Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts. Requires cottonwood-willow riparian for nesting and foraging; prefers older, dense stands along streams.	CNDDB	**Does Not Occur.** Suitable habitat (riparian forest, cottonwood-willow associations, deserts) for this species is not present within Project Area. While two CNDDB records (1987, 1989) occurred within a 10-mile radius of the Project Area, both records are over 35 years old and occurred in desert habitat.
Plegadis chihi	White-faced ibis	WL	Bird	Marsh & swamp, wetland, shallow freshwater marsh. Dense tule thickets for nesting, interspersed with areas of shallow water for foraging.	CNDDB	**Does Not Occur.** Although one unprocessed CNDDB record (2024) occurs within the Project Area's USGS 7.5-minute quadrangle (Big Bear City), suitable habitat (marsh, swamp, wetland, shallow freshwater marsh, dense tule thickets) is absent for this species on site.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Polioptila melanura	Black-tailed gnatcatcher	WL	Bird	Mojavean desert scrub, Sonoran desert scrub. Primarily inhabits wooded desert wash habitats; also occurs in desert scrub habitat, especially in winter. Nests in desert washes containing mesquite, palo verde, ironwood, acacia; absent from areas where salt cedar introduced.	CNDDB	**Does Not Occur.** Suitable habitat (desert scrub and desert washes) for this species does not occur within the Project Area. One unprocessed CNDDB (2024) record occurs within the Old Woman Springs USGS 7.5-minute quadrangle, which is in the Mojave Desert Region.
Psiloscops flammeolus	Flammulated owl	SA	Bird	Lower montane coniferous forest, subalpine coniferous forest. Need montane forests with some understory brush for breeding. In California, the breeding range is closely associated with the presence of ponderosa pine and Jeffery pine.	CNDDB	**Low Potential - Breeding.** Jeffrey pines within the Project Area may provide suitable breeding habitat for this species. One unprocessed CNDDB record (2024) occurs within the USGS Big Bear Lake 7.5-minute quadrangle.
Selasphorus rufus	Rufous hummingbird	SA	Bird	North coast coniferous forest, oldgrowth. Breeds in Transition life zone of northwest coastal area from Oregon border to southern Sonoma County. Nests in berry tangles, shrubs, and conifers. Favors habitats rich in nectar-producing flowers.	CNDDB	**Low Potential – Wintering.** While the Project Area is far from the breeding zone for this species, conifers on site may provide suitable habitat for this species. One unprocessed CNDDB record (2024) occurs within the USGS Big Bear Lake 7.5-minute quadrangle.

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Setophaga petechia	Yellow warbler	SSC	Bird	Riparian forest, riparian scrub, riparian woodland. Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	CNDDB	**Does Not Occur.** Riparian habitat is not present within the Project Area. There are no CNDDB records within a 10-mile radius of the site.
Spinus lawrencei	Lawrence's goldwinch	SA	Bird	Broadleaved upland forest, chaparral, pinyon & juniper woodlands, riparian woodland. Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.	CNDDB	**Moderate Potential – Nesting, Foraging.** While this species is closely associated with oaks, which are absent within the Project Area, pinyon-juniper woodlands may provide suitable nesting and foraging habitat. One unprocessed CNDDB record (2024) occurs within the Project Areas's USGS 7.5-minute quadrangle (Big Bear City).
Strix occidentalis occidentalis	California spotted owl	SSC, FC	Bird	Broadleaved upland forest, lower montane coniferous forest, upper montane coniferous forest, mixed conifer forest, often with an understory of black oaks and other deciduous hardwoods. Canopy closure >40%. Most often found in deep-shaded canyons, on	CNDDB, IPaC	**Low Potential – Nesting, Foraging.** While numerous CNDDB occurrences have been observed within a 10-mile radius of the Project Area, the lack of a dense canopy cover and south-

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				north-facing slopes, and within 300 meters of water.		facing slope on site suggest the probability of this species occurring on site is low.
Toxostoma lecontei	Le Conte's thrasher	SSC	Bird	Desert wash, Mojavean desert scrub, Sonoran desert scrub, desert resident; primarily of open desert wash, desert scrub, alkali desert scrub, and desert succulent scrub habitats. Commonly nests in a dense, spiny shrub or densely branched cactus in desert wash habitat, usually 2-8 feet above ground.	CNDDB	**Does Not Occur.** Suitable habitat (desert wash, Mojavean desert scrub, Sonoran desert scrub) for this species is absent within the Project Area. There are no CNDDB records within a 10-mile radius of the Project Area.
Xanthocephalus xanthocephalus	Yellow-headed blackbird	SSC	Bird	Marsh & swamp, wetlands. Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	CNDDB	**Low Potential – Foraging.** Suitable nesting habitat (wetlands with deep water, dense vegetation and aquatic macroinvertebrates) for this species is absent within Project Area; however, foraging can occur in uplands. Two unprocessed CNDDB records (2024) list occurrences of this species within Big Bear City and Big Bear Lake USGS 7.5-minute quadrangles.
Mammals						

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
Callospermophilus lateralis bernardinus	San Bernardino golden-mantled ground squirrel	SA	Mammals	Mixed conifer, ponderosa pine, Jeffrey pine, lodgepole pine, limber pine, pinyon-juniper, montane riparian, aspen, and alpine meadow. Prefer open canopy without dense understory, with logs, stumps, talus, and other rocks for cover. Digs burrows, or may use pocket gopher burrows.	CNDDB	**Moderate Potential.** Pinyon-juniper woodlands and open areas on site may provide suitable habitat. Two of five unprocessed CNDDB records (2024) list occurrences of this species within the Project Area's USGS 7.5-minute quadrangle (Big Bear City).
Chaetodipus fallax pallidus	Pallid San Diego pocket mouse	SA	Mammals	Desert wash, pinyon & juniper woodlands, Sonoran desert scrub. Desert border areas of San Diego, Riverside, San Bernardino, and Los Angeles counties in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	CNDDB	**Low Potential.** Pinyon-juniper woodlands on site may provide suitable habitat for this species. One CNDDB record for this species (2002) occurs approximately 5.0 miles north of the Project Area.
Corynorhinus townsendii	Townsend's big-eared bat	SSC	Mammals	Broadleaved upland forest, chaparral, chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, meadow & seep, Mojavean desert scrub, riparian forest, riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, upper montane coniferous forest, valley & foothill grassland. Throughout California, in a wide variety of	CNDDB	**Moderate Potential.** Four of five CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in abandoned mines surrounded by pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.		roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Eumops perotis californicus	Western mastiff bat	SSC	Mammals	Chaparral, cismontane woodland, coastal scrub, valley & foothill grassland. Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	CNDDB	**Low Potential.** Suitable habitat for this species (chaparral, cismontane woodland, coastal scrub, valley & foothill grassland) is not present within Project Area. No CNDDB records occurred within a 10-mile radius of the site.
Glaucomys oregonensis californicus	San Bernardino flying squirrel	SSC	Mammals	Broadleaved upland forest, lower montane coniferous forest. Known from black oak or white fir dominated woodlands between 5200 - 8500 ft in the San Bernardino and San Jacinto ranges. May be extirpated from San Jacinto range. Needs cavities in trees/snags for nests and cover. Needs nearby water.	CNDDB	**Low Potential.** Suitable habitat for this species (broadleaved upland forest, lower montane coniferous forest, black oak or white fir woodlands) is not present within Project Area. The nearest CNDDB record (1934) is approximately 6.1 miles southwest of

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						the site; however, the age of the occurrence suggests the probability to occur on site is low.
Lasionycteris noctivagans	Silver-haired bat	SA	Mammals	Lower montane coniferous forest, old growth, riparian forest. Primarily a coastal and montane forest dweller, feeding over streams, ponds and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	CNDDB	**Low Potential.** Suitable habitat for this species (lower montane coniferous forest, old growth, riparian forest) is not present within Project Area. Furthermore, the nearest CNDDB record is approximately 15.7 miles northeast in the Mojave Desert Region.
Myotis ciliolabrum	Western small-footed myotis	SA	Mammals	Wide range of habitats mostly arid wooded and brushy uplands near water. Seeks cover in caves, buildings, mines, and crevices. Prefers open stands in forests and woodlands. Requires drinking water. Feeds on a wide variety of small flying insects.	CNDDB	**Moderate Potential.** Two of three CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in abandoned mines surrounded by pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Myotis evotis	Long-eared myotis	SA	Mammals	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	CNDDB	**Moderate Potential.** One CNDDB record (1998) approximately 8.2 miles east of the Project Area identified a maternity roost for this species in an abandoned mine surrounded by pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Myotis thysanodes	Fringed myotis	SA	Mammals	In a wide variety of habitats, optimal habitats are pinyon-	CNDDB	**Moderate Potential.** Three of four CNDDB

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				juniper, valley foothill hardwood and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.		records (all from 1998) within a 10-mile radius of the site documented occurrences in pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Myotis volans	Long-legged myotis	SA	Mammals	Upper montane coniferous forest. Most common in woodland and forest habitats above 4000 ft. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	CNDDB	**Moderate Potential.** Two of three CNDDB records (all from 1998) within a 10-mile radius of the site documented occurrences in abandoned mines surrounded by pinyon-juniper woodlands. The flooded mine shaft within the Project Impact Footprint may provide short-term

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
						roosting habitat but would not provide the necessary microhabitat for longer-term maternity roosting or hibernation. The partially backfilled production shaft on the hillslope to the north and outside of the Project Impact Footprint may provide bats with access to the mine for longer-term roosting.
Myotis yumanensis	Yuma myotis	SA	Mammals	Lower montane coniferous forest, riparian forest, riparian woodland, upper montane coniferous forest. Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	CNDDB	**Low Potential.** The absence of suitable habitat (lower montane coniferous forest, riparian forests and woodlands, and upper montane coniferous forests) and water does not provide optimal habitat requirements for this species. However, one CNDDB record (1998) occurred within a 10-mile radius of the Project Area, where a single female of this species was captured and released by mist net.
Neotamias speciosus speciosus	Lodgepole chipmunk	SA	Mammals	Chaparral, upper montane coniferous forest. Summits of isolated Piute, San Bernardino,	CNDDB	**Does not Occur.** Suitable habitat is not present within the Project

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				and San Jacinto mountains. Usually found in open-canopy forests. Habitat is usually lodgepole pine forests in the San Bernardino Mts and chinquapin slopes in the San Jacinto Mts.		Area. Although a CNDDB record (1991) overlaps the Project Area, it is described as a "non-specific area" and represents a single capture of the species in 1926 somewhere in the vicinity of Baldwin Lake, likely where suitable habitat is present.
Ovis canadensis nelsoni	Desert bighorn sheep	FP	Mammals	Alpine, alpine dwarf scrub, chaparral, chenopod scrub, Great Basin scrub, Mojavean desert scrub, montane dwarf scrub, pinyon & juniper woodlands, riparian woodland, Sonoran desert scrub. Widely distributed from the White Mtns in Mono Co. to the Chocolate Mts in Imperial Co. Open, rocky, steep areas with available water and herbaceous forage.	CNDDB	**Low Potential.** This species prefers steeper, rocky terrains typically found in more rugged mountainous areas, which may not be present on site. The nearest CNDDB occurrence (1986) is 22 miles southeast of the Project Area, straddling the boundary of the Jepson geographic Desert Mountains Subregion and Sonoran Desert Region. Given the lack of occurrences within Bear Valley, it is unlikely this species will occur on site.
Taxidea taxus	American badger	SSC	Mammals	Alkali marsh, alkali playa, alpine, alpine dwarf scrub, bog & fen, brackish marsh, broadleaved upland forest, chaparral, chenopod	CNDDB	**Low Potential.** Soils within Project Area are suitable for digging burrows. Open areas

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				scrub, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, desert dunes, desert wash, freshwater marsh, Great Basin grassland, Great Basin scrub, interior dunes, Ione formation, Joshua tree woodland, limestone lower montane coniferous forest, marsh & swamp, meadow & seep, Mojavean desert scrub, montane dwarf scrub, North coast coniferous forest, old growth, pebble (pavement) plain, redwood, riparian forest, riparian scrub, riparian woodland, salt marsh, Sonoran desert scrub, Sonoran thorn woodland, ultramafic, upper montane coniferous forest, upper Sonoran scrub, valley & foothill grassland. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.		within the Project Area may provide suitable foraging habitat. A single CNDDB occurrence (2004) within 10 miles is noted as "Presumed Extant". However, human development and grazing activities in the open meadow may limit this species' occurrence.
Xerospermophilus mohavensis	Mohave ground squirrel	ST	Mammals	Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, open desert scrub, alkali scrub and Joshua tree woodland. Also feeds in annual grasslands.	CNDDB	**Does Not Occur.** This species is restricted to lower elevations within the Mojave Desert; therefore, the Project

Scientific Name	Common Name	Special Status [a]	Taxon Group	Habitat [b]	Record Source [c]	Potential to Occur [d]
				Restricted to Mojave Desert. Has been found from 1,800 - 5,000 ft in elevation. Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover. Nests are in burrows.		Area is outside of its habitat range.

[a] Habitat descriptions source: California Department of Fish and Wildlife, Biogegraphic Data Branch, 2023 & Rare Plant Inventory, California Native Plant Society, 2023

[b] Special-status Definitions (CDFW 2023c, CDFW 2023d):

CRPR = California Rare Plant Rank
- 1B = Plants rare, threatened, or endangered in California and elsewhere
- 2B = Plants rare, threatened, or endangered in California but more common elsewhere
- 3 = Review List: Plants about which more information is needed
- 4 = Watch List: Plants of limited distribution
  - 0.1 = Seriously threatened in California
  - 0.2 = Moderately threatened in California
  - 0.3 = Not very threatened in California

SA = California Department of Fish and Wildlife - Special Animal
WL = California Department of Fish and Wildlife – Watch List
FP = California Department of Fish and Wildlife - Fully Protected
SSC = California Department of Fish and Wildlife - Species of Special Concern
FE = Federal Endangered Species Act - Endangered
FT = Federal Endangered Species Act - Threatened
FD = Federal Endangered Species Act - Delisted
FC = Federal Endangered Species Act - Candidate
ST = California Endangered Species Act - Threatened
SE = California Endangered Species Act - Endangered
SCE = California Endangered Species Act - Candidate Endangered
FTP = Federal Endangered Species Act - Proposed Threatened

[c] Record Source Definitions:

CNDDB = California Natural Diversity Database (California Department of Fish and Wildlife)
IPaC = Information for Planning and Consultation (U.S. Fish and Wildlife Service)
RPI = Rare Plant Inventory (California Native Plant Society)

[d] Potential to Occur Definitions:

Present: Appropriate species-specific survey methodology and protocols were followed by qualified biologist(s) during an appropriate time of year and produced unequivocal positive results for species occurrence.

High Potential: Project area is within the range of the species and suitable habitat is present, and/or there is reasonably high certainty to assume a high potential to occur based on existing data. Bird species are further categorized as breeding, foraging only, and/or transients (migratory, overwintering etc.).

Moderate Potential: Project area is within the range of the species and moderately suitable habitat is present, and/or there is reasonably high certainty to assume a moderate potential to occur based on existing data. Bird species are further categorized as breeding, foraging only, and/or transients (migratory, overwintering etc.).

Low Potential: Project area is within the range of the species, but habitat is marginal, nearby records are historic/unreliable, or there is reasonably high certainty to assume a low potential to occur based on existing data. Bird species are further categorized as breeding, foraging only, and/or transients (migratory, overwintering etc.).

Does not Occur: Project area outside the range of the species, lacks habitat or suitable conditions, and/or there is reasonable certainty to assume species does not occur based on existing data and range distribution.

Absent: Appropriate species-specific survey methodology and protocols were followed by qualified biologist(s) during an appropriate time of year and produced unequivocal negative results for species occurrence.

APPENDIX E CULTURAL RESOURCES ASSESSMENT

Cultural Resources Assessment

Bear Valley Solar Energy Project

PREPARED FOR

EDF Renewables Distribution-Scale Power

DATE
18 October 2024

REFERENCE
0739207

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SIGNATURE PAGE

Biological Resources Assessment

Bear Valley Solar Energy Project

0739207

Jeffrey A. Rosa Figueroa
Senior Consultant, Archaeologist

Yahaira A. Gonzalez Segovia
Managing Technical Consultant, Archaeologist

Ian Todd
Partner in Charge

Maria Wiseman, RPA
Principal Technical Consultant, Archaeologist

Environmental Resources Management, Inc.
1920 Main St #300
Irvine, CA 92614
T (949) 623-4700

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ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
APN	Assessor's Parcel Number
ARPA	Archaeological Resources Protection Act
AT&SF	Atchison, Topeka and Santa Fe Railroad
BVES	Bear Valley Electric Service, Inc.
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
CPHI	California Points of Historical Interest
CRHR	California Register of Historical Resources
EDFR-DSP	EDF Renewables Distribution-Scale Power
ERM	Environmental Resources Management, Inc.
ESA	Environmental Site Assessment
MLD	Most Likely Descendant
MW	Megawatt
NAHC	California Native American Heritage Commission
NAGPRA	Native American Graves Protection and Repatriation Act
NRHP	National Register of Historic Places
PRC	California Public Resources Code
Project	Bear Valley Solar Project
Project Area	29.53 acres of privately owned land at 2151 Erwin Ranch Road
PV	Photovoltaic

RCYBP	Radiocarbon Years Before Present
SCCIC	South Central Coastal Information Center
USFS	United States Forest Service
USGS	United States Geological Survey

1. INTRODUCTION

On behalf of EDF Renewables Distribution-Scale Power (EDFR-DSP), Environmental Resources Management, Inc. (ERM) conducted a cultural resources assessment of the proposed Bear Valley Solar Project (Project), which includes a new, 5-megawatt (MW) alternating current (AC) solar photovoltaic (PV) facility located on 29.53 acres of privately owned land at 2151 Erwin Ranch Road (Project Area), near the City of Big Bear Lake in unincorporated San Bernardino County, California. The proposed Project will be designed, permitted, and developed by EDFR-DSP on behalf of Bear Valley Electric Service, Inc. (BVES; Applicant). The purpose of this assessment was to evaluate the potential for impacts to significant cultural resources and to propose recommendations to reduce potential significant impacts to less-than-significant levels, pursuant to the California Environmental Quality Act (CEQA). Moreover, this assessment was required to comply with Section 5024.1 of the California Public Resources Code (PRC), which requires identification of archaeological or historical resources in the Project Area. To complete this assessment, ERM requested and reviewed records retained by the South Central Coastal Information Center (SCCIC) at the University of California, Fullerton of the California Historical Resources Information System (CHRIS) within a 0.25-mile search radius around the Project Area, requested a Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC), reviewed relevant literature and historic aerial maps, and conducted an intensive pedestrian survey of the Project Area. This report summarizes the results of these assessments.

1.1 PROJECT DESCRIPTION

BVES is proposing the Project, which is a new, approximately 5-MW AC solar PV facility. The Project would generally develop the flat portions of the property. The current use of the Project Area is undeveloped and unoccupied. Historically, however, the parcel was part of local mining activities, indicated by abandoned mining equipment, tailings, a possible mineshaft, foundations, a wall, roads, and a mine adit (i.e., horizontal passage leading into a mine for access or drainage) at the northeastern section of the property.

1.2 LOCATION

The Project is situated within a 29.53-acre parcel, referred to as Assessor's Parcel Number (APN) 031440129, located at 2151 Erwin Ranch Road, near the City of Big Bear Lake in unincorporated San Bernardino County, California. The Project is approximately 2.5 miles to the southeast of Big Bear City, California, approximately 4 miles to the southeast of Big Bear Lake, approximately 1.5 miles to the south of Baldwin Lake, and approximately 0.6 miles northwest of Erwin Lake (Appendix A, Figure 1, *Project Vicinity*; Appendix A, Figure 2, *Project Overview*). Local access is provided by Erwin Ranch Road and Lakewood Drive, and regional access is provided by State Route 38. The Project is in the United States Geological Survey (USGS) 7.5-minute quadrangle for Big Bear City, California, within Section 17 of Township 2 North, Range 2 East (Appendix A, Figure 3, *Project Area Topography*). The San Bernardino National Forest borders the Project Area on the north but does not extend into the bounds of the Project Area. Additionally, the Project Area does not contain residential properties but is visible from Erwin Ranch Road, Lakewood Drive, and the neighboring rural residences on the east, west, and south.

2. REGULATORY SETTING

Cultural resources include prehistoric and historic archaeological sites, districts, and objects; standing historic structures, buildings, districts, and objects; and locations of important historic events or of traditional/cultural importance to various groups. For projects on private lands without federal funding within California, cultural resources are protected under state and local regulations, as described below.

2.1 STATE

2.1.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 15064.5 of the CEQA requires consideration of potential impacts to cultural resources. A cultural resource would be considered significant if it is:

1. A resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (CRHR) (PRC §5024.1; Title 14 CCR, §4850 et seq.).
2. A resource included in the local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (PRC Section 5024.1, Title 14 CCR, Section 4852), including the following:
    - **Criterion 1:** Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    - **Criterion 2:** Is associated with the lives of persons important in our past;
    - **Criterion 3:** Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
    - **Criterion 4:** Has yielded, or may be likely to yield, information important in prehistory or history.
4. The fact that a resource is not listed in the California Register, determined not to be eligible for listing in the California Register, not included in a local register of historical resources (pursuant to Section 5020.1[k] of the PRC), and not identified in an historical resources survey (meeting the criteria in Section 5024.1[g] of the PRC) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(i) or 5024.1.

In accordance with CEQA, any cultural resources must be assessed for project-related actions that could directly or indirectly impact them. Under this scenario, impacts to cultural resources not deemed important according to the above criteria would be considered less than significant.

2.1.2 CALIFORNIA REGISTER OF HISTORICAL RESOURCES

As provided in PRC Section 5020.4, the California Legislature established the CRHR in 1992. The CRHR is used as a guide by state and local agencies, private groups, and citizens to identify the state historical resources and to include which properties are to be protected, to the extent prudent and feasible, from substantial adverse change. The CRHR, as instituted by the PRC, automatically includes all California properties already listed in the National Register of Historic Places (NRHP). It also includes those formally determined to be eligible for listing in the NRHP (Categories 1 and 2 in the State Inventory of Historical Resources), as well as specific listings of the State Historical Landmarks and in the State Inventory of Historical Resources, along with specific listings of State Historical Landmarks and State Points of Historical Interest. The CRHR may also include other types of historical resources that meet the criteria for eligibility, including the following:

- Individual historic resources
- Resources that contribute to a historic district
- Resources identified as significant in historic resource surveys

Resources with a significance rating of Categories 3 through 5 in the State Inventory (Categories 3 and 4 refer to potential eligibility for the NRHP; Category 5 indicates a property with local significance). The CRHR follows the NRHP in using the 50-year threshold. A resource is usually considered for its historical significance after it reaches the age of 50 years. This threshold is not absolute but was selected as a reasonable span of time after which a professional evaluation of historical value and importance can be made. The cultural investigation of the Project Area was conducted pursuant to CEQA, PRC Chapter 2.6, Sections 21083.2 and 21084.1, and CCR Title 14, Chapter 3, Article 5, Section 15064.5.

2.1.3 HUMAN REMAINS ON NON-FEDERAL LANDS

The discovery of human remains is always a potential during ground disturbing activities. Federal and state laws require immediate reporting when human remains are discovered. California state law (California Health and Safety Code Section 7050.5) and federal law and regulations (Archaeological Resources Protection Act [ARPA], 54 USC 300101 and 43 CFR 7; Native American Graves Protection and Repatriation Act [NAGPRA], 25 USC 3001 and 43 CFR 10; and Public Lands, Interior, 43 CFR 8365.1-7) identify defined protocols for the treatment of human remains regardless of whether the remains are modern or archaeological. All discovered human remains will be treated with respect and dignity. If human remains are encountered during construction, all work within 200 feet (61 meters) of the discovery shall cease immediately. The area shall be secured, and county coroner shall be notified immediately.

If the remains are located on state, local, or private property, a protocol defined by California state law (California Health & Safety Code 7050.5 and PRC 5097.98) is required to determine if the uncovered remains are modern or archaeological. If the coroner determines that the human

remains are of Native American descent, the coroner shall notify the California Native American Heritage Commission (NAHC), who shall then identify the most likely descendant (MLD). The MLD will be consulted to determine the best course of action for treatment and/or repatriation of the human remains, be granted access to examine the remains, and have 48 hours to provide recommendations. If the MLD does not make a recommendation within 48 hours of being given access to the human remains, the land manager can rebury the human remains in a location that will not be subject to future ground disturbing activities.

2.2 LOCAL REGULATIONS

2.2.1 COUNTY OF SAN BERNARDINO

The Cultural Resources Element of the San Bernardino Countywide Plan emphasizes the importance of preserving and conserving cultural resources. These resources include archaeological sites, sacred landscapes, historic buildings, and culturally important plants and animals, which collectively contribute to the County's diverse heritage and community identity. The plan highlights the need for culturally appropriate preservation methods while accommodating growth and development in unincorporated areas (Cultural Resources – San Bernardino County 2024).

The purpose of the Cultural Resources Element is to set guidelines for notification, coordination, and partnerships aimed at preserving and conserving cultural resources, to provide strategies for avoiding or minimizing impact to resources from new developments, and to provide guidance to enhance public awareness and educational initiatives regarding cultural resources. The key principles of the Cultural Resources Element include the belief that current generations are stewards of the county's cultural history, the enhancement of understanding through preservation of cultural resources, and cultural resources generating economic benefits to the local community (Cultural Resources – San Bernardino County 2024).

The following goals, policies, and programs related to cultural resources are specified in the Cultural Resources Element:

GOAL CR-1 TRIBAL CULTURAL RESOURCES:

Tribal cultural resources that are preserved and celebrated out of respect for Native American beliefs and traditions

Policy CR-1.1 Tribal notification and coordination

We notify and coordinate with tribal representatives in accordance with state and federal laws to strengthen our working relationship with area tribes, avoid inadvertent discoveries of Native American archaeological sites and burials, assist with the treatment and disposition of inadvertent discoveries, and explore options of avoidance of cultural resources early in the planning process.

Policy CR-1.2 Tribal planning

We will collaborate with local tribes on countywide planning efforts and, as permitted or required, planning efforts initiated by local tribes.

Policy CR-1.3 Mitigation and avoidance

We consult with local tribes to establish appropriate project-specific mitigation measures and resource-specific treatment of potential cultural resources. We require project applicants to design projects to avoid known tribal cultural resources, whenever possible. If avoidance is not possible, we require appropriate mitigation to minimize project impacts on tribal cultural resources.

Policy CR-1.4 Resource monitoring

We encourage active participation by local tribes as monitors in surveys, testing, excavation, and grading phases of development projects with potential impacts on tribal resources.

GOAL CR-2 HISTORIC AND PALEONTOLOGICAL RESOURCES

Historic resources (buildings, structures, or archaeological resources) and paleontological resources that are protected and preserved for their cultural importance to local communities as well as their research and educational potential.

Policy CR-2.1 National and state historic resources

We encourage the preservation of archaeological sites and structures of state or national significance in accordance with the Secretary of Interior's standards.

Policy CR-2.2 Local historic resources

We encourage property owners to maintain the historic integrity of resources on their property by (listed in order of preference): preservation, adaptive reuse, or memorialization.

Policy CR-2.3 Paleontological and archaeological resources

We strive to protect paleontological and archaeological resources from loss or destruction by requiring that new developments include appropriate mitigation to preserve the quality and integrity of these resources. We require new development to avoid paleontological and archeological resources whenever possible. If avoidance is not possible, we require the salvage and preservation of paleontological and archeological resources.

Policy CR-2.4 Partnerships

We encourage partnerships to champion and financially support the preservation and restoration of historic sites, structures, and districts.

Policy CR-2.5 Public awareness and education

We increase public awareness and conduct education efforts about the unique historic, natural, tribal, and cultural resources in San Bernardino County through the County Museum and in collaboration with other entities. (Cultural Resources – San Bernardino County 2024)

3. ENVIRONMENTAL SETTING

3.1 THE NATURAL SETTING

The Project Area is in the San Bernardino Mountains, one of several mountain ranges trending east/west from the Pacific Ocean into the interior deserts that make up the Transverse Ranges. These mountains contain the highest peaks in Southern California, including Mount San Gorgonio at 11,502 feet elevation, and provide a clear line of demarcation between the high deserts to the north and the coastal and inland valleys to the south.

The San Andreas fault runs along the southern side of the San Bernardino Mountains forming steep sided slopes and rugged canyons. The elevation at the base of the mountains at the southern extent is generally below 1600 feet while the average elevation along the northern slopes are 4000 feet. The northern slopes are not as steep and rugged as the southern slopes. The San Bernardino Mountains are made up of primarily granitic from the Southern California batholith; however, igneous and metamorphic rock including schists and gneiss occur. These formations date to the Precambrian and Mesozoic periods. These rock types offer some use for aboriginal manufacturing of ground stone tools, for example stone bowls, pestles, manos and metates. No obsidian or volcanic glass is present within the mountains. The nearest sources of obsidian are over 145 miles north at the Coso sources and 100 miles southeast at the Obsidian Butte source. Instead, other crypto crystalline silicates including chert, chalcedony and jasper, quartz and metavolcanic rock were used to manufacture flaked stone tools. Some of these rock types occur locally; however, many sources are known and were used that occur on the desert floor to the north. (Norris and Webb 1990)

The climate of the region is classified as Mediterranean or "summer-dry subtropical" and is characterized by long, hot, dry summers and mild relatively wet winters. The climate in the San Bernardino Mountains is typically war and dry form spring through early fall and cool to cold and moist between November and March. The higher elevations receive approximately 40 inches of precipitation annually, both in the form of rain and snow (Bailey 1966). Approximately 85 percent of the annual precipitation falls between October and March. Precipitation of this area is less than that of the San Gabriel Mountains further west in the Transverse Ranges due to the rain shadow effect.

3.2 VEGETATION

ERM conducted a desktop-level biological review and field survey of the Project Area to document the vegetation and habitat within the Project Area (see ERM [2024a] for more information). The following information is a summary of the vegetation and habitat information collected during the biological study.

Habitat within the Project Area consists of mixed *Pinus monophylla* – (*Juniperus osteosperma*) Woodland Alliance (singleleaf pinyon – Utah juniper woodlands) and *Artemisia tridentata* Shrubland Alliance (big sagebrush) habitats, with a relatively open tree canopy and sparse to moderately dense understory. Within the Project Area, single leaf pinyon – Utah juniper woodlands habitat is dominated by single leaf pinyon pine (*Pinus monophylla*), Sierra juniper (*Juniperus grandis*) and Jeffrey pine (*Pinus jeffreyi*). Other trees/large shrub species conspicuous within the

Project Area include pale leaved serviceberry (*Amelanchier utahensis*), curl leaved mountain mahogany (*Cercocarpus ledifolius* var. *intermontanus*) and California fremontia (*Fremontodendron californicum*). The shrub layer on site is dominated by big sagebrush (*Artemisia tridentata*) and rubber rabbitbrush (*Ericameria nauseosa*). Other shrub species common within Project Area include mountain whitethorn (*Ceanothus cordulatus*), hairy yerba santa (*Eriodictyon trichocalyx*), Wright's buckwheat (*Eriogonum wrightii* var. *subscaposum*) and beavertail cactus (*Opuntia basilaris*).

4. CULTURAL SETTING OF THE BIG BEAR AREA

4.1 CULTURAL SETTING

The culture history of the Project Area is discussed below to provide an archaeological, ethnographic, and historic context for the archaeological investigations in this Project. This cultural setting takes on a broad approach to provide a comprehensive background of the area as it was and continues to be a travelling hub between the deserts and the coast.

To the west of Project Area is a major prehistoric trade route known as the Mojave Trail, which linked the cultures of the Colorado River and Mojave Desert regions with those of the Pacific Coast. This trail extended west from the modern town of Needles on the Colorado River to the Mojave River, near modern-day Barstow. From there, the trail went south along the river through the Victorville/Hesperia area, across the San Bernardino Mountains through Sawpit Canyon near Cajon Pass, until it reached the San Bernardino Valley, where it turned west and crossed into Gabrielino and Chumash territory. Another trade route, known as the Coco-Maricopa Trail, started farther south along the Colorado River, near Blythe, and went west through the Coachella Valley to the San Bernardino Valley via the San Gorgonio Pass (Davis 1961; Heizer 1978). Given this association, it is appropriate to consider chronologies from both the desert and coastal areas to understand how prehistoric cultural development unfolded in the San Bernardino Mountains. The interactions between the changing environmental conditions on each side of the mountains and the cultural adaptations made by precontact populations in coastal and desert regions are yet imperfectly understood.

The following brief overview of the prehistory of the region is summarized from Altschul et al. (1984), Moratto (1984), Sutton et al. (2007), Warren (1984), and Warren and Crabtree (1986). The use of the complete chronology for the California desert regions is used in this section since the chronology of the San Bernadino Mountains is still not well understood.

4.2 PRECONTACT SETTING

4.2.1 LATE PLEISTOCENE (12,000-10,000 B.C.)

The late Pleistocene was a time of generally cooler temperatures and greater precipitation than today. In addition, Rancholabrean fauna (e.g., mammoths) are known to have been present during that time. Although the specific timing of the initial occupation of the northeastern Mojave Desert is not known, it is known that there were people present in the region by the late Pleistocene. The earliest well-documented occupation of North America is the Paleoindian Clovis complex, but there is increasing evidence that people may have been in North America prior to

that time. The earliest accepted cultural complex dating to the Pleistocene in the Mojave Desert is the Clovis complex (ca. 12,000–10,000 B.P.). The characteristic artifact of the Clovis complex is the fluted projectile point of the same name. Clovis (or Clovis-like) points are often found as isolates (Basgall 1993; Basgall and Hall 1991, 1994; Borden 1971; Brott 1966; Davis 1969; Davis and Shutler 1969; Glennan 1971; Haynes 1996; Rogers 1939; Rondeau and Taylor 2007; Sutton and Wilke 1984; Warren and Phagan 1988; Yohe et al. 2013), but several "concentrations" have been found in the drainage basins of Pleistocene lakes in the Mojave Desert, including China Lake (Basgall 1993, 2007a, 2007b; Davis and Panlaqui 1978; Dillon 2002; Rosenthal et al. 2001; Warren and Phagan 1988) and Lake Thompson (Rosamond, Rogers, and Koehn playas; Basgall and Overly 2004). However, fluted points are relatively rare in the San Bernardino Mountains, as well as in coastal areas.

4.2.2 EARLY HOLOCENE (8000-5000 B.C.)

The first well-documented early Holocene archaeological pattern in the Mojave Desert is the Lake Mojave complex, dating between about 10,000 and 8000 B.P. (e.g., Amsden 1937; Campbell et al. 1937). The marker artifacts of this complex are stemmed Lake Mojave and Silver Lake points, abundant bifaces, steep edged unifaces, and crescents. Materials of this complex have been reported at Lake Mojave, Fort Irwin (Basgall 1993; Bergin et al. 2013; Hall 1993; Jenkins 1987; Warren 1991), Twentynine Palms (Basgall and Giambastiani 2000), Rosamond Lake (Basgall and Overly 2004), and China Lake (Basgall 2003, 2007a; Gilreath and Hildebrandt 1997; Rosenthal et al. 2001). Most of the radiocarbon dates on Lake Mojave complex materials have come from Fort Irwin and range between 10,085 and 7910 radiocarbon years before present (RCYBP) (Basgall and Hall 1994; Hall 1993; Jenkins 1985). Flaked stone artifacts in Lake Mojave assemblages show evidence of long-term curation and transport. Nonlocal tool stone and marine shell beads are relatively common components of such sites, suggesting long-distance direct access and/or trade. A small number of lightly used ground stone implements associated with this time period also have been found. Overall, the Lake Mojave settlement pattern "appears to reflect a forager-like strategy organized around relatively small social units" (Sutton et al. 2007:237). On the coastal side of the mountains, this early hunting period has been variously identified as Early Man (Wallace 1955), San Dieguito (Warren 1968), or simply the early Holocene (Grenda 1997). Evidence of early occupation has been found along the San Diego coast, on the shore of Lake Elsinore (Grenda 1997), and near the town of Hemet at the recently completed reservoir now known as Diamond Valley Lake (Horne 2000). At present, though, no sites with affinities to these early cultures are known in the immediate vicinity of the Project Area, possibly because of geological factors including continual erosion and significant alluvial deposition.

4.2.3 MIDDLE HOLOCENE (5000-2000 B.C.)

By 5000 B.C., a warming trend that began during the Lake Mojave period became more pronounced and led to the desiccation of numerous Pleistocene lakes in the Mojave Desert. Local populations, previously dependent on rivers and lakes, became more diversified in response to an increasingly arid environment. Some researchers have argued that conditions became so arid that the desert was simply abandoned between 5000 and 2000 B.C. (Donnan 1964; Wallace 1962). Others have suggested that populations in the desert persisted and adapted by becoming small and highly mobile, perhaps concentrating near available water sources and adjusting their

territories in response to long wet and dry cycles (Campbell and Campbell 1935; Schroth 1994). Small, sparse occupations dated to this time are assigned to the Pinto period and are identified by a characteristic point type of the same name (Warren 1984; Warren and Crabtree 1986:187).

As with the early Holocene, terminology regarding this post–5000 B.C. period is greatly variable. The time period has been called the Millingstone horizon (Wallace 1955), the Encinitas tradition (Warren 1968), and the Middle Holocene or middle Archaic (Grenda 1997; Grenda et al. 1998; Horne 2000). Local variants include the southern coastal La Jolla complex and the more inland Pauma complex (True 1980), as well as the Sayles complex in the Cajon Pass region (Basgall and True 1985; Kowta 1969).

Kowta (1969) suggested that the Sayles complex represents a long-term connection between coastal and desert areas. He argued that prior to 5000 B.C., the San Dieguito culture extended beyond the Transverse Ranges, from the San Diego coast northward into the Mojave Desert (Kowta 1969:35–36). He equated the early part of the Middle Holocene with the Altithermal climatic phase, characterized by the warmer and drier conditions that led to the desiccation of inland lakes and a reduction in resource availability in the Mojave Desert and Great Basin. Kowta found evidence of a concomitant reduction of occupation in California's desert regions and a possible hiatus between the San Dieguito culture and the succeeding Pinto Basin complex. At the same time, the Southern California coast witnessed an expansion of occupation and the inception of the Millingstone horizon. The apparent depopulation of the desert, coupled with a marked increase in population along the coast, led Kowta (1969) to argue that the various Millingstone complexes represent a coastward movement of inland people, who found the arid interior increasingly unfavourable for human occupation.

4.2.4 LATE HOLOCENE (2000 B.C. – A.D. 1200)

The Late Holocene is subdivided into the Gypsum and Saratoga Springs complexes. Gypsum Complex (2000 B.C.–A.D. 500) After 2000 B.C., people returned in significant numbers to the Mojave Desert. This period of occupation, termed the Gypsum complex (ca. 2000 B.C.–A.D. 500), was characterized by more-diversified subsistence techniques that might have been derived from earlier desert adaptations from the Pinto period or, alternatively, might have been imported from outside the desert. Hunting continued to be an important activity, but the primary technology shifted from dart and atlatl to bow and arrow. The early part of the period is associated with Elko- and Gypsum-type dart points, but these were gradually replaced by smaller, Rose Spring–series projectile points (typical of bow-and-arrow technology) at the end of the period (Yohe 1992). Milling stones are also more frequent at Gypsum complex sites than at older sites, indicating increased reliance on plant products in the desert. Beyond subsistence, ritual activities seem to have become more important, along with an increase in trade contact with other culture groups from the California coast and the Southwest. For example, split-twig figurines, a cultural innovation of southwestern cultures, appeared at Newberry Cave during the Gypsum complex. The figurines were associated with elaborate pictographs, suggesting an increase in ritual activity at this time (Davis and Smith 1981). Sites dated to the Gypsum complex are well represented in the mountains and in adjoining areas toward the coast. The Siphon site in Summit Valley has been dated to about 1550 B.C. and was characterized by Sutton et al. (1993) as a middle to late Millingstone-horizon base camp. Other sites that were occupied at this time included those at

Yucaipa (Grenda 1998) and at Prado Basin (Grenda 1995). Throughout the region, a "fairly heavy, semisedentary population" was established (Wallace 1958:12; see also Rogers 1939:61). Five sites recorded by Lerch et al. (2002) as part of investigations related to the Willow Fire contained large dart points, suggesting a Gypsum complex occupation. In general, the Gypsum complex was a time of intensified settlement and exploitation of the desert valley floor and surrounding mountains.

4.2.5 SARATOGA SPRINGS COMPLEX (A.D. 500-1200)

The period from A.D. 500 to 1200 in the desert is known as the Saratoga Springs complex and is in most respects a continuation of the previous Gypsum complex. During the Saratoga Springs complex, subtle regional variations in artifact and site types became more pronounced. These regional variations might have been results of intensified contact with neighboring groups along the coast, in the mountains, and in the Southwest. Evidence from the Oro Grande site on the Mojave River indicates trade with coastal groups during this period and a more structured settlement hierarchy centered on large village sites (Rector et al.1983). The primary projectile-point types of the southern Mojave Desert, the San Bernardino Mountains, and coastal regions are Cottonwood and, by the end of the complex, Desert Side-notched points. The Rose Spring types common to the northern Mojave Desert are rare. Ceramics were probably introduced into the region at this time, but the evidence is scarce. Lower Colorado Buff and Tizon Brown Ware ceramics are often associated with Cottonwood and Desert Side-notched points, and they likely date to the very end of the Saratoga Springs complex and into protohistoric times. Unlike some communities farther to the north who were using Anasazi-inspired pottery as early as A.D. 500 (Warren 1984:421–422), the southern desert and mountain groups seem to have concentrated on contacts with coastal communities. Marine shell beads are increasingly common at Saratoga Springs complex sites, suggesting trade with the Southern California coast, probably along the Mojave River valley route later known as the Mojave Trail (Warren 1984).

4.2.6 LATE PREHISTORIC PERIOD (A.D. 1200-CONTACT)

From A.D. 1200 to the time of European contact, the regional cultural developments that began during the Saratoga Springs complex continued. Sites along the Mojave River display an increasingly elaborate artifact assemblage influenced by cultures from both the Southwest and the California coast. Numerous sites dating to this most recent period of prehistory are located along the Mojave River (Altschul et al. 1989; Schneider 1988; Smith 1963), in the San Bernardino Mountains (Simpson et al. 1972; White and Reeder 1970), and in the inland valleys (Grenda 1998).

In the mountains and the lower desert region, Takic language speakers seem to have become firmly established at this time, and the occupation of the San Bernardino Mountains seems to have increased. In contrast to the five Gypsum complex sites identified by Lerch et al. (2002) as part of their survey for the Willow Fire, nine sites contained either Cottonwood or Desert Side-notched projectile points. Influences from Yuman speakers (Patayan) from the Colorado River and the deserts of western Arizona and Southern California also increased throughout the protohistoric period, as indicated by the presence of Lower Colorado Buff and Tizon Brown Ware ceramics. Lowland Patayan groups produced Lower Colorado Buff Ware from buff-firing secondary clays

(Beck and Neff 2006; Hildebrand et al. 2002). By contrast, the Upland Patayan who had access to granitic residual clays, were the makers of Tizon Brown Ware (Waters 1982:275). For example, work at the Pan Hot Springs site found both Tizon Brown Ware and Lower Colorado Buff Ware ceramics (Lerch and Ciolek-Torrello 2007) associated with Cottonwood-series projectile points. These ceramics, along with the continued use of coastal artifacts such as shell beads, suggest fairly long-distance trade contacts, although the Tizon Brown Ware may have been locally made, as the necessary raw materials for this ware are widely available in the San Bernardino Mountains. Most archaeologists agree that trade along the Mojave Trail was steady throughout this period, accounting for the varied coastal, desert, and Colorado River influences in the San Bernardino Mountains area (Warren 1984).

4.3 ETHNOGRAPHIC SETTING

The proposed Project Area lies within the traditional areas of the Serrano groups. The Serrano language belongs to the Takic subfamily of the larger Uto-Aztecan language family (Morroto 1984:534). Today this family includes languages from the Great Basin to central Mexico. The Serrano language is similar to neighboring tribes of the Cahuilla to the southeast, the Luiseño to the southwest and Tongva (Gabrielino) to the west.

Home to the Serrano, Vanyume, Kitanemuk, Kawaiisu, Tataviam, and Chemehuevi, the political geography of the Transverse Ranges and the Mojave Desert area is complex (Earle 1997; Johnson and Earle 1990; Kroeber 1925). Garcés' diary indicates that these groups were Vanyume (Beñemé), a term he applied to all the Serrano groups (Bean and Smith 1978; Coues 1900:243). Later interpretations place the Kitanemuk in the northwestern Antelope Valley, the Tataviam in the southwestern Antelope Valley, the Serrano in the San Bernardino Mountains and the desert east and northeast of the foothills, and the Vanyume along the Mojave River and west of the river in the western Mojave Desert (Blackburn and Bean 1978:564-569). The Vanyume are now generally considered a "desert division" of the Serrano, as both groups spoke the same language, intermarried, and attended each other's fiestas (Earle 1997:12). Mission register data indicate that communities in the western Antelope Valley may have had mixed populations of Serrano and Tataviam speakers (Earle 1997:16, 21), whereas ethnographic evidence suggests that these rancherias were Kitanemuk or Tataviam (Blackburn and Bean 1978:564; Earle 1997:16; King and Blackburn 1978:535-536).

The San Bernardino Mountains are the home of the Serrano people. The name Serrano derives from the Spanish word "mountain or highlander." This name was applied by Spanish, the first Europeans to make contact with the Serrano as early as the 1770s, to those living in the mountains now called the San Bernardinos. Prior to historic contact, the Serrano were primarily hunters and gatherers of wild plant foods and lived in permanent villages with satellite camps spread throughout their territory (Kroeber 1925). Serrano villages were placed throughout the low land valley areas stretching across what are now the present-day communities of Yucaipa, Redlands, San Bernardino, Lytle Creek, the north slopes of the San Gabriel Mountains toward Phelan and Wrightwood and San Bernardino Mountains and extending north and eastward toward Victorville, Barstow and Twenty-nine Palms (Kroeber 1925, Bean and Smith 1978). Winter villages (permanent settlements) appear to have been located along permanent water courses, at springs, and near the outlets of permanent stream courses (Robinson 1987; Sutton 1988:73-76).

The higher elevations of the San Bernardino Mountains like the Big Bear area were occupied only on a seasonal basis. Winter conditions, particularly above 5,000 feet in elevation, could be challenging with freezing temperatures and deep snow. Whereas temperatures at the lower elevations at the mountain bases were considerably higher. In protohistoric and likely late prehistoric times permanent settlements tended to be located at lower elevations particularly at the mouths of well-watered canyons along the base of the San Bernardino Mountains. Permanent settlements were occupied both during the winter and other parts of the year, and expeditions were sent out from these permanent villages during non-winter months.

Ethnographic literature indicates that the gathering of plant foods provided the Serrano with the bulk of their food resources. Food resources included acorns, yucca, pinyon nuts, greens, wild fruit and bulbs, mesquite pods, deer, small terrestrial mammals, birds, and fish. Like their other neighbors in a similar environment, plants are likely to have made up over 65 percent of the dietary food intake of the Serrano. The lower slopes and uplands of the San Bernardino Mountains provided an enormous potential for food resources. The greatest variety and quantity of plants are available on the upland slopes where yucca, manzanita, pinyon and black oak among others occur. Seasonal movement beginning in the lowest elevation of the foothills close to winter villages would provide the earliest plants for food consumption given the milder winter temperatures.

As the season progresses depleting resources closer to the winter villages and the onset of higher temperatures, movement to other up-slope resource patches of the same species would become necessary. This would extend the gathering season for several important plant species where they are available in a wide variation in elevation. One example is yucca, *Yucca whipplei*, whose common names include Spanish Bayonet, chaparral yucca or Our Lord’s Candle, occurs extensively along the northern slopes of the San Gabriel and San Bernardino mountains at approximately 3,800-foot level and continuing up to about 6,000 feet above sea level and from below 2,000 feet to 7,000 feet above sea level on the southern slopes. Yucca could become available for harvesting at its lowest range in elevation as early as late February or March. The species is still available for harvest in late June at the higher elevations within its range. This provides a potential extended period of five months to gather yucca between its lowest and highest elevation in contrast to only several weeks availability within any one elevation zone. Where the distribution of economically important plants persists in a wide geographic region and range in elevation, their available season is lengthened considerably. Yucca hearts were roasted and provided a staple food source among the Serrano and neighboring tribes. Roasting pits or earthen ovens have been found and dated to over three thousand years (Milburn 1997, 1998). Also, blossoms may have been picked and eaten or stored for later consumption by the Serrano, as among the neighboring Cahuilla.

Hunting was probably most important during times when plant foods were scarce, such as winter. Many of these food resources were widely dispersed, therefore, a large number of food collecting and processing stations were used throughout the course of the year both on the desert and valley floors and the higher elevations of the San Bernardino Mountains. In areas where water and resources were more plentiful extended camping might be expected. These locations across the landscape represent daily subsistence activities by individuals or small family groups based at a nearby village or seasonal camp. Serrano settlement and political organization, the patrilineage, linked the nuclear family with the exogamous village-based clan and clan territory (Gifford 1918;

Strong 1929). Several patrilineages (i.e., patrilineally related males and their families, perhaps 50-100 people) shared a permanent village site which functioned as a year-round base camp from which visits were made to satellite villages and seasonal temporary camps in other environmental and vegetation zones. Visits to other localities could be short or even winter-long occupations (Earle 1997:10).

Lineages that occupied permanent satellite villages, especially winter settlements, often attempted to "fission" themselves into independent territorial clans (Earle 1997:10). A village consisted of houses belonging to related and unrelated families scattered in an area where dependable water was available year-round. Members of the village represented several clans which were divided between the two moieties: Wildcat and Coyote. For example, Baldwin Lake area and former Bear Valley, before the lake was built, was the home of the Yuhavetum, "People of the pines." Here also, the Serrano invited their neighbours the Cahuilla from the San Gorgonio Pass area to join them during piñon nut harvesting in the late summer and early fall. Occupation of villages or camp areas either year-round or seasonal were likely to change over time due to social and environmental factors. Plants were not always available every year at the same location.

For example, black oak acorns (*Quercus kelloggii*) take two years to form. There may only be one good crop from a given grove once in five years given environmental conditions. Villages were linked by ceremonial, social and economic ties, and exchange of food and goods was common. Limited archaeological studies in the San Bernardino Mountains have identified obsidian, a volcanic glass used to make projectile points and knives, that was traded in to this area from several sources located hundreds of miles away. Pacific seashells have been made into ornaments, such as Olivella beads, and abalone shell pendants, by coastal tribes and traded inland have been recovered. Serrano basketry, often exquisitely made with intricate patterns and designs, were used as trade items for products not locally available. These manufactured goods from great distances reflects the great extent of trade activity between the Serrano, their neighbours, and their neighbours' neighbours and social contact that was in place for thousands of years before the arrival of Europeans.

By the time of initial Spanish contact in the late 18th century (the advent of the historic period in this region), the Serrano had developed a highly complex social organization based on clans and territories (Strong 1929). The Serrano were organized into localized, patrilinear, nontotemic clans grouped into two moieties of either Wildcat or Coyote (Gifford 1918:217; Strong 1929). Serrano women retained their lineage names but were incorporated into their husbands' clans, assuming the same ceremonial ties as their husband, primarily on account of patrilocality customs. Married women who lived close enough to their father's village could take part in ceremonies with that village. Clans were linked to each other in ceremonial alliances that crossed moieties, as a clan of the opposite moiety possessed the sacred bundle that ceremonial life centered around. Much of the Serrano territory remained relatively free of White intrusion until about 1819 when the Spanish built an asistencia near what is now Redlands.

During the late 18th and early 19th centuries the coastal Indians, and to a lesser extent the Serrano, fell under the influence of the Spanish mission system. At the missions, agricultural techniques and animal husbandry were introduced to the native peoples of Southern California.

Mission life proved destructive to the aboriginal lifestyle. Forced relocations (to the missions), introduction of new diseases (i.e., smallpox, and measles) to which the indigenous peoples have no immunity, and intermarriage, all acted to hasten the demise of the old subsistence patterns and drastically lowered the population levels of Southern California Native groups. In particular, from 1819 to 1834 and again in the 1860s these disruptions to Native life began the demise of the Serrano people. During the 20th century, many Southern California Native Americans worked on the railroads, on ranches, and as wage-earners in the cities. Some settlements, traditional gathering areas, and sacred areas were recorded by ethnographers who collected information from elders about their surviving culture after the turn of the century (Harrington 1986; Bean et al. 1981). Known Serrano place names for valleys, peaks, and villages making up their cultural landscape are very limited in comparison to what has been lost. Many Serrano decedents are enrolled at the San Manuel or Morongo Indian reservations today. Gaming at both reservations has brought economic independence and allowed the Serrano people to move forward into the 21st Century while hanging on to their cultural identity of the past.

4.4 HISTORIC SETTING

The historical background presented in this section follows the chronological order in which each group came into the San Bernardino Mountains. This historical review focuses on the Big Bear area as it has received much more treatment from previous studies in the area.

4.4.1 SPANISH MISSION PERIOD (1771-1834)

Recorded history in this part of Southern California began in the late eighteenth century with the expedition of Gaspar de Portolá up the coast in 1769. The first mission in the region, Mission San Gabriel, was established in 1771 (Engelhardt 1927). The earliest recorded passage of a European through the mountain area occurred in 1772, when Spanish soldier Pedro Fages crossed the San Bernardino Valley from south to north and exited via Cajon Pass in pursuit of deserters from the presidio at San Diego (Bolton 1931). The expeditions of Juan Bautista de Anza in 1774 and 1776 skirted the southern portion of the region (Bolton 1930). In 1776, Father Francisco Garcés, led by Mojave guides, traversed the desert from the Colorado River to the coast (Garcés 1900:246, 1967:38). The route that Garcés followed became known as the Mojave Trail. Mojave groups regularly travelled along the trail between river and coast during the historical period and apparently in prehistoric times as well. On March 22, 1776, after spending the night in Summit Valley at the Serrano village of Guapiabit, Father Garcés recorded in his diary the following passage:

> After three leagues I crossed the [San Bernardino] mountain range south-southwest. The trees mentioned yesterday reach to its top, whence the Ocean is in view, the Santa Ana River [sic], and the San José Valley. On the downslope of the range there are few trees. At its foot I found a rancheria where they received me very gladly. I continued west-southwest and west and having gone three leagues along the slope of the range, I stopped in the Arroyo de los Alisos [Garcés 1967:38].

Garcés saw the Pacific Ocean from his crossing point, which today is known as Monument Peak, and that he also viewed the Santa Ana River in the valley below and the San Jacinto Valley (which

he knew as San José) to the southeast. The most detailed account of the route the trail took over the mountains is that of historian George Beattie:

> From Soda Lake the [Mojave] trail kept close to the Mohave River [sic] and, as it approached the mountains, followed the West Fork of the river for several miles beyond what we now call Las Flores Ranch. When finally, it left West Fork, the trail entered Sawpit Canyon and led up to the crest of the range, eight miles southeast of the Spanish crossing [Cajon Pass]. Thence it descended the south slope of the range on the ridge west of Devil Canyon, turned west into Cable Canyon a short distance above its mouth, and emerging crossed the lower end of Cajon Pass just south of Devore station. It then passed through Sycamore Grove at Glen Helen Ranch, crossed Lytle Creek and led through Cucamonga and on to the sea [Beattie n.d.:2–3].

Spanish explorations in the inland areas led to the establishment of a number of cattle ranches, one of which was called the San Bernardino Rancho, named for Bernardine of Siena, the Catholic saint on whose feast day the rancho was first consecrated. This event reportedly took place at a village of the Guachama (Wa'achem) on May 20, 1810, the culmination of an arduous journey undertaken by the aging Franciscan, Father Dumetz (Caballería 1902:38; but see also Harley 1988). Other mission ranchos established in the area included Agua Caliente, extending from the Santa Ana River northward to the base of the mountains, and Yucaipa Rancho, in the valley of the same name.

By 1819, the San Bernardino Rancho headquarters at the Guachama village had an adobe storehouse and a residence for the mayordomo (ranch manager). The following year saw the completion of an irrigation ditch, known as a zanja, that diverted water from Mill Creek to irrigate the first agricultural fields in the area. When the zanja was completed, an invitation was sent to the Indian rancherías (dispersed villages) in the surrounding region to come watch the Guachama plant their crops. Reportedly, a thousand responded and were receiving practical instruction in agriculture within a month (Beattie and Beattie 1939:13). Eventually, the Mission San Gabriel authorities, ostensibly at the request of the local native population, decided to build a mission asistencia (outpost) at the San Bernardino Rancho. Construction on the new asistencia began shortly after 1827, perhaps around 1830, at a location approximately 1 mile east of the original rancho headquarters at the Guachama village (Beattie and Beattie 1939:26). Today, the San Bernardino Asistencia facility is located at the corner of Barton Road and Nevada Street at the western edge of the town of Redlands and is operated as a satellite of the San Bernardino County Museum. The main building and several supporting structures were extensively reconstructed between 1926 and 1934 using state and federal relief funds as well as private donations (Hinckley 1965). It was during the original construction of the asistencia that the earliest known timber extraction occurred in the San Bernardino Mountains. The wooden beams used to support the roof were made of bigcone Douglas fir (*Pseudotsuga macrocarpa*) obtained from the lower stretches of Mill Creek Canyon (Beattie and Beattie 1939:27; Johanneck 1975:25).

The timber was probably cut into beams at a mill located at Forest Home, the remnants of which were still visible in the late 1800s (Crafts 1902:16). Fifty years after Father Garcés made his passage over the mountains on the Mojave Trail, American trapper and fur trader Jedediah Smith used the same route. In the autumn of 1826, on his first expedition into Southern California,

Smith and his party of 15 men, also guided by Mohaves, used the ancient travel route. On his return in January 1827, he stopped at the storehouse of the San Bernardino Rancho to obtain supplies and to break a herd of some 65 wild horses he had procured in Los Angeles. He then drove the herd back to the Great Salt Lake, in Utah, apparently taking the longer but gentler grade through Cajon Pass over what later became known as the Spanish Trail. Smith made a second trip into the San Bernardino Valley later in 1827, arriving via Cajon Pass and leaving over the Mojave Trail (Beattie and Beattie 1939:21–24; Brooks 1977). Details regarding the closing years of the mission period are lacking, although it is known that a rising discontent among the scattered groups of non-mission Indians all the way to the Colorado River precipitated a series of attacks on mission facilities late in 1834. The attacks on the missions could not have come at a better time for the Mexican government. Newly independent from Spain, Mexico enacted a decree of secularization in 1833, taking mission properties out of the hands of the Catholic Church and the Spanish Crown. In 1834, the decree was enforced in California, and the missions became the property of the civil authorities.

The result of secularization and native uprisings in the area was the abandonment of the asistencia at San Bernardino and the effective end of missionary activity in the San Bernardino Valley (Beattie and Beattie 1939:33). Mexican Rancho Period (1834–1850). Following the departure of the Franciscans, a period of legal and forcible maneuvering ensued during which influential individuals attempted to gain control of the various ranchos. In the case of the San Bernardino Rancho, the sons of Antonio María Lugo were ultimately successful. On June 21, 1842, the brothers José del Carmen, José Maria, and Vicente Lugo, with their cousin Diego Sepulveda, were granted the San Bernardino Rancho for the purpose of stock raising but with the added obligation that they establish a colony there (Cowan 1977). Most of the ranchos in the San Bernardino Valley continued to be devoted to stock raising, with an emphasis on cattle. As stock raisers first and foremost, the rancheros generally stayed on the flatlands to tend their cattle and horses. Aside from short forays to prospect, hunt, or harvest timber, they watched the mountains with a wary eye. Hostile natives and others intent on stealing the rancheros' stock were known to shelter in remote mountain hideouts.

The large valley herds were vulnerable to bands of marauding desert native and non-native outlaws. One particularly bold horse thief was Walkara, a Paiute also known as Wak and Walker. On one of his raids, he joined forces with the American outlaws James Beckwourth and Thomas L. "Pegleg" Smith. In the spring of 1840, they spent several months rounding up horses, and on the night of May 19, they drove some 5,000 head north through Devil Canyon and Cajon Pass. Walkara made yet another raid in October 1845 on the Chino Rancho, this time driving the stolen herds up the Mojave Trail to Devil Canyon and onto the Spanish Trail. Over the crest of the mountains, a favorite hiding place was a secluded canyon now aptly known as Horsethief Canyon (Bailey 1954; LaFuze 1971: I:13). As one means of counteracting the constant threat of raiding, a land grant at the mouth of Cajon Pass near Devore was made in 1843 to Michael White. White was an Englishman naturalized as a citizen of Mexico who was also known as Miguel Blanco. His land grant was called the Muscubiabe Grant, named after the local Indian village, Amutskupiabit (see Ethnography section above).

Although the purpose of White's land grant was to create a sort of advance guard against the cattle raiders, he himself could not withstand the thieves, and all of his stock was stolen in short

order (Beattie and Beattie 1939:59, 90–95). With the failure of Michael White's venture, the Lugo brothers hired a band of mountain Cahuilla and induced them to move to the San Bernardino Valley to act as guards and cattle herders (vaqueros). This move of Cahuilla into the San Bernardino Valley territory formerly occupied by the Serrano Wa'achem has led a number of historians to conclude mistakenly that the area was originally Cahuilla territory (Strong 1929:150). Despite these countermeasures, the raids continued to escalate.

In 1845, determined to stop the losses to local ranches, Governor Pio Pico commissioned Benjamin Wilson to lead a punitive expedition against a band of Indians on the Mojave River. A native of Tennessee, Wilson had married a local woman, Ramona Yorba, and bought the Rancho Jurupa. By this time, Wilson, known locally as Don Benito, was serving as the alcalde of the Jurupa district and was fully integrated into the Mexican community. Sending most of his group of volunteers by way of Cajon Pass, Wilson led a small group of 22 men into the eastern San Bernardinos to explore and look for a shortcut to the desert. What they found, in addition to a small Indian village, was a lush meadowland with an abundance of bear in the vicinity of what is now known as Baldwin Lake. On the return trip, the men captured and killed a number of grizzly bears, prompting Wilson to name the basin Bear Valley (Robinson 1989:12). Wilson led three expeditions over the mountains to attack the Colorado River Indians. He was successful in recovering some 2,000 stolen animals, and although the ring leaders were not captured, the raids diminished. Mohave and Ute warriors continued to harass the ranches on a small scale until the charismatic leader Walkara died in 1855 (Schuiling 1984:39–40).

As the ranchos expanded and the raids diminished, the need for lumber for buildings and fencing prompted a new perspective on the mountains. Formerly the despised hideout of thieves, the heavily forested mountains began to look more attractive. The earliest recorded request to cut timber in the San Bernardino Mountains was granted on December 18, 1839, to Juan Bandini by Governor Alvarado. Bandini, the original owner of the Jurupa Rancho, was given an exclusive 20-year cutting privilege to land at the head of Devil Canyon and down into Sawpit Canyon on the northern slope of the range, along the old Mojave Trail. Bandini's crews began cutting on the mountain crest in 1841, using a large hole, or sawpit, in the ground to cut the logs into smaller sections for transportation down the mountain. This early operation provided the name for Sawpit Canyon. After Bandini moved to San Diego in 1843, Bernardo Yorba continued logging on this grant until 1848 (Robinson 1989:10–11). The end of the Mexican Rancho period in Southern California came with the war between the United States and Mexico, which resulted in all of Alta California becoming American territory. Although significant battles were fought nearby at Chino and at Aguanga in 1846, the war did not have any direct impact on the study area. The surrender of the Mexican California forces to the Americans in 1847 at Cahuenga ended local involvement in the war (Beattie and Beattie 1939:70).

4.4.2 MORMON PERIOD (1850-1857)

Settlement of the San Bernardino Valley progressed slowly under the management of the early Mexican rancheros, but that slow pace changed with the arrival of Mormon colonists. The Mexican-American War brought an end to the old order and opened California's borders to adventurers, traders, settlers, and squatters. A wave of westward expansion swept across the country and into Southern California. By this time, José del Carmen Lugo, owner of the San Bernardino Rancho,

was in a financial bind. He had a number of personal loans outstanding, had lost much of his livestock to theft, and was experiencing problems recruiting colonists to the valley as required by the terms of his land grant. Pressed on all sides, Lugo quickly struck a deal when the opportunity arose to sell the San Bernardino Rancho to Mormon colonists from Utah.

By 1851, an emigrant train with 150 wagons was on its way from Salt Lake City to the San Bernardino Valley (Beattie and Beattie 1939:170–179, 217). When the Mormon colonists first arrived in the San Bernardino Valley, they camped at Sycamore Grove, which today is the site of the Glen Helen Regional Park. A second group of colonists camped just to the west in Sycamore Flat, the probable location of the earlier Serrano village of Wahina't. The colonists camped in the area for several months before establishing the town of San Bernardino (Beattie and Beattie 1939:176–184). They were aided in the platting of the new town by the arrival of government surveyors in the early 1850s. The government surveyor Henry Washington established the initial point of the San Bernardino Base Line and Meridian on the top of Mount San Bernardino in 1852 (Beattie and Beattie 1939:205). With this point set, surveys of the surrounding region proceeded throughout the next several decades, recording in detail much of the locational data needed to interpret early historical accounts. Surveys of that period often mapped Indian huts, villages, and trails, as well as early American homesteads.

Mormon use of the mountains was mostly related to timber extraction (LaFuze 1971: I:22). A mill known as the Vignes Mill was built in Mill Creek Canyon in the 1850s to replace an earlier one destroyed by floods. Valley resident Daniel Sexton took over Vignes Mill in 1852 and, using Indian laborers, provided custom-cut lumber for sale to the new colony (LaFuze 1971: I:33). The Mormons built a second mill upstream from the Vignes Mill in 1853 and later constructed a third, portable one, known as the Crisman Mill. David and Wellington Seeley also built a water-powered sawmill in the mountains during the late summer of 1853. It was placed along a stream draining toward the desert, several miles down the canyon from the crest of the mountains. The Seeleys shipped their first load of lumber on April 24, 1854 (LaFuze 1971: I:36,40). By late 1854, six Mormon sawmills were operating on the mountaintop (Robinson 1989:21).

Mormons also participated in some of the earliest grazing of livestock in the mountains in association with their logging efforts. Families working at the mills brought their animals with them when they moved to the summer logging camps in the mountains. Oxen were used to haul the timber down to the valley, horses and mules aided the transportation efforts, and pigs were brought up for meat, lard, and hides. Animals transported to the logging areas at Seely and Huston Flats were in some cases left to pasture when the families returned to the valley below (Carrico et al. 1982: B-4; Robinson 1989:81). Still, the number of animals grazing in the logging belt was probably modest during this period. Over time, troubles arose between the Mormons and non-Mormon squatters. Besides local squabbles over land rights, there were urgent issues facing the Mormon people back in Utah, prompting a general recall of Mormon colonists by the church elders in 1857. After hurriedly selling off their assets, often at a loss, most of the Mormon faithful returned to Salt Lake City by late 1857 (Beattie and Beattie 1939:278–298). The loss of so many industrious, well-organized settlers left a vacuum in the valley for a number of years.

4.4.3 POST-MORMON PERIOD, AMERICAN EXPANSIONISM (1857-1893)

4.4.3.1 LOGGING

Between 1865 and 1895, logging reached its peak in the western San Bernardino Mountains. From the initial seasonal, family-style operations, the mountain logging industry grew dramatically, supported increasingly by technical innovations. One pioneer of new technology was Jonathan James, who operated a sawmill near Huston Flat from the late 1850s. In 1865, James moved his operation to Little Bear Valley (now under Lake Arrowhead) and set up a steam-powered circular saw near the modern town of Blue Jay (Robinson 1989:30). Another steam-powered saw may have been brought to Mill Creek somewhat earlier, although accounts are unclear. That saw might have later moved to Waterman Canyon, before finally finding its way to a mill at Lytle Creek (Beattie and Beattie 1939:198–199; Johanneck 1975:36). Another pioneer was Francis Lebaron Talmadge, patriarch of the famous Talmadge family, who arrived in the San Bernardino Mountains in 1853 (Robinson 1989:86). He began hauling lumber for the James Sawmill near Huston Flat in 1861. The following year, he and several others built a large sawmill near Blue Jay. In 1867, he filed timber claims on 320 acres on the west side of Little Bear Valley, where he built his own mill (Robinson 1989:27). This mill was turned into a fort by local lumbermen and their families when a Paiute war party invaded the valley in January (Robinson 1989:16).

By the late 1870s, several steam-powered circular saws were busy at mountain sawmills slicing up the larger sugar pines that had been passed over by earlier loggers. Timber cutting and milling were profitable in these years, but also dangerous. Mill accidents, such as one that cost the life of lumberman William Steward La Praix in 1887, were not uncommon, and transporting the cut lumber by ox wagon down the steep switchback roads to the valley also was perilous. As with most moneymaking ventures of the day, though, injury and danger did little to slow the growth of logging in the mountains. Logging and milling in the San Bernardino Mountains continued at full capacity through the 1880s in response to the high demand for lumber to build homes, railroad ties, shoring for mineshafts, and wooden boxes for shipping citrus. The targeted trees were mainly ponderosa, Jeffrey, and sugar pine. In 1883, the San Bernardino Board of Trade estimated production at the mountain sawmills at 5 million board feet with a gross value of $100,000. In 1888, the estimate had risen to 6 million board feet of sawn lumber. The major families involved in the production were La Praix, Somers, Hudson, Taylor, Talmadge, and Tyler. These were the golden years of the timber industry, and developers felt that there was “no limit to our supply of good, fine timber” (Elliott 1965:94) as long as the market remained strong in the valley below.

Despite the unguarded optimism of the 1880s, by 1891 the timber industry in the San Bernardino Mountains faced a major challenge. That year, the Arrowhead Reservoir Company was incorporated and began buying up land in Little Bear and Grass Valleys, in advance of the construction of a dam. Milling in the area continued for a few years, as the dam project required vast amounts of lumber. By the end of the century, though, with the dam project nearing completion, all but a few of the loggers had moved out of the mountain valleys.

4.4.3.2 MINING

As profitable as timber production was, the venture never attracted large numbers of people to the mountains. The event that did accomplish this was the chance discovery of gold in Holcomb

Valley, followed a few years later by another strike in Lytle Creek. A gold rush ensued during the Civil War that brought thousands of hopefuls to the forest and indelibly changed the character of the San Bernardino Mountains. As a result of these discoveries, mining and prospecting became the dominant economic activity in the eastern portion of the mountains for many years (Carrico et al. 1982:4-61). Precisely when the first miners began work in the San Bernardino Mountains is unclear. Native Americans had been collecting stone materials to produce tools for centuries, but much of the mineral and metal wealth of the mountains remained untapped. The first miners to arrive were prospectors who generally worked alone or in pairs and often left no paper trail. There are reports that Mexican prospectors found minerals in the mountains (in the former Big Bear Ranger district) as early as 1800 and that Mexicans were among the first to mine gold in Holcomb Valley (Carrico et al. 1982:4-58–4-59) and the Rose Mine area (Robinson 1989:75). The first authenticated gold strikes, however, occurred in 1855 at Bear Lake (now known as Baldwin Lake) and in 1860 in Holcomb Valley. Miners at Bear Lake panned for streambed "placer" gold along Bear Creek (Robinson 1993:7). When a few miners came down the mountains and reported success, the newspapers were full of sensational accounts of gold in the mountains. The publicity drew numerous would-be prospectors to the mountain valleys. Their enthusiasm quickly died, however, as deposits failed to live up to expectations and the winter turned cold.

The real gold rush to the mountains would begin five years later, with the discovery of sizable deposits in Holcomb Valley and the Lytle Creek area (Robinson 1989). One of the hopeful prospectors was William Francis Holcomb, known as Billy, who arrived in Bear Valley in February 1860. Tracking a wounded grizzly later that May, Holcomb located a rich quartz lead that excited Bear Valley prospectors and sparked a rush to the newly named Holcomb Valley. At first, gold was recovered by panning by hand and sluicing in Holcomb and Van Dusen Creeks. By late summer of 1860, there were about 1,000 people at work, and a community called Belleville had sprung up in the upper Holcomb Valley, near its junction with Van Dusen Canyon. Belleville supported numerous saloons and dance halls, as well as several stores and a couple of blacksmith shops. The mountain mining boom promised prosperity, but not until transportation to the area could be improved. To reach Belleville and its associated camps, slow mule trains freighted supplies up steep canyon roads. The major pack trail route to the mining district wound up through Santa Ana Canyon (LaFuze 1971; Thrall 1950). Wagon teamsters trying to deliver heavy mining equipment needed a road up the desert side of the mountains to avoid the steep grades of the south side. The solution was to build a road that would connect to Cajon Pass.

On April 27, 1861, John Brown, Jr., of San Bernardino was granted an exclusive charter and franchise to build and operate a toll road up Cajon Pass. The first of its day, Brown's Road ran from Devore up Cajon Creek, past the Blue Cut (so named for the bluish rock, also known as Pelona Schist, that it exposed), and through Crowder Canyon to the summit, where it connected to a public road leading to Lane's Crossing on the Mojave River (Robinson 1989). The second leg of the road to the mines was built by Belleville blacksmith Jed Van Dusen with $2,000 raised by the miners in Holcomb Valley. In August 1860, Van Dusen and his crew began work on the road, grading northwestward from the mines through Coxey Meadow, past Horse Spring, down Arrastre Canyon, and on to the Mojave River, where the road turned northwest to join the toll road at Brown's Verde Ranch in Victor Valley (Beattie and Beattie 1939). The miners' road was completed in early July 1861 (Carrico et al. 1982; Robinson 1989). Later, the road Van Dusen built was called

the Coxey Road, and, after the gold rush faded, it was used primarily to move stock to the upland grazing meadows. A connecting road from Lone Valley built in 1864–1865 joined the Van Dusen or Coxey Road on Arrastre Flat about 10 miles east of Holcomb Valley and headed straight for the desert via Cushenberry Canyon to the modern-day Lucerne Valley (Carrico et al. 1982:4-60–4-61). These roads continue to be maintained by the United States Forest Service (USFS) and connect the desert valleys with the mountains and the coastal basins.

Improved transportation opened the floodgates to expansion, and miners streamed into the mountain mining districts, prospecting as they went. It was now possible to bring ore crushers and other heavy milling equipment up to Holcomb Valley. By late in 1861, hard-rock quartz ledge mining surpassed placering (hand panning) as the mining technique of choice. The population of Belleville swelled and almost surpassed that of San Bernardino, and the valley town nearly lost its place as the county seat. The future looked bright until the harsh winter of 1862, when 16 feet of snow filled Holcomb Valley. Greener, warmer climes beckoned, and the fast-buck opportunists drifted away, leaving the mountains virtually empty. Although the first flush of the boom was over, hard-rock and placer mining continued long after the 1860s. As one company of hopefuls quit the field in disappointment, a new group, fresh with funds and optimism, would take their place. The Greenlead Mine, located on the northern slope of Holcomb Valley about 3 miles west of Belleville, was first opened just after the hard winter of 1862. New recruits followed in 1866 and worked the green-tinted, copper-and-gold-bearing ore at the Greenlead Mine. All the miners were gone by 1871, when the ore played out. The following year, Englishman John Haley attempted to revive the Holcomb Valley claims by pouring some $200,000 into developing the Mammoth Vein. This effort was short lived as well, and the mine closed in the same year (Robinson 1989:59). The boom-and bust cycle, a product of speculation and wildly fluctuating gold prices, characterized mining in the San Bernardino Mountains throughout its history.

Despite the notoriety of Holcomb Valley's spectacular failures, the possibility of riches in gold continued to lure investors. Clearly, the gold was there; perhaps what was lacking was the correct recovery technique. Oblivious to the naturally low water levels of the San Bernardino Mountain streams and armed with unshakable faith in their superior technology, the Del Mar brothers of England arrived in Holcomb Valley in 1880. The brothers wagered that the latest hydraulic mining methods would solve the problem of low gold yields in the mountains. They sank vast sums into the venture, digging huge trenches and making a variety of attempts to increase the flow of Holcomb Creek until they were finally forced to abandon the project in 1895. The "most lavish mining enterprise in the history of Holcomb Valley" (Robinson 1989:61) ended in defeat, costing investors thousands of dollars. But even this debacle did not bring an end to the flow of investors and miners to Holcomb Valley.

By the turn of the century, Charles Metzgar and his partners had started another round of placer mining along Holcomb Creek. No major rush followed, but prospecting and placering on a small scale continued unabated for years. When the initial Holcomb Valley boom faded, prospectors scattered, making new discoveries as they went. Several prospects located in the early 1870s enjoyed some success. Active areas included Coxey Meadow, Tip Top Mountain, Lone Valley, and Upper Rattlesnake Creek. By far the largest of these discoveries centered on the appropriately named Gold Mountain, an 8,000-foot-high peak east of Holcomb Valley (Carrico et al. 1982:4-62). Charley Carter made the find there on November 21, 1873, while resting after hours of fruitless

prospecting. Dazzling testimonials were printed in the local papers following a display of his gold specimens in San Bernardino. Soon, Gold Mountain attracted many eager miners who covered the mountainsides with claim markers. Mining at Gold Mountain moved into high gear after Elias J. "Lucky" Baldwin pumped more than $250,000 into developing the mine. His crews built access roads, constructed water ditches, and built a 40- stamp mill to crush Gold Mountain ore. A 6-mile-long flume and ditch (P1314-11H) carried water from Van Dusen Canyon around the southern edge of Gold Mountain to the mill (Core 1993:29–30). A settlement called Bairdstown (later known as Doble) sprang into being near the mill and north of Baldwin Lake.

By 1875, Bairdstown, complete with restaurants, hotels, stores, livery stables, saloons, and blacksmith shops, boasted a population of more than 400. But by November of that same year, the mine shut down and activity ceased (Robinson 1989:67). Baldwin's great 40-stamp mill burned to the ground on August 14, 1878, after which the Gold Mountain mines remained inactive for the next 17 years (Robinson 1993:44–45). By the 1890s, mining had diminished in importance in the Bear Valley District (Carrico et al. 1982:4-67). Mining discoveries in the 1870s on the north side of the mountains and in the desert diverted many away from the failing prospects in Bear and Holcomb Valleys. Silver deposits were discovered in Morongo Valley in the 1860s and were actively worked beginning in 1873, leading to the formation of the Morongo Mining District in 1889. The Morongo King Mine was milling gold-bearing ore in 1894 but was shut down shortly thereafter. The nearby Rose Mine began producing in the same year and continued to do so for several years until it faded about 1906 (Robinson 1989:77). Mining on the desert floor became attractive in 1888–1889, when rich strikes of gold, asbestos, soapstone, and carbonate ore were made at Oro Grande and silver was found at Old Woman Springs (Alcorn 1996:25). These desert-side mining interests eventually overshadowed the meager gold-mining potential of the upper mountain valleys.

4.4.3.3 RANCHING

Most historians believe that cattle and sheep grazing on the north side of the San Bernardinos developed almost simultaneously with the better-known mining and lumbering activities. By the 1850s, large cattle ranches had been established along the Mojave River, where some served as way stations for freight and passenger traffic along the Mojave Road (built over the prehistoric Mojave Trail). In addition to the small army camp at Camp Cady, east of present-day Barstow, there were several stations at the better-watered sections along the Mojave River. Lane's Station and store (near the site of Oro Grande) was one of these, as was Fish Pond Station, near today's Nebo Marine Supply Center (Bard 1972:49). Cattle from these earliest ranches were wintered in the desert valleys, then driven into higher pastures in the summer. Some of these ranches continued well into the twentieth century.

By the early 1860s, two principal types of grazing were taking place in the mountains: one was a continuation of the small-scale pasturing associated with logging and prospecting; the second was the largescale, understory grazing of cattle and sheep, prompted by a severe swing in regional climate. In the first case, after 1860, herds appeared with greater frequency in association with sawmills, grazing in flats and meadows adjacent to private lands. John Garner ran an early butchering outfit east of Seeley Mill in the James Flat area (LaFuze 1971: I:79). Bear and Holcomb Valleys were also used for grazing in 1864, as was the naturally well-watered area

known as Coxey Meadow. The second type of grazing—large-scale pasturing in the mountains—began with a big push from the weather. Two years of heavy rain, in 1861 and 1862, were a major boon to the livestock industry. The valley pastures became lush, and the herds multiplied. Unfortunately, these halcyon days were followed by 3 years of crushing drought. To save their starving animals, cattlemen and shepherds drove their herds up the steep slopes of the San Bernardinos to whatever pasture they could find. Once the routes were established, seasonal grazing of large herds of sheep and cattle in the mountains became routine, a practice that continued with ever-larger numbers as grazing land in the lower San Bernardino Valley was appropriated for agriculture and settlement.

The first permanent cattle ranch in the San Bernardino Mountains was the Mojave Ranch, owned by H. E. Parrish, in Summit Valley, adjacent to the west fork of the Mojave River (Robinson 1989:82). Parrish was one of the original cattlemen who had driven their cattle to the mountains during the 1860s drought. After patenting his 160-acre homestead in 1863, he quickly sold out to Elijah K. Dunlap, who expanded Parrish's cattle operation. Dunlap's cattle wintered along the upper Mojave River and were then driven south into the mountains up Miller Canyon to Grass Valley and on to Huston Flat and Little Bear Valley for summer fattening. After Dunlap sold out in 1870, a succession of owners worked the property. By the turn of the century, the ranch was known as the Summit Valley Ranch. Later still, it became the Las Flores Ranch, famous as one of the largest and most active cattle ranches in the San Bernardino Mountains (Robinson 1989). The true heart of mountain cattle country, though, was the Bear and Holcomb Valley area. Beginning in 1866, when Gus Knight, Sr., first grazed 175 head of cattle, until the 1950s, cattle were grazed in these pastures every summer. One Bear Valley cattleman, James Smart, originally a miner, established one of the longest-lived ranches in the region, the IS Ranch. According to cowboy legend, the lower hook of the "J" on his branding iron broke, and James Smart was stuck with the "IS" brand and named his property to match.

The Talmadge family arrived in Bear Valley in 1892, when William Talmadge, son of Francis, bought the IS Ranch, along with its registered brand. The three Talmadge brothers—William, Frank, and John—eventually controlled 1,640 acres in the valley south and east of Big Bear Lake. After spending the summer around Moonridge and around Big Bear Lake, IS Ranch cattle were driven north down the Morongo Trail to the Lucerne Valley and later to Pipes Canyon. Other early Bear Valley cattlemen included John R. Metcalf, the son of another Little Bear Valley lumberman, John F. Metcalf. The younger Metcalf purchased grazing land along the south shore of the lake in 1887. Will Hitchcock pioneered cattle ranching in Holcomb Valley (Robinson 1989:87–88).

Although cattle were always the primary stock, they were not the only animals raised in the mountain pastures. Sheep grazing is mentioned as early as 1863, when sheep from the Rowland Ranch on the Mojave plains were driven from summer pastures along the coast to their home range in the desert via Cajon Pass (LaFuze 1971: I:153). Bear Valley also was a prime sheep-grazing area for many years, beginning in 1864 when the Chaves Brothers drove 800 sheep to the well-watered meadows of the valley. After discovering the grazing potential of Bear Valley in 1866, the distinguished Dr. Benjamin Barton, of Redlands, had his men drive 2,000–3,000 sheep there every year until 1879. Starting in the 1860s, San Bernardino Valley resident Myron Crafts also grazed sheep in the mountains in the summer, first at Mill Creek and the upper Santa Ana and later in Bear Valley (Robinson 1989:82–83). By 1865, the seasonal mountain pasturing of sheep

was common throughout Southern California, following traditions imported from pastoralist areas of Europe, particularly Spain. In addition to offering improved grazing, mountain pasturing increased the wool clip 11/2 pounds per head and resulted in more twinning among pregnant ewes (Beck and Haase 1974:73). Several miners realized early on that selling grazing leases could be a profitable, painless sideline for raising venture capital. Richard Garvey and J. S. Slauson, owners of the Gold Mountain Mine, leased the eastern portion of their 3,000 acres in Bear Valley for sheep grazing beginning in 1879 (Carrico et al. 1982: B-8). Some summers, there were as many as 25,000 sheep and 2,000 head of cattle on Slauson and Garvey's Bear Valley property (Robinson 1989:83).

By the turn of the century, grazing dominated other land uses in the mountains in terms of acreage, with the largest leases going to the Talmadge, Metcalf, Harmon, Martin, and Hitchcock operations (Carrico et al. 1982:4-69). Summer grazing was still a thriving business in Bear Valley and surrounding basins into the 1920s. Bear Valley ranch cattle were wintered in the desert valleys to the north and east or sent to market at Victorville. Cattle were driven along three major routes: (1) along the Cushenberry grade; (2) along the Deep Creek meadows through Fawnskin, Big Pine Flat, Little Pine Flat, and Coxey Meadow, then down Grapevine or Arrastre Canyon to the desert; or (3) through Pipes Canyon to Morongo Valley (LaFuze 1971: I:191).

Ultimately, increased herds led to overgrazing in some areas, as well as complaints about erosion and the fouling of streams and springs. Tension between shepherds and cattlemen in the mountains were raised in 1871, when a law preventing sheep grazing on private land was passed, increasing the demand for pasture on public lands. Skirmishing continued through the 1880s and 1890s, until the USFS sided with the cattlemen and prohibited all sheep grazing on federal reserve lands. Despite some trespassing at first, sheep grazing in the mountains essentially stopped by 1899. In fact, all grazing was initially forbidden by the USFS, but a lease system was soon established that permitted cattle grazing on portions of the reserve for a fee. Grazing opportunities were reduced in the late 1890s when Little Bear and Bear Valley meadows were converted to reservoirs, but cattle grazing continued on a limited scale through the 1960s. The last decades of the nineteenth century saw the rise of new mountain land uses beyond the traditional three of mining, lumbering, and grazing.

4.4.3.4 RECREATIONAL USE

Recreation began slowly but gained momentum in the late 1870s and early 1880s, became a prominent activity in the 1890s with the elimination of the toll roads (Carrico et al. 1982:4-46). Regional transportation received a boost in the 1870s with the completion of the Southern Pacific Railroad through San Timoteo Canyon. This was followed in 1885 by the arrival of the California Southern, later known as the Atchison, Topeka and Santa Fe Railroad (AT&SF). The AT&SF (Now Burlington Northern Santa Fe) connected San Diego to San Bernardino, Barstow, and beyond, and linked the region by rail to the rest of the country. As it entered the modern era, the San Bernardino Valley finally began to enjoy some prosperity with an increase in citrus and other agricultural production. Holiday mountain excursions became the rage, and the first tourist resort, Knight's Hotel, opened in Bear Valley in 1888 (Robinson 1989:180). Ultimately, recreation would overshadow all other mountain activities in economic and social importance.

4.4.4 FEDERAL STEWARDSHIP AND TURN OF THE CENTURY (1893-PRESENT)

At the end of the 1880s, the damage caused by years of uncontrolled enterprise in the mountains was obvious to many. Concerned citizens and public officials began to voice their apprehensions, pointing to a loss of watershed and a sharply dwindling timber supply. The cattle and lumber industries responded strongly in opposition to any change in governmental regulation (Johanneck 1975:76) and were able to hold off their critics for a few years. By 1891, though, accounts of the ecological problems in the mountains finally reached the attention of Congress, and on February 14, 1893, President Benjamin Harrison signed the act creating a 737,280-acre San Bernardino Reserve. This affected all of the former uses of the forest land, but the most-immediate impacts were felt in logging and grazing. Under federal stewardship, logging and cutting lumber on public land was restricted but not eliminated. Several large mills continued to operate, one of them at Hunsaker Flats, now known as Running Springs. This area saw some expansion in the logging business through the 1890s. By 1899, the Brookings Fredalba Sawmill was in full operation, cutting 3 million board feet in a single year and hauling it via the City Creek Toll Road to Highland. The mill remained operational, and even profitable, between 1901 and 1911. An estimate of available timber from 1904 stated that, of the more than 700,000 acres in the San Bernardino Reserve, some 249,000 were classed as timberland, and 90,000 acres were graded as first-class timberland. The available timber at that point was mostly yellow pine (Ingersoll 1904:188–189).

By far the greatest enemy of the sawmills was fire. The Brookings Company mill at Fred alba burned and was rebuilt four times between 1900 and 1909. After a fifth fire and rebuild, production decreased and then stopped completely in 1912. Facing repeated losses and the rising tide of opinion against clear-cutting, Brookings chose to relocate its logging operations to Oregon rather than fight the changes (Robinson 1989). Still, other enterprising sawmills continued to work within the new regulations. A building boom in Bear Valley following the completion of the Rim of the World Drive in 1915 supported a number of sawmills. By the 1920s, several mills, such as the large Strawser-Boehm Sawmill, were supplying lumber for development along the south shore of Big Bear Lake. The profusion of small mills in the Bear and Holcomb Valley area through the 1940s meant that local builders had a ready source at hand and never had to rely on expensive lumber from the Northwest. Eventually, as the best timber stands were depleted and areas were closed to logging by the newly established USFS, most loggers left the business or moved north (Carrico et al. 1982:4-40).

4.4.4.1 MINING

The history of gold mining in the Big Bear area dates back to the mid-19th century. The first significant gold discovery in the region was made by William F. Holcomb in 1860 in Holcomb Valley, just north of Big Bear Lake. This discovery sparked a gold rush, attracting prospectors and miners to the area in search of fortune (Mining, Big Bear History Site 2024). From 1860 to early 1900s, Holcomb Valley became one of the most productive gold mining regions in Southern California, with several mining towns such as Belleville and Union Town emerging almost overnight. However, at the turn of the twentieth century, large-scale mining operators had finally given up trying to water blast gold nuggets from the gravels of the San Bernardino Mountains. They had not given up the quest for gold, though. Armed with renewed optimism, generally

favorable gold prices, and willing investors, mining entrepreneurs reopened the old mines in areas already known for their mineral potential.

Mining properties north and east of Holcomb and Bear Valleys enjoyed a flurry of interest at the turn of the century. By the 1930s, alongside the larger mining ventures, a new kind of miner, nicknamed the "depression miner," arrived in the forest. Although depression miners barely made enough to sustain themselves, they professed to prefer the work to "the stagnant, defeating existence in the cities" that was their lot during the years of the Great Depression (Carrico et al. 1982:4-73). After World War II, prospecting became a bonafide recreational pursuit (Robinson 1989). More than 100 years after the first prospectors introduced the practice, vacationers took their places in the streams of the San Bernardinos to pan for gold, bringing mining full circle.

According to the historical USGS Lucerne Valley topographic map from 1946, adjacent to the northeastern portion the Project Area, is the location of the Gold Hill Mine, within the Baldwin Lake-Bear Valley Mining District (Historical Topo Map Explorer 1946, revision year 1978). This mine that is now closed was in operation between the late 1940s to the late 1960s and the activities included a combination of both surface and underground workings, with a maximum subsurface depth of approximately 54 feet. The ore body at Gold Hill Mine primarily consisted of quartzite, with gold and silver being the primary commodities extracted. There is only one known shaft on the site (The Diggings 2024). ERM (2024b) conducted a Phase I Environmental Site Assessment (ESA) of the Project, which corroborated these findings.

4.4.4.2 RANCHING

By the turn of the twentieth century, the USFS began assuming a stronger regulatory role with the cattle industry. The problems they faced were not insignificant. In 1898, another severe drought had pushed cattle into the Deep Creek and Bear Creek basins, resulting in intensive grazing and accelerated erosion. More than 50 years of clear-cutting throughout the forest had opened new areas to livestock, and by 1904, it was estimated that nearly 50 percent of the reserve could be classed as grazing land (Ingersoll 1904:188–189). The forest administration responded by organizing grazing districts composed of specific plots called "allotments." A fee schedule was established, and strict limits were set on the number of cattle permitted in an allotment during a season. Before these restoration efforts could really take effect, though, the restrictions were suspended at the beginning of World War I. At the request of the National Food Administration, unlimited grazing in the forest was permitted in support of the war effort. When the allotment system was reestablished, demand for beef was still very high, and for those ranchers still in the business, the early 1920s were very profitable times. Will Shay, who had entered mountain cattle ranching in 1906, took advantage of the boom times to develop his Shay Ranch. Shay purchased part of the lands owned by George Rathbun, partner and father-in-law of Will Talmadge.

In 1914, he and Charles Omar Barker, a prominent Banning businessman, purchased 3,500 acres from the Lucky Baldwin estate near Baldwin Lake. The Shay Ranch, made up of a cluster of ranch houses, barns, and cattle pens located south of Baldwin Lake, became the largest cattle operation in the mountains (Robinson 1989:86–87). During the summer, Shay Ranch cattle grazed on the lush grasses south of the usually dry lakebed and on the open lands where Big Bear City stands today. The days of Bear Valley as a vast cattle range ended with the Big Bear land boom between 1916 and 1919, when cattle were restricted to the east end of the valley. Then a drastic fall in

beef prices at the end of the 1920s put an end to the years of prosperity (Robinson 1989:86, 88, 93). Will Shay sold most of his ranch to the Talmadge brothers in 1923 and the remaining portion in 1928. Bucking the trend, the Talmadge brothers bought up the herds and remained in the cattle business until 1943, when Jim Stocker, a cattleman from Yucca Valley, bought out the interests of Frank and John Talmadge. Stocker continued in partnership with Will Talmadge until the latter died in 1945. In 1951, Tom Hamilton and Lawrence Hamilton bought Stocker's cattle ranch and incorporated it into their other mountain properties (Robinson 1989:88).

In the San Bernardino Mountains generally, high land values and restricted ranges began to squeeze the ranchers until only a few stalwart landholders remained. The Hamiltons saw their grazing lands in Bear Valley steadily decrease as Big Bear City encroached on lands where cattle once freely grazed. Two large grazing allotments are especially informative regarding the later history of cattle grazing in the region: the Deep Creek allotment and the Mojave allotment. In the early years of grazing leases, the headquarters for the Mojave allotment was at the Las Flores Ranch. Approximately 1,000 head of cattle grazed the Mojave allotment from 1912 to 1925. After 1941, roughly 100 head were grazed year-round on the Mojave allotment. This pattern continued until 1953, after which a more complicated, temporary permit process was enacted. Permit holders were allowed to graze 600–800 "animal unit months" during a spring summer- fall season, meaning that if a holder had 800 head, he would be allowed to graze them for only 1 month during the season. Eventually, grazing in the Mojave allotment became too expensive and cumbersome, and the area has not been used for grazing since 1962 (Carrico et al. 1982: B-6).

During the same period, 100–200 head were permitted in the Deep Creek allotment, but the actual numbers present were probably much higher. As many as 800 head grazed there from 1926 to 1948, after which it was determined that the range had deteriorated because of overgrazing and drought. Only 90 head of cattle were permitted the following year, and by 1950, the permit holders, Hitchcock and Martin, left the area, and their permit was transferred to the Hamilton Ranch. After a hiatus of nonuse to restore the range, the Hamilton Ranch grazed about 150 head of cattle on the Deep Creek range from 1952 to 1962. As the operation slowly became less and less economical, the Hamilton Ranch, along with other ranches, began to look for other grazing options (Carrico et al. 1982: B-9). One of the most important and unusual industries in Bear Valley was fox farming. R. T. Moore, a successful fox farmer from Maine, first heard about the valley in the 1920s (Core 2002:140–141; Robinson 1989:190). Although the valley was much farther south than the traditional fur-producing areas of the world, the climate was nearly ideal for this enterprise. The high altitude and dry air eliminated many pests and parasites, and the cool summer nights and cold winter months were favorable for raising these furbearing animals. Moore obtained 48 acres near the modern community of Big Bear Lake and started the Borestone Ranch. Unfortunately, all of his foxes were soon wiped out by canine distemper introduced by Alaskan huskies boarded at the ranch while being used in taking a motion picture. The Borestone Ranch was acquired by a major Canadian ranch called the All Star (Core 2002:141).

In 1928, the Canadian owners established Walter McAlister and his wife, Constance, at the refurbished old Borestone Ranch. McAlister managed what came to be known as the All-Star Fox Farm from 1928 to 1938, a period when the fox-fur business thrived despite the Depression, a time when most businesses struggled. The industry expanded and at least 24 separate fox farms were eventually established in the Bear Valley area. Most were on the south shore of Big Bear

Lake, although four farms were in the Gold Mountain area (Core 2002:142, 148). The All Star ranch alone produced over 1,000 pelts a year, although breedingstock, an activity more profitable than selling pelts, was the main objective.

The excellent quality of Bear Valley fox furs was recognized when a consignment of pelts brought the highest prices at the International Fur Exchange in London in 1936. In 1938, as the ownership of the All Star Ranch changed, McAlister decided to start his own ranch, purchased 12 acres of land, and developed his own breeding operation (Core 2002:146). World War II, however, brought a change in McAlister's life and he returned to his original occupation as an armorer restoring old rifles. After the war, the fox farming business began to decline and he branched out into the business of manufacturing gun stocks, often employing wood from screwbean mesquite trees collected from the desert. By 1953, McAlister's fox farming business was bankrupt, whereas his gun stock manufacturing business expanded (Core 2002:147). The other fox farms in the valley also closed down, victims of the increased cost of feed, the imposition of a luxury tax on furs, and changing fashions.

5. METHODS

5.1 LITERATURE REVIEW AND RECORDS SEARCH

A records search was conducted on August 27, 2024, by the staff from the SCCIC at the University of California, Fullerton of the CHRIS. The records search identified previously recorded cultural resources and cultural resources studies within the records search area, which is defined as 0.25-mile radius around the Project Area located on the Big Bear City 1994 and Moonridge, CA USGS 7.5-minute quadrangle maps. In addition, the records search included a review of the NRHP, the CRHR, the California Historical Landmarks list, the California Points of Historical Interest list (CPHI), as well as historical topographic and aerial maps, was completed.

5.2 NATIVE AMERICAN HERITAGE COMMISSION (NAHC) CONSULTATION

As part of this investigation, a Sacred Lands File (SLF) search of the Project Area and vicinity was requested from the NAHC. ERM submitted the request, which included a search for known Native American resources and for contact information to be provided for Native American groups or individuals with potential cultural affiliation with the Project Area, to the NAHC via email on November 22, 2024.

5.3 FIELD METHODS

Fieldwork methodology is based on the nature of expected resources and archaeological characteristics. The survey scope required ERM to locate all resources greater than 50 years in age within the 30-acre Project Area. In surveying for material remains, the survey also considered current land surface conditions, the landform context, existing geomorphic data, and the potential for buried sites within all proposed disturbance areas.

ERM archaeologist, Jeffrey A. Rosa Figueroa, conducted an intensive pedestrian survey of the Project Area on September 4, 2024. The ground surface was examined in 10-meter parallel transects due to dense vegetation and terrain. The archaeologist used ArcGIS Field Maps

application on an iPhone 14 Max Pro cell phone. A Juniper Systems Geode GNS3S Single Frequency GNSS Receiver was utilized for enhanced accuracy.

6. RESULTS

6.1 LITERATURE REVIEW AND RECORDS SEARCH RESULTS

The records search results determined that no previously recorded resources have been recorded in the Project Area. However, the results determined that seven archaeological sites are located within a 0.25-mile radius of the Project Area (Table 1). These sites, P-36-021843, P-36-021845, P-36-021846, P-36-021848, P-36-021849, and P-36-021850 are all associated with the Gold Hill Mine District, while one resource, P-36-022165 (precontact age) is not. The resources noted above overlook the Project Area on a on a rocky low-lying hill, which runs northwest – southeast just north of the Project Area. Moreover, the records search results revealed that ten cultural resource investigations have been conducted within a 0.25-mile radius (Table 2).

TABLE 1 PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 0.25-MILE OF THE PROJECT AREA

Site Number	Site Description	CRHR/NRHP Eligibility
P-36-021843/ CA-SBR-13955H	Gold Hill Mine District. Foundations/structure pads, Privies/dumps/trash scatters, Mines/quarries/tailings, Machinery	Unknown
P-36-021845/ CA-SBR-13957H	Gold Hill Mine District.Privies/dumps/trash scatters, Mines/quarries/tailings	Unknown
P-36-021846/ CA-SBR-13958H	Gold Hill Mine District. Privies/dumps/trash scatters, Mines/quarries/tailings, Walls/fences	Unknown
P-36-021848/ CA-SBR-13960/H	Gold Hill Mine District. Privies/dumps/trash scatters, Mines/quarries/tailings, Standing structures	Unknown
P-36-021849/ CA-SBR-13961H	Gold Hill Mine District. Roads/trails/railroad grades	Unknown
P-36-021850/ CA-SBR-013962H	Gold Hill Mine District. Privies/dumps/trash scatters, Mines/quarries/tailings	Unknown
P-36-022165/ 536-397-ISO	Precontact isolate	Unknown

TABLE 2 PREVIOUSLY CONDUCTED CULTURAL RESOURCES STUDIES WITHIN 0.25-MILE OF THE PROJECT AREA

Report Number	Title	Year	Author
SB -00210	Archaeological Resources Impact	1974	San Bernardino County Museum Association

Report Number	Title	Year	Author
	Report: Kern Rock Mobile		
SB-00826	Environmental Impact Evaluation: Cultural Resources and Botanical Survey for Rare and Endangered Plants	1979	Simpson, Ruth D., Eugene Cardiff, and Jessie Kniffen
SB-00868	Cultural Resources Assessment of Assessor's Parcel Number 314 42 145, Big Bear Valley	1979	Hearn, Joseph.
SB-01123	Cultural Resources Assessment of Tentative Tract No. 8236, Sugarloaf Area, San Bernardino County	1981	Lerch, Michael K.
SB-01815	Cultural Resources Survey of AP 315-252-48 – Erwin Lake, 55 Acres Northwest of Erwin Lake, San Bernardino, California	1988	Swanson, Mark T.
SB-05382	Cultural Resources Survey of 341 Parcels Encompassing 396.6 Acres within the Urban Large Parcel BBC 202 Project Area for the Natural Resources Conservation Service.	2006	Mirro, Michael
SB-05384	Cultural Resources Survey of 209 Parcels Encompassing 513.3 Acres within the Urban Large Parcel BBC 210 Project Area for the Natural Resources Conservation Service	2007	Mirro, Michael
SB-06008	Cultural Resources Monitoring of State Route 38 in the San Bernardino Mountains for the Natural Resources Conservation Service	2007	Mirro, Michael
SB-06108	Cultural Resources Survey of 101.1 Acres on the Sugar Loaf Fuel Modification Project	2008	Mirro, Michael

Report Number	Title	Year	Author
	Area for the Natural Resources Conservation Service		
SB-07979	Final Report: An Archaeological Inventory for the Baldwin Healthy Forest Project, San Bernardino National Forest	2011	Denardo, Carole, Bruno Texier, Scott Campbell, Rachael Greenlee, Kristy Rotermund, Chris Ward, Britt Wilson, and Caprice "Kip" Harper

6.2 NAHC RESULTS

On December 13, 2024, ERM received a response from the NAHC. According to the NAHC, the results of the SLF search were positive and provided a consultation list of tribes culturally affiliated with the Project Area. The list included contact information to nine individuals, representing five tribal organizations. Consultation with these tribes is pending. The results of the SLF search is provided in Confidential Appendix D.

6.3 FIELD RESULTS

ERM's archaeologist surveyed the entire Project Area (Appendix A, Figure 4, *Survey Area*). One historic resource (ERM-Site-001) was identified within the northeastern section of the Project Area. This historic resource comprises of three associated activity areas (loci), Locus 1, Locus 2, and Locus 3, inclusive of seven historical features and two refuse concentrations (defined as a scatter of historic-age trash, refuse, debris, etc.). Photographs of the Project Area and ERM-Site-001 are included in Appendix B, and the California Department of Parks and Recreation (DPR) Primary Record for ERM-Site-001, which contains confidential maps of the recorded resources, is provided in Confidential Appendix C.

Locus 1 includes three historical features (Feat-1 through Feat-3) and one refuse concentration (Concentration 1). Feat-1 appears to be an abandoned mineshaft lined with plaster, measuring 5 by 5 feet, and with an unknown depth. Water was noted at a depth of approximately 10 feet. The opening of the abandoned mineshaft is covered with two robust wooden planks. Feat-2 consists of a metal pipe, about 5 inches in diameter, extending south from the abandoned mineshaft. Feat-3 is located immediately north of the abandoned mineshaft and consists of a foundation and wall segments. Concentration 1 includes a refuse concentration of wood and concrete debris.

Locus 2 includes two historical features (Feat-4 and Feat-5) and one refuse concentration (Concentration 2). Feat-4 consists of a ventilation shaft and remnants of an ore chute. Feat-5 is a metal pipe protruding out from the hillside. It must be noted that the equipment, such as ore chute, pipe, and milled lumber are located within a collapsed portion of the hillside, and only a small portion of these objects were observed during the survey. Concentration 2 consists of refuse containing wood and metal debris and is located approximately 130 feet north of Locus 1.

Locus 3 is located immediately north, uphill, and includes two historical features (Feat-6 and Feat-7). Feat-6 is a collapsed mine adit. The entrance to the mine features a wooden facade that has

partially collapsed. Feat-7 consists of mining equipment observed within the mine; however, it was difficult to recognize the type of equipment due to the collapsed adit. Additionally, a cable was noted extending out from the mine. Debris and tailing piles were noted immediately outside of the adit. Moreover, additional tailing piles were noted immediately north and northeast of the mine adit. The easternmost tailing piles, however, are located outside of the Project Area.

Two historical roads were observed southwest and northwest of the mine adit. The road southwest of the mine extends from the foot of the hill to the mine adit. This road is approximately 330 feet in length and 10 feet wide and cut into the face of the hillside. The road is in fair condition. The sides are lined with trees and undergrowth and little vegetation on the actual road. A small segment of the road, approximately 50 feet is graded, while the rest of the road is not. The road northwest of the mine adit spans approximately 480 feet in an east-west direction. The western segment of this road appears to have been washed out, given that it vanishes into the rocky hillside.

Although, the results of the records search performed at the SCCIC indicate that the historic-period resource components identified during ERM's field survey are located outside of the previously mapped boundaries for the Gold Hill Mine District, it is very likely that the remains are associated with the Gold Hill Mine District.

The overall condition of the site is poor to fair, and it has been subjected to severe disturbances related to the demolition of structures and removal of equipment after the mining activities ceased, as well as erosion and a partial collapse of the hillside below the mining shaft. Modern trash was also observed scattered throughout the area and mixed in with the historical refuse.

7. CONCLUSIONS

CEQA requires the evaluation and recordation of historical and archaeological resources, the consideration of potential impacts to cultural resources as outlined in the CEQA Guidelines Section 15064.5, and the reduction of potentially significant impacts to less-than-significant levels. Based on the results of this assessment, only one historical resource (ERM-Site-001) was recorded within the Project Area during the field survey and is likely associated with the Gold Hill Mine District. However, it is not currently listed by the State Historic Resources Commission in the CRHR nor listed on a local register of historic resources. For a property to be eligible for inclusion on the CRHR, and considered significant under CEQA, one or more of the following criteria must be met:

1. **Criterion 1:** Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. **Criterion 2:** Is associated with the lives of persons important in our past;
3. **Criterion 3:** Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. **Criterion 4:** Has yielded, or may be likely to yield, information important in prehistory or history.

ERM-Site-001 does not meet the criteria to be eligible for inclusion on the CRHR based on the following considerations:

1. **Evaluation under Criterion 1:** Cultural resources identified here include refuse concentrations and mining features. These cultural resources represent brief use areas and single-episode dump sites. They are not significantly associated with important events related to the development of the region and California. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 1.
2. **Evaluation under Criterion 2:** Cultural resources identified here are not associated with the lives of persons significant in our past. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 2.
3. **Evaluation under Criterion 3:** Cultural resources identified here do not embody the distinctive characteristics of a type, period, or method of construction, nor represent the work of a master, possessing high artistic values, or represent a significant and distinguishable entity whose components lack individual distinction. Additionally, ERM-Site-001 is located near historic mining districts and is not regarded as a unique occurrence. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 3.
4. **Evaluation under Criterion 4:** Cultural resources identified here do not yield nor are likelihood to yield information important to understanding the prehistory or history of the Project Area. These heavily disturbed resources exhibit the small-scale mining activities that commonly occurred at this location, and the single-episode refuse concentrations appear to be related to the demolition of the structures and on-going erosion activities. Thus, the site is not likely to yield information important in prehistory or history. Therefore, ERM-Site-001 is not eligible to qualify for the CRHR under Criterion 4.

Thus, ERM determined that the cultural site (ERM-Site-001) is likely not eligible to be listed under the CRHR and is not a historically significant cultural resource under the CEQA. Additionally, the Project Area is unlikely to yield new, previously unidentified cultural resources based on the level of site disturbance and destruction of historic mining structures, absence of prehistoric resources, frequent flooding of the site, and grazing use of the Project Area. Therefore, the potential for significant impacts to important cultural resources due to development of the Project is low, and potential impacts to cultural resources would be less than significant.

8. RECOMMENDATIONS

As noted above, seven mining features and two refuse concentrations in three activity locations were identified during the preparation of this cultural resources assessment. These cultural resources represent one cultural site (ERM-Site-001) that is likely associated with the historic-era Gold Hill Mine District. Although historic in age, this site is not considered significant under CEQA and is not eligible for listing in the CRHR. San Bernardino County or other authorities having jurisdiction may recommend that the mining features be altered/decommissioned/closed prior to construction. However, if no such recommendations are made, due to the historic nature of the resource and association with nearby Gold Hill Mine District, ERM recommends implementing a five-foot-avoidance buffer and protection measures (e.g., fencing, setback, etc.) of the features (Feat-1 through Feat-7) recorded in this report from the solar arrays, access roads, and other Project features. The remaining area encompassed by each of the loci of ERM-Site-001, including the two refuse concentrations (Concentration 1 and 2), would not require avoidance.

In the event of unanticipated discovery of previously unknown cultural resources or materials during construction of development of the Project, work in the vicinity of the discovery should cease and the area should be cordoned off (e.g., 50-foot-buffer around the discovery) until the discovery can be evaluated by a qualified archaeologist, who meets state and local regulatory requirements.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the NAHC, which will determine and notify an MLD. The MLD may inspect the site of the discovery with the permission of the landowner, or his or her authorized representative. The MLD shall complete its inspection within 48 hours of its notification by the NAHC. The MLD may recommend scientific removal and analysis of human remains and items associated with Native American burials.

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APPENDIX A MAPS

FIGURE 1 PROJECT VICINITY

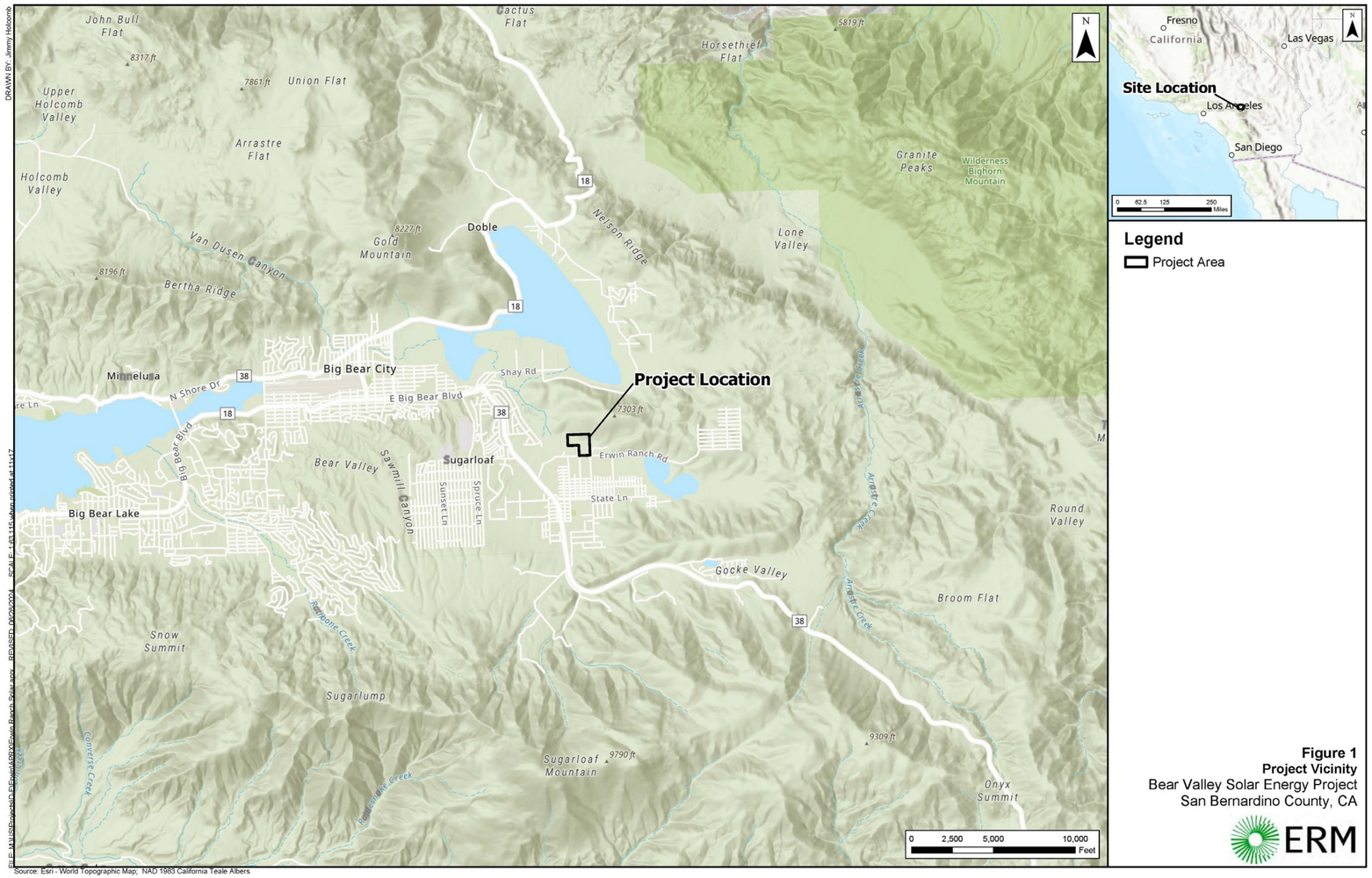


Figure 1
Project Vicinity
Bear Valley Solar Energy Project
San Bernardino County, CA

FIGURE 2 PROJECT OVERVIEW

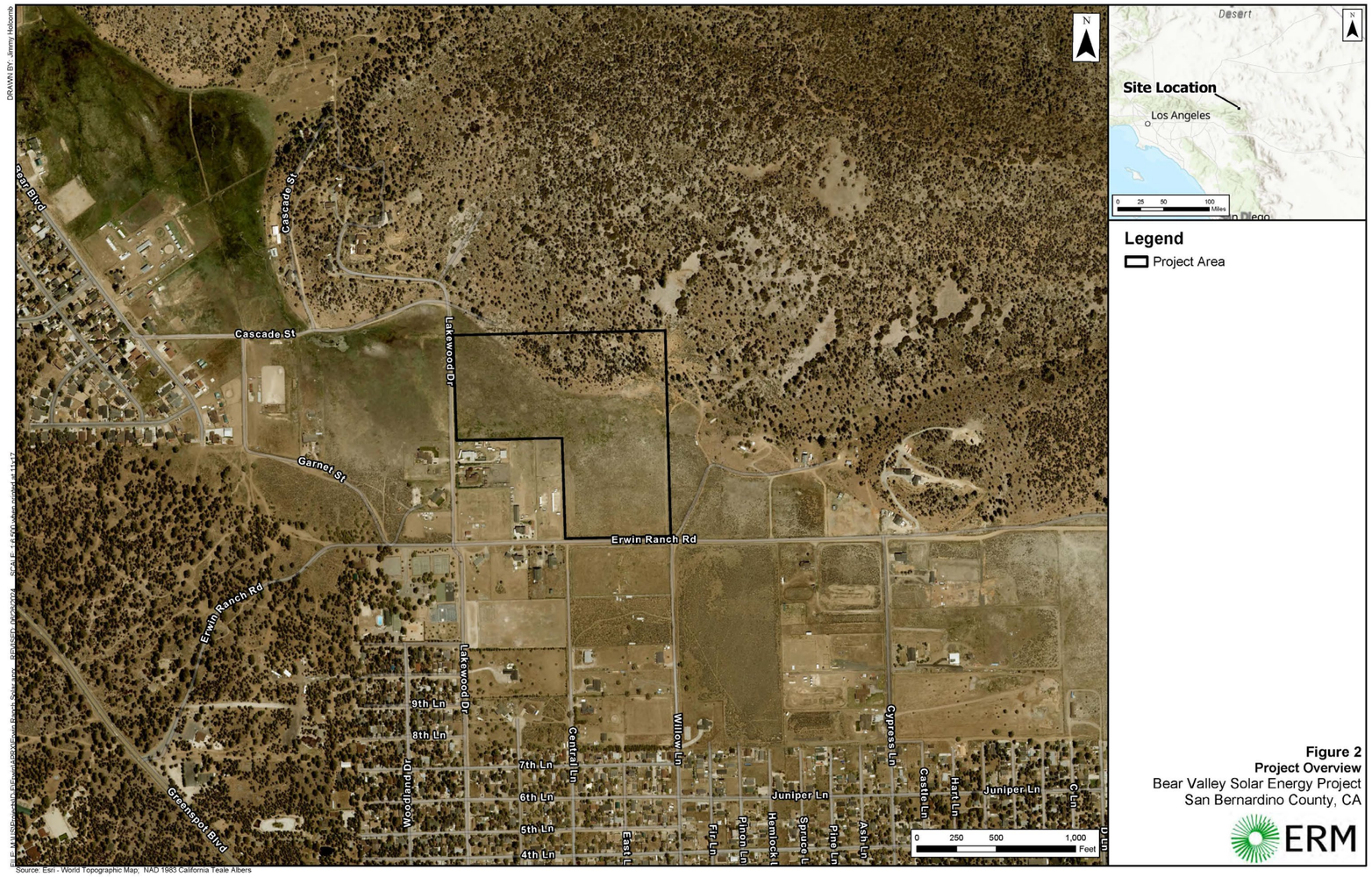
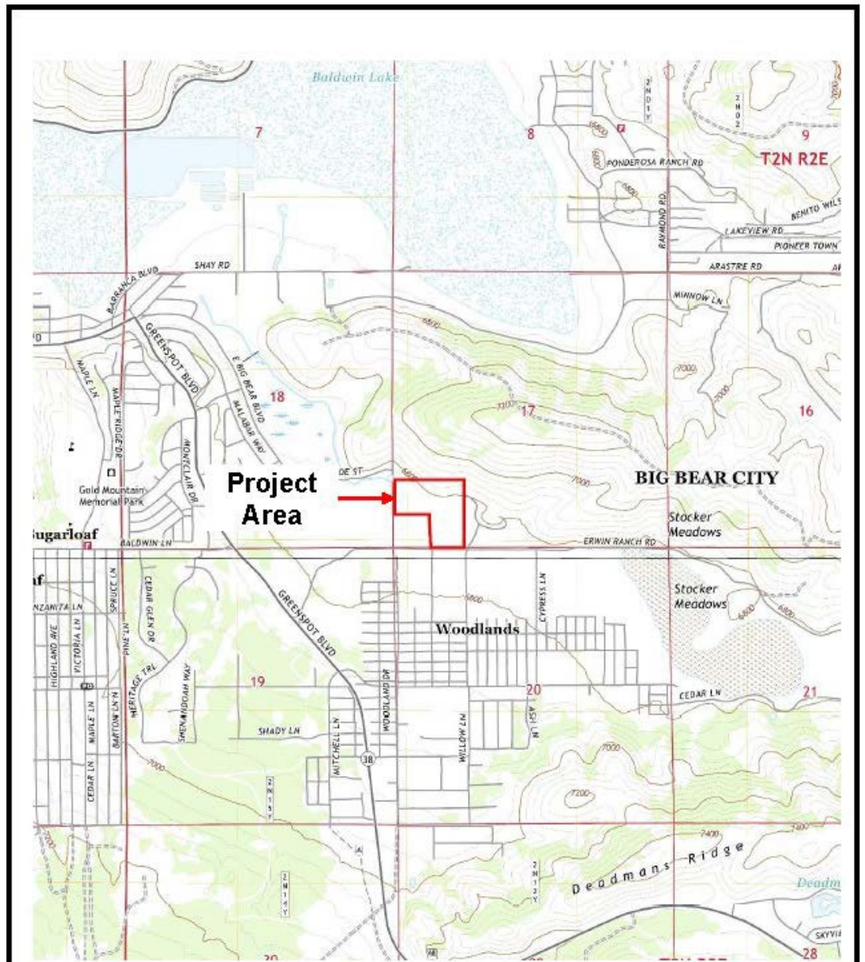


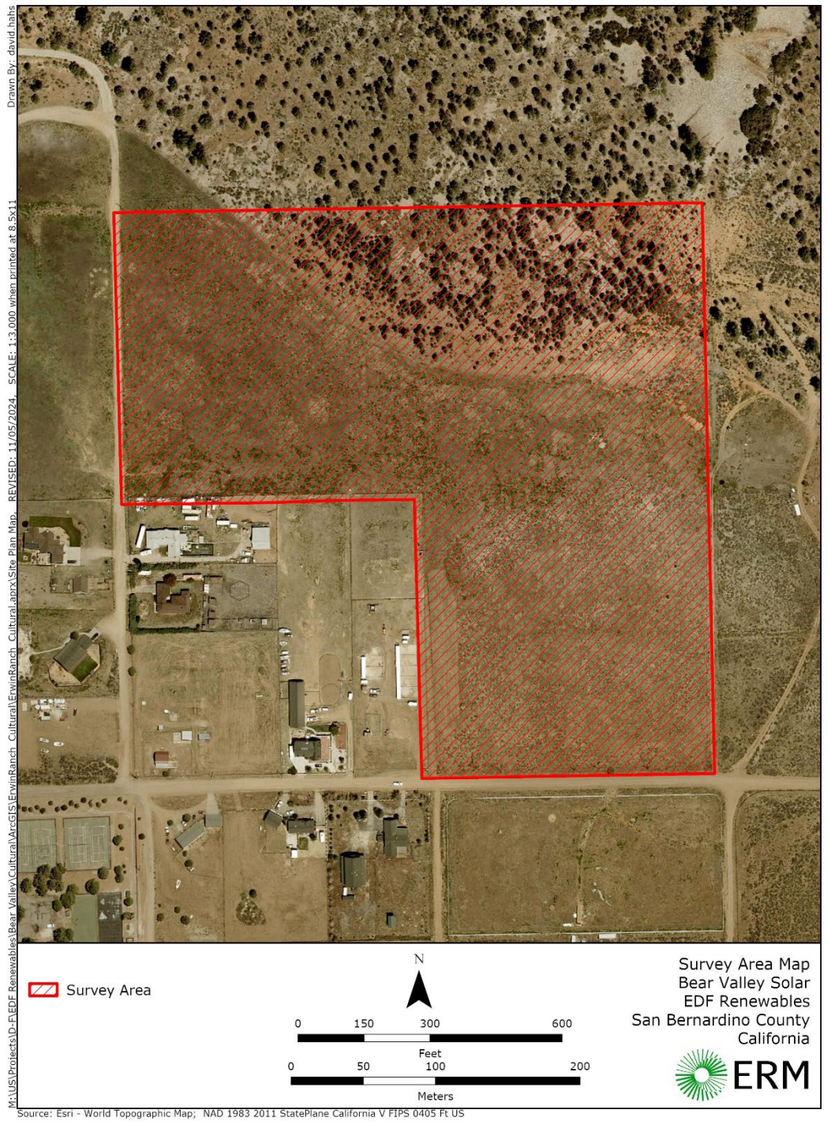
FIGURE 3 PROJECT AREA TOPOGRAPHY



SOURCE: Big Bear City, CA 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, 2021 SCALE: 1:25,000

ERM	**Project Area Topography** Bear Valley Solar Energy Project unincorporated San Bernardino County, California	Figure **3**

FIGURE 4 SURVEY AREA



APPENDIX B PHOTOGRAPHS

Photo 1. Project Area overview. View towards west.

Photo 2. Overview of Locus 1. View towards northwest.

Photo 3. Feat-3 consisting of wall and foundation. View towards northwest.

Photo 4. Overview of Locus 1. View towards southeast.

Photo 5. Concentration 1 with wood and concrete refuse. View towards southwest.

Photo 6. Feat-1 consisting of abandoned mineshaft. Detail view.

Photo 7. Overview of Locus 1. View towards north.

Photo 8. Feat-2 consisting of partially submerged metal pipe. View towards east.

Photo 9. Overview of Locus 1. View towards north.

Photo 10. Overview of Locus 2. View towards northwest.

Photo 11. Overview of Locus 2. View towards east.

Photo 12. Overview of Locus 2. View towards southwest.

Photo 13. Feat-4 consisting of ventilation shaft. View towards north.

Photo 14. Feat-4 consisting of ventilation shaft. Detail view.