

Purple Martin (*Progne subis*)

The purple martin is a state Species of Special Concern that historically occurred throughout all of the major mountain ranges in southern California. Many historic localities are no longer occupied and there are no known active localities in the San Bernardino Mountains (Garrett and Dunn 1981). This species is a secondary cavity nester of hardwood and conifer forests. The project site provides suitable habitat for this species; however, given the lack of records in the vicinity, the potential for occurrence is considered to be low for foraging and nesting.

California Spotted Owl (*Strix occidentalis occidentalis*)

The California spotted owl is a federal Species of Concern and state Species of Special Concern. This species occurs in all of the major mountain ranges in southern California, although some ranges support very few pairs. It is found at elevations ranging from below 1,000 feet to 8,500 feet above msl in mature forests typically with a dense, multi-layered canopy. Its prey base consists of woodrats (i.e., *Neotoma* spp.) and other rodents. Surveys were conducted for this species on the project site by BonTerra Consulting in the spring and summer of 2002. The final survey report is provided in Appendix D. Although one male spotted owl was detected approximately one mile to the northwest of the project site, no nesting pairs or individuals were observed on the project site. Therefore, no nesting pairs presently occur on the project site; however, individuals have a high potential to forage on the project site.

Gray Vireo (*Vireo vicinior*)

The gray vireo is a state Species of Special Concern. This species is a summer resident in a few highly localized areas on the coastal mountain ranges in southern California. It occurs on dry, desert-facing slopes in the San Gabriel, San Bernardino, and San Jacinto mountains (Garrett and Dunn 1981). This species prefers stands of dense, mature chaparral dominated by chamise or redshank or on brushy slopes in pinyon-juniper woodlands. The project provides limited, marginal habitat for this species. The potential for occurrence is considered to be low for foraging but there is no potential for breeding on the project site.

MammalsPallid Bat (*Antrozus pallidus*)

The pallid bat is a California Species of Special Concern that most commonly occurs in mixed oak and grassland habitats. This large bat roosts in rock crevices and in cavities of trees, especially oaks. The project site provides potentially suitable roosting and foraging habitat for this species and it has a low potential to occur.

Spotted Bat (*Euderma maculatum*)

The spotted bat is a federal Species of Concern and state Species of Special Concern. Little is known about its distribution. Spotted bats forage in a wide variety of habitats but roost strictly in cliffs. The project site would provide foraging habitat for this species and it has a moderate potential to occur for foraging; however, no suitable roosting habitat is present.

California Mastiff Bat (*Eumops perotis californicus*)

The California mastiff bat, the largest bat in the United States, is a federal Species of Concern and a California Species of Special Concern. This species is a very wide-ranging and high-flying insectivore that typically forages in open areas with high cliffs. It roosts in crevices in small colonies. The project site would provide limited foraging habitat for this species and it has a low potential to occur for foraging; however, no suitable roosting habitat is present.

San Bernardino Mountain Flying Squirrel (*Glaucomys sabrinus californicus*)

The San Bernardino Mountain flying squirrel is a federal Species of Concern and state Species of Special Concern. It occurs in the San Bernardino Mountains between 5,200 and 8,500 feet above msl. This species prefers mid- to upper-elevation, dense, mature coniferous forest habitats, particularly those containing white fir. They use cavities in large trees, snags, and logs for cover. The project site provides suitable foraging habitat for this species and the potential for occurrence is considered high; however, the potential for this species to breed on the project site is considered to be low as this species prefers to breed in relatively dense coniferous forests in proximity to riparian areas.

Small-footed Myotis (*Myotis ciliolabrum*)

The small-footed myotis is a federal Species of Concern that occurs throughout much of the western United States, occupying a variety of habitats. This species feeds among trees or over brush, and roosts in cavities of cliffs, trees, or rocks and within caves or mine shafts. The project site provide potentially suitable roosting and foraging habitat for this species and the potential for occurrence is considered to be low for roosting and high for foraging.

Long-eared Myotis (*Myotis evotis*)

The long-eared myotis is a federal Species of Concern that is restricted to high-elevation habitats. It is known to occur in Coon Creek in the San Bernardino National Forest. This species can occur in a variety of habitats, but are usually associated with coniferous forests where they roost under exfoliating tree bark. The project site provides potentially suitable roosting and foraging habitat for this species and the potential for occurrence is considered to be high for foraging and roosting.

Occult Little Brown Bat (*Myotis lucifugus*)

The occult little brown bat is a federal Species of Concern and state Species of Special Concern that is restricted to high-elevation habitats. This species occurs in pine forests at elevations ranging from 6,000 to 9,000 feet above msl. It roosts in buildings, trees, and cliffs and feeds over water or open sites. The project site provides suitable roosting and foraging habitat and the potential for this species to occur is considered to be high for foraging and roosting.

Fringed Myotis (*Myotis thysanodes*)

The fringed myotis is a federal Species of Concern that is restricted to high-elevation habitats. This species has been observed on Arrastre Creek on the San Bernardino National Forest (USDA 1999). It occurs in a wide variety of habitats but is most commonly found in dry pine or mixed conifer forests and pinyon-juniper woodlands where it will roost in caves, buildings, mine shafts, rock crevices in cliff faces, trees, and bridges. Hibernation has only been documented in buildings and mines (Miner and Brown 1996). The project site provides marginally suitable roosting and foraging habitat for this species and potential for occurrence is considered to be moderate for foraging and low for roosting.

Long-legged Myotis (*Myotis volans*)

The long-legged myotis is a federal Species of Concern that is restricted to high-elevation habitats. This species has been observed on Arrastre Creek on the San Bernardino National Forest (USDA 1999). It is primarily a bat of coniferous forests but also occurs seasonally in riparian and desert habitats. It uses abandoned buildings, cliff crevices, exfoliating tree bark, and hollows within snags as summer day roosts; caves and mine tunnels for hibernation. The project site provides marginally suitable foraging and roosting habitat for this species and its potential to occur on the project site is considered to be moderate for foraging and roosting.

Yuma Myotis (*Myotis yumanensis*)

The Yuma myotis is a federal Species of Concern and a relatively small bat that occurs statewide. This species is closely associated with water and wooded canyon bottoms throughout its range. Caves and old buildings are preferred roosting habitats, with roosts numbering up to 2,000 individuals. The project site provides potentially suitable foraging habitat for this species and the potential for this species to forage on the project site is considered to be moderate; however, this species is not expected to roost on the project site.

Pacific Western Big-eared Bat (*Plecotus townsendii pallescens*)

The Pacific western big-eared bat occurs throughout California and is a federal Species of Concern and state Species of Special Concern. In the southern portion of the state, the subspecies, *P. T.*

pallescens (Hall 1981), occupies a variety of communities, including oak woodlands, arid deserts, grasslands, and high-elevation forests and meadows. Known roosting sites in California include mines, caves, and buildings. The project site would provide foraging habitat for this species and it has a moderate potential to forage on the project site; however, no suitable roosting habitat is present.

3.3.5 Applicable Regional and Local Policies and Plans

San Bernardino Valley Multi-Species Habitat Conservation Plan

The draft Multi-Species Habitat Conservation Plan (MSHCP) encompasses approximately 500 square miles in the valley floor of the southwestern corner of San Bernardino County. The draft MSHCP area contains six unique habitat types, thirteen federally-listed Endangered or Threatened species, six state-listed Endangered or Threatened species, and fifty-three species of concern to federal and state agencies. San Bernardino County, through their Natural History Museum Staff, has been conducting biological and botanical surveys for the past several years in order to identify habitat needs and requirements for various sensitive species. The project site is not encompassed by the draft MSHCP and would not be subject to its policies and provisions.

County of San Bernardino General Plan

The County of San Bernardino general plan contains goals and policies/actions designed to preserve biological resources that apply to development within the County's jurisdiction. The general plan contains a list of Rare, Endangered and Threatened species that occur in San Bernardino County, adverse effects on which result in a mandatory finding of significant effect pursuant to State CEQA Guidelines, Section 15065 if individuals are adversely affected by County land use map changes and discretionary land use approvals, thereby requiring the preparation of an Environmental Impact Report (EIR). Listed plant species identified within the General Plan with potential to occur on the project site include Parish's checkerbloom and bird's foot checkerbloom. Listed wildlife species identified within the General Plan with potential to occur on the project site include the southern rubber boa and bald eagle. This biological technical report has been prepared as supporting documentation for the proposed Moon Camp project EIR which satisfies the requirements of the County of San Bernardino General Plan.

County of San Bernardino Biotic Resources Overlay District

The project site lies within a County of San Bernardino Biotic Resources (BR) Overlay District. The purpose of the BR Overlay District is to "implement General Plan policies regarding the protection and conservation of beneficial rare and endangered plants and animal resources and their habitats which have been identified within unincorporated areas of the county" (Article 2, 85.030201). The County General Plan implements the intent of the BR Overlay District by requiring all proposed land uses with a minimum of 25 percent of the total proposed development area within the BR Overlay

District to prepare a biological technical report identifying impacts to biological resources and mitigation measures designed to reduce or eliminate project related impacts. This biological technical report is intended to satisfy the requirements of the BR Overlay District.

Plant Protection and Management Ordinance – County of San Bernardino Municipal Code

The County of San Bernardino dictates under Chapter 8, Division 9 of the Municipal Code (Plant Protection and Management) that development on all private and public lands within the unincorporated areas of San Bernardino County is subject to specific requirements. Removal of any native plant from unincorporated areas of San Bernardino requires the approval of a removal permit. Additionally, the following sections of the ordinance would apply to native plants on the project site:

- 89.0110(a) The provisions of this Division shall not authorize the removal of perch trees within identified American Bald eagle habitat.
- 89.0115(c) The reviewing authority may require certification from an appropriate tree expert or native plant expert that such tree removals are appropriate, supportive of a healthy environment and are in compliance with the provisions of this chapter.
- 89.0205 Any coniferous tree or portion thereof, including stumps, shall be treated in accordance with one of the methods specified in Sections 89.0205 and 89.0210 within fifteen (15) days after such a tree or portion of such a tree has been cut.

Migratory Bird Treaty Act (MBTA)

The MBTA established in 1918 the federal prohibition, unless permitted by regulations, to pursue, hunt, take, capture, or kill any migratory bird species or any part, nest, or egg of any such migratory bird species covered by the act. Impacts to any bird (or its nest) listed by the MBTA are considered punishable by fines and/or imprisonment. Additionally, impacts to nesting MBTA-listed species is considered a significant impact by CEQA per guideline section .

4.0 PROJECT IMPACTS

4.1 INTRODUCTION

The determination of impacts in this analysis is based on a comparison of maps depicting project grading limits and maps of onsite biological resources. All construction activities, including staging and equipment areas, are assumed to be contained within the limits of grading. Both direct and indirect impacts on biological resource have been evaluated. Direct impacts are those that involve the initial loss of habitats due to grading and construction. Indirect impacts are those that would be related to disturbance from construction activities (e.g., noise, dust) and use of the project site.

Biological impacts associated with the proposed project were evaluated with respect to the following special status biological issues:

- Federally- or state-listed Endangered or Threatened species of plant or wildlife;
- Non-listed species that meet the criteria in the definition of Rare or Endangered in the California Environmental Quality Act (CEQA) Guidelines;
- Streambeds, wetlands, and their associated vegetation;
- Habitats suitable to support a federally- or state-listed Endangered or Threatened species of plant or wildlife;
- Species designated as California Species of Special Concern or federal Species of Concern;
- Habitat, other than wetlands, considered special status by regulatory agencies (USFWS, CDFG) or resource conservation organizations; and
- Other species or issues of concern to regulatory agencies or conservation organizations.

The actual and potential occurrence of these resources within the project site was correlated with the following significance criteria to determine whether the impacts of the proposed project on these resources would be considered significant.

4.2 SIGNIFICANCE CRITERIA

Appendix G of the CEQA Guidelines contains the Initial Study Environmental Checklist form which includes questions relating to biological resources. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this Section. Accordingly, a project may create a significant environmental impact if one or more of the following occurs:

- If the project has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS.
- If the project has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS.
- If the project has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh,

vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

- If the project interferes substantially with the movement of any native or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.
- If the project conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- If the project conflicts with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Section 15065(a), *Mandatory Findings of Significance*, of the CEQA Guidelines states that a project may have a significant effect on the environment if "...the project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species..."

An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would substantially diminish, or result in the loss of, an important biological resource or those that would obviously conflict with local, State or Federal resource conservation plans, goals, or regulations. Impacts are sometimes locally adverse but not significant because, although they would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population- or region-wide basis.

Section 15380 of CEQA indicates that a lead agency can consider a non-listed species to be Rare or Endangered for the purposes of CEQA if the species can be shown to meet the criteria in the definition of Rare or Endangered. For the purposes of this discussion, the current scientific knowledge on the population size and distribution for each special status species was considered according to the definitions for Rare and Endangered listed in Section 15380 of CEQA.

The actual and potential occurrence of these resources within the project vicinity was correlated with the previously identified significance criteria to determine whether the impacts of the proposed project on these resources would be significant.

Potential impacts are grouped below according to topic. The numbered mitigation measures at the end of this section directly correspond with the numbered impact statements.

4.3 DIRECT IMPACTS

4.3.1 Flora and Vegetation Type Impacts

A total of 61.87 acres of native and non-native vegetation types, including developed areas, would be impacted by the proposed project. These areas are discussed below, summarized in Table 4 and illustrated in Exhibit 4.

Jeffrey Pine Forest

A total of 54.91 acres of Jeffrey pine forest, including 17.38 acres of open Jeffrey pine forest, would be impacted by project implementation. Approximately 58,526 acres of Jeffrey pine forest occurs in the San Bernardino National Forest and 141,604 acres in the Cleveland, San Bernardino, Angeles and Los Padres National Forests collectively (Stephenson and Calcarone 1999). Impacts on this vegetation type would be considered less than significant since this vegetation type is common throughout the San Bernardino Mountains and other mountain ranges in the region.

Lake Shoreline

A total of 4.14 acres of lake shoreline would be impacted by project implementation. Man-made lakes are essentially distinct ecosystems, with an aquatic fauna and flora that bears little resemblance to what naturally occurs in the streams that formed them. Impacts on this vegetation type would be considered less than significant since Big Bear Lake is a man-made reservoir created by the construction of Bear Valley Dam. Montane meadow habitat may occur within the lake shoreline vegetation type. Impacts to montane meadow are discussed in Section 4.3.3, Special Status Biological Resources Impacts.

Pebble Plains

A total of 0.69 acre of pebble plain habitat would be impacted by project implementation. Impacts to pebble plain habitat are discussed in Section 4.3.3, Special Status Biological Resources Impacts.

Developed

A total of 2.82 acres of disturbed vegetation and developed areas would be impacted by project implementation. Impacts on this vegetation type would not be considered significant since this vegetation type is considered to have a low biological value.

4.3.2 Fauna Impacts

To assess impacts on wildlife, the total impact on a given vegetation type that provides habitat for wildlife was evaluated. Exhibit 4 illustrates the vegetation types (i.e., wildlife habitat) that would be impacted as a result of construction of the proposed project. The following discussion of wildlife impacts focuses on the common species occurring in the study area. Impacts on special status wildlife species are discussed separately in Section 4.3.3 of this report.

General Habitat Loss, Wildlife Loss, Wildlife Movement, and Habitat Fragmentation

Construction of the proposed project would result in the loss of approximately 60 acres of native habitats that provide nesting, foraging, roosting, and denning opportunities for a wide variety of wildlife species. Removing or altering habitats on the project site would result in the loss of small mammals, reptiles, amphibians, and other animals of slow mobility that live in the proposed project's direct impact area. More mobile wildlife species now using the project site would be forced into remaining areas of open space, consequently increasing competition for available resources in those areas. This situation would result in the loss of individuals that cannot successfully compete. However, direct impacts on the project site would be considered less than significant because they would not significantly reduce wildlife populations in the region.

Construction of the proposed project would further fragment existing wildlife habitat on and adjacent to the project site. Both common and special status amphibian, reptile, and small mammal species populations on and in the vicinity of the project site would have reduced opportunities for genetic exchange. Birds and larger mammal species, which are capable of crossing larger areas of inhospitable habitat would be affected to a lesser extent. Specifically, project implementation would displace many individuals of a wide range of species that currently use the site into native and non-native habitats that would be retained in the: 1) open space within the project site; and 2) remaining areas of open space in the vicinity of the project site. In addition, appropriate habitat for some species may not be available on the project site after construction. As a result, some species may be extirpated from the project site.

The loss of habitat, loss of wildlife, wildlife displacement, and habitat fragmentation that would result from construction of the proposed project would not be considered significant because these impacts would not substantially diminish habitat for wildlife in the region nor reduce any specific wildlife populations in the region to below self-sustaining numbers.

The development of the project site would not impact wildlife corridors, by definition, but may affect local travel routes. Construction of the residential areas and realignment of Highway 38 would result in reduced connectivity between Big Bear Lake as a water source to the contiguous open spaces on and to the north of the project site. Additionally, construction of the proposed project would result in increased traffic on the project site by residents which would further impede movement of terrestrial wildlife currently crossing the site and Highway 38. Although this impact is considered locally

adverse, it is not considered significant because the impact does not substantially affect a regionally important wildlife movement corridor.

4.3.3 Special Status Biological Resources Impacts

Vegetation Types

Pebble Plains

A total of 0.69 acre of pebble plain habitat would be impacted by project implementation. Approximately 379 acres of pebble plain are known to exist in the San Bernardino Mountains, 60 percent (227 acres) of which occurs on public lands. Development of the project site would remove 0.18 percent of the remaining acreage of pebble plain known to occur on both public and private lands. Impacts on this vegetation type would be considered less than significant given the small area impacted by the proposed project relative to the amount of this vegetation type within the San Bernardino Mountains. Nevertheless, these impacts would be mitigated by Mitigation Measure 6.

Montane Meadows

Botanical surveys during 2002 were limited on the project site and throughout southern California due to a very low rainfall year. Many plant species indicative of the montane meadow vegetation type are either annual (i.e., complete their life cycles in a single year and then die) or perennial herbs (i.e., die back to the ground level each year and persist as underground bulbs or rootcrowns). In poor rainfall years, annual and perennial herbs may not be visible, though they may exist on a site as an inactive seed, bulb, or rootcrown. Therefore, the extent of montane meadow on the project site could not be determined during the 2002 botanical survey. However, implementation of Mitigation Measure 1 (MM-1) would reduce impacts to this vegetation type to a level considered less than significant.

Plants

Project implementation would result in impacts on four special status plant species known to occur on the project site, including one federally-listed Threatened and CNPS List 1B species, ash-gray Indian paintbrush; and three CNPS List 1B species, Parish's rock cress, Big Bear Valley woollypod, and silver-haired ivesia. Additionally, project implementation may result in impacts to special status species potentially occurring on the project site, including six Threatened or Endangered species and 20 CNPS Lists 1B and 2 species. Project implementation also has the potential to impact potentially suitable habitat for 15 CNPS List 4 species.

Special Status Plant Species Known to Occur on the Project Site

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

Impacts on these species would be considered significant according to CEQA Guideline Section 15065. However, implementation of MM-1 would reduce impacts to a level considered less than significant.

Special Status Plant Species Potentially Occurring on the Project Site

Botanical surveys during 2002 were limited on the project site and throughout southern California due to a very low rainfall year. Many plant species are either annual (i.e., complete their life cycles in a single year and then die) or perennial herbs (i.e., die back to the ground level each year and persist as underground bulbs or rootcrowns). In poor rainfall years, annual and perennial herbs may not be visible, though they may exist on a site as an inactive seed, bulb, or rootcrown. Most of the special status plants of the Big Bear area are perennial herbs, making a conclusive determination of "presence" or "absence" based on field surveys difficult during low rainfall years. However, previous reports of presence and determination of habitat quality can be used to estimate the probability that a special status plant species might occur on the project site.

There is potential for several special status plants on the project site that were not detectable this spring due to dry conditions. Special status plants potentially occurring on the project site include six listed Threatened or Endangered species (bird's foot checkerbloom, San Bernardino bluegrass, California dandelion, Big Bear Valley sandwort, southern mountain buckwheat, and slender-petalled thelypodium); one CNPS List 1B and state-listed Rare species and Candidate for federal listing as Threatened or Endangered (Parish's checkerbloom); and 26 CNPS List 1B or 2 species (rock sandwort, Big Bear Valley milk vetch, Palmer's mariposa lily, San Bernardino Mountain owl's clover, male fern, San Bernardino Mountains dudleya, leafy buckwheat, San Bernardino Mountain gilia, shaggy-haired alum root, Parish's alumroot, short-sepaled lewisia, lemon lily, Baldwin Lake linanthus, San Bernardino Mountain monkeyflower, purple monkeyflower, Baja navarretia, Parish's yampah, Bear Valley phlox, Bear Valley pyrrocoma, San Bernardino butterweed, prairie wedge

grass, southern jewelflower, and grey-leaved violet). Surveys during a normal rainfall year would be required to determine presence or absence and the extent of these species on the project site.

The loss of potential habitat for these species would be considered significant according to CEQA Guideline Section 15065. However, implementation of MM-1 would reduce impacts to a level considered less than significant.

There is potential for fifteen CNPS List 4 species on the project site. The plants in the CNPS List 4 category are of limited distribution or infrequent throughout a broad area in California, and their vulnerability or susceptibility to threat appears relatively low at this time. CNPS is actively monitoring populations of the List 4 species and they will be transferred to a more appropriate list if the degree of endangerment or rarity of these species should change. The CNPS List 4 species present on the project site do not meet the definitions of Rare, Threatened, or Endangered according to CEQA Guideline Section 15065. However, they are addressed in this biological technical study given the number of species potentially present on the project site. No significant impacts to CNPS List 4 species are anticipated at present.

Wildlife

The proposed project would result in the loss of potential habitat for several special status wildlife species potentially present on the project site. For those species expected to occur, potential impacts were evaluated for the habitat which the species is expected to occupy.

Invertebrates

Project implementation may result in impacts on one special status invertebrate species, the Andrews' marble butterfly. Although not observed during general wildlife surveys, the Andrews' marble butterfly has potential to occur on the project site. Potential habitat for this species is present among plants in the pebble plain habitat on the project site. The loss of potential habitat for this species would be considered less than significant due to the limited amount of habitat loss relative to the availability of habitat for this species throughout the San Bernardino Mountains.

Amphibians

Project implementation may result in impacts on special status amphibian species. No federally- or state-listed amphibian species have potential to occur on the project site. One species that is a federal Species of Concern and state Species of Special Concern, the yellow-blotched salamander, has potential to occur on the project site. Potential habitat for this species occurs on the project site in mesic areas with rotting logs and leaf litter. The loss of potential habitat for this species would be considered less than significant due to the limited amount of habitat loss relative to the availability of habitat for this species in the region.

Reptiles

Project implementation may result in impacts on special status reptile species. One federal Species of Concern, the southern sagebrush lizard, has been observed on the project site. Four additional species that are federal Species of Concern and/or state Species of Special Concern have potential to occur on the project site. These species are the silvery legless lizard, coastal western whiptail, San Bernardino ringneck snake, and San Bernardino Mountain kingsnake. The loss of potential habitat for these species would be considered less than significant due to the limited amount of habitat loss relative to the availability of habitat for these species in the region.

Intensive surveys for the state-listed Threatened southern rubber boa were conducted on the project site in the spring and summer of 2002. Given the negative results of two independent focused survey techniques and the lack of historical records in the immediate vicinity of the project site, the survey report concluded that this species is not expected to occur on the project site. Therefore, no impacts to this species are anticipated.

Birds

Project implementation may result in impacts on special status bird species. Two federally- and/or state-listed Endangered species have potential to occur on the project site, the American peregrine falcon and bald eagle. One Fully Protected species, the white-tailed kite, has potential to occur on the project site. In addition, 16 federal Species of Concern and/or state Species of Special Concern have potential to occur on the project site and are discussed below.

Bald Eagle

The bald eagle rarely nests in southern California. However, small wintering populations of bald eagle often occur in scattered montane locations in the region. Big Bear Lake supports the largest wintering population of bald eagle and may include as many as 30 individuals in peak years. The bald eagle was observed using several trees on the project site for perch and roost locations. A records search also demonstrated that some of the most utilized perch and roost trees on the north shore of the lake are located on the project site. Given the limited distribution of wintering populations of bald eagles in southern California, removal of these trees and/or construction of uses in proximity to trees such that they would lose their perching or roosting habitat value for wintering bald eagles would be considered a significant impact. Implementation of Mitigation Measures 2 and 3 (MM-2 and MM-3) would reduce impacts to this species. However, impacts would remain significant following implementation of mitigation.

Cooper's Hawk, Northern Goshawk, Sharp-shinned Hawk, Golden Eagle, Long-eared Owl, Ferruginous Hawk, Northern Harrier, White-tailed Kite, Merlin, American Peregrine Falcon, Prairie Falcon, and California Spotted Owl

Project implementation would reduce the amount of foraging habitat for these species. This impact would contribute to the cumulative loss of foraging habitat for these raptor species. However, the loss of potential foraging habitat for these species would be considered adverse, but less than significant due to the limited amount of habitat loss relative to the availability of foraging habitat for these species in the San Bernardino Mountains and National Forest.

The Cooper's hawk, long-eared owl, white-tailed kite, and California spotted owl also have potential to nest on the project site. If an active raptor nest (common or special status species) were found on the project site, the loss of the nest would be considered a violation of the California Fish and Game Code Sections 3503, 3503.5, and 3513. The loss of any active raptor nest occurring on the project site would be considered significant. The potential impact on these species would be reduced to a level considered less than significant with the implementation of Mitigation Measure 4 (MM-4).

Black Swift, Yellow Warbler, Hepatic Tanager, Purple Martin, and Gray Vireo

Project implementation would reduce the amount of foraging habitat for these species. In addition, the hepatic tanager and purple martin have potential to nest on the project site and implementation of the project may impact active nests. The loss of potential habitat for these species would be considered adverse, but less than significant due to the limited amount of habitat loss relative to the availability of habitat for these species in the San Bernardino Mountains and National Forest. However, impacts to individual nests would result in a violation of the MBTA and would be considered a significant impact. However, implementation of Mitigation Measure 5 (MM-5) would reduce impacts to a level considered less than significant.

Mammals

Project implementation may result in impacts on special status mammal species. No federally- and/or state-listed species have potential to occur on the project site. However, 11 federal Species of Concern and/or state Species of Special Concern have potential to occur on the project site and are discussed below.

Pallid Bat, Spotted Bat, California Mastiff Bat, Small-Footed Myotis, Long-Eared Myotis, Occult Little Brown Bat, Fringed Myotis, Long-Legged Myotis, Yuma Myotis, and Pacific Western Big-Eared Bat

The proposed project provides suitable foraging habitat for these bat species. Project implementation would reduce the amount of foraging habitat for these species. The pallid bat, small-footed myotis, long-eared myotis, Occult little brown bat, fringed myotis, long-legged myotis,

and Yuma myotis, also have potential to roost on the project site. This impact would contribute to the cumulative loss of foraging and roosting habitat for these bat species. However, the loss of potential habitat for these species would be considered adverse, but less than significant, due to the limited amount of habitat loss relative to the availability of foraging and roosting habitat for these species in the San Bernardino Mountains and National Forest.

San Bernardino Mountain Flying Squirrel

The project site provides suitable foraging and breeding habitat for this species. Project implementation would impact habitat for this species. However, the loss of potential habitat would be considered adverse, but less than significant, due to the limited amount of habitat loss relative to the availability of habitat for this species in the San Bernardino Mountains and National Forest.

4.3.4 Applicable Regional and Local Policies and Plans

San Bernardino Valley Multi-Species Habitat Conservation Plan (MSHCP)

The project site is not encompassed by the MSHCP and is not subject to its policies and provisions. Therefore, no conflicts with the policies of the MSHCP are anticipated.

County of San Bernardino General Plan

The project site is located in unincorporated San Bernardino County and is subject to the provisions and policies of the County of San Bernardino General Plan. The General Plan contains a list of species considered Rare, Threatened, or Endangered by the County. Projects potentially impacting County-listed species must prepare an EIR to determine the significance of impacts on these species. Two plant species identified within the General Plan, Parish's checkerbloom and bird's foot checkerbloom, have the potential to occur on the project site. Presence or absence of these species could not be determined on the project site during the 2002 botanical surveys due to a low rainfall year. Therefore, impacts on these species were assessed according to the presence of suitable habitat. Implementation of MM-1 would determine specific population impacts and provides mitigation for these species.

County of San Bernardino Biotic Resources Overlay District

The intent of the BR Overlay District is to require the preparation of a biological technical report for projects within the BR Overlay District identifying impacts to biological resources and mitigation measures designed to reduce or eliminate project-related impacts. This biological technical report is intended to satisfy the requirements of the BR Overlay District.

Plant Protection and Management Ordinance – County of San Bernardino Municipal Code

Chapter 8, Division 9 of the San Bernardino Municipal Code contains policies and requirements applicable to the project site including Section 89.0110(a), 89.0115(c), and 89.0205.

Section 89.0110(a) dictates that perch trees within identified American bald eagle habitat shall not be removed under any circumstances. Implementation of Mitigation Measures 2 and 3 (MM-2 and MM-3) would ensure the project's compliance with this section.

Section 89.0115(c) dictates that the County "may require certification from an appropriate tree expert or native plant expert that such tree removals are appropriate, supportive of a healthy environment and are in compliance with the provisions of this chapter". The Forester's Report (Appendix F) and the Botanical Survey Letter Report (Appendix A) are intended to satisfy the requirements of this section. The County shall make a determination based on the evidence presented herein and in the Forester's Report as to the significance of the proposed project impacts to native plants and compliance with the provisions of Chapter 8, Division 9 of the Municipal Code.

The intent of Section 89.0205 is to treat coniferous tree species such that they don't present a risk of fire, and spread tree insect pests and infection. Compliance with this Section would be enforced by the County standard conditions and requirements during construction of the proposed project. Implementation of standard condition of approval 3 (SCA-3) would reduce impacts to a level considered less than significant.

Migratory Bird Treaty Act (MBTA)

Implementation of the proposed project may impact the nests of species covered by the MBTA, including the Cooper's hawk, purple martin, and hepatic tanager. However, implementation of MM-4 and MM-5 would reduce impacts to these species to a level considered less than significant.

4.4 INDIRECT IMPACTS

Indirect impacts are those related to disturbance by construction (such as noise, dust, and urban pollutants) and long-term use of the project site and its effect on the adjacent habitat areas. The indirect impact discussion below includes a general assessment of the potential indirect affects (noise, dust and urban pollutants, lighting, human activity, and non-native species introduction) of the construction and operation of the proposed project. Particular focus is placed on the indirect effects on the natural open space area on the project site collectively referred to as edge effects.

Edge effects occur where development, including roads, takes place adjacent to natural open space areas. Edge effects threaten the ecological integrity, recreational experience, aesthetic quality, public investment, and safety operations of preserved or undeveloped natural areas located adjacent to developed areas. When development is configured in a manner that creates a high ratio

of development edge to natural open space, there is an increase in the potential impacts caused by human use (indirect impacts). These indirect effects that address both the short-term construction and long-term use of the project site are outlined below.

Noise Impacts

Noise levels on the project site would increase over present levels during and upon completion of construction of the proposed project. During construction, temporary noise impacts have the potential to disrupt foraging, nesting, roosting, and denning activities for a variety of wildlife species. Upon completion of construction, noise levels on the project site would increase as a result of increased human activity associated with residential uses. Both short and long-term noise impacts could potentially disrupt the foraging and roosting potential of the site for the bald eagle. Any interruption of the foraging and/or roosting behavior of the bald eagle would be considered a significant impact.

Short-term construction noise impacts on the bald eagle could be avoided by prohibiting grading and construction activities when wintering populations are present (between November and March). However, given restrictions on construction resulting from mitigation for direct impacts (i.e., MM-4 and MM-5) construction activities would be limited strictly to the month of October. Consequently, no feasible mitigation could be determined at this time. Therefore, both short- and long-term residential noise impacts on the bald eagle would be considered an unavoidable significant impact of the proposed project.

Increased Dust and Urban Pollutants

Grading activities would disturb soils and result in the accumulation of dust on the surface of the leaves of trees, shrubs, and herbs in the natural open space areas adjacent to the project site. The respiratory function of the plants in these areas would be impaired when dust accumulation is excessive. These impacts are considered adverse, though less than significant.

Additional impacts on biological resources in the area may occur as a result of changes in water quality. Urban runoff from the proposed project containing petroleum residues and the potential for improper disposal of petroleum and chemical products from construction equipment (temporary) or infrastructure areas (e.g., vehicles, improper disposal of chemicals) (permanent) could affect water quality onsite and offsite, including Big Bear Lake potentially affecting populations of aquatic species. Water quality could also be affected by runoff of nutrients from landscape features of the proposed project. Mitigation would require that the applicant apply for coverage under the State Water Resources Control Board's General Permit for Storm Water Discharge Associated with Construction Activity and comply with all of the provisions of the permit, including the development of a Storm Water Pollution Prevention Plan (which includes provisions for the implementation of Best Management Practices and erosion control measures).

Night Lighting

Lighting of the residential units would inadvertently result in an indirect effect on the behavioral patterns of nocturnal and crepuscular (i.e., active at dawn and dusk) wildlife that are present along the boundaries of the natural areas of the project site. Of particular concern is the effect on small ground-dwelling animals that use the darkness to hide from predators, and on owls, which are specialized night foragers. In addition, the increase in night lighting could discourage nesting and roosting along the lake shore. Most notably, lighting associated with the proposed project could disrupt roosting behavior of the bald eagle on the project site. This increased lighting, in conjunction with the increased noise and habitat loss, would be considered potentially significant. Implementation of Mitigation Measures 7 and 8 (MM-7 and MM-8) would reduce this impact.

Human Activity

The increase in human activity (i.e., noise, foot traffic) would increase the disturbance of natural open space adjacent to the project site. Human disturbance could disrupt normal foraging and breeding behavior of wildlife remaining in adjacent areas, diminishing the value of these open space habitat areas. Most notably, residential activity associated with the proposed project could disrupt foraging and roosting behavior of the bald eagle on the project site. Implementation of Mitigation Measures 7, 8, and 9 (MM-7, MM-8, and MM-9) would reduce impacts.

Non-native Species Introduction

The native habitat types within the natural open space areas adjacent to the project site would be subject to greater pressure from non-native plant species within the developed portions of the project site. Areas that have undergone disturbance generally contain a high number of non-native grasses and forbs that can successfully out-compete the native plants in the region. This will be especially true after initial project grading of the project site. Should non-native plants establish themselves in these areas prior to the establishment of native plant species or non-native/non-invasive plant species in the landscape areas, the non-natives may become invasive in the natural open space areas. Left uncontrolled, these "weeds" may begin encroaching into the adjacent natural areas. These impacts could become significant if uncontrolled. Implementation of Mitigation Measure 10 (MM-10) would reduce impacts to a level considered less than significant.

5.0 MITIGATION PROGRAM

Potential impacts to Biological Resources from project implementation would be addressed through a two-category mitigation program consisting of Standard Conditions of Approval and Mitigation Measures. Conditions/Measures within each category are described below.

5.1 STANDARD CONDITIONS OF APPROVAL

This section identifies Standard Conditions of Approval (SCA) that would offset the biological impact of clearing existing vegetation types for individual lot development. The majority of the SCAs would be enforced by the County of San Bernardino during the entitlement process and are discussed to demonstrate project consistency with local and regional policies and plans applicable to the proposed project.

SCA-1 Tree replanting will be required on a 2 to 1 basis as per San Bernardino County's Plant Protection and Management Ordinance along road cuts and fills. Spacing between planted trees should be no closer than 20 feet. Low volume, fire resistant shrubs and ground cover are also recommended for planting on roadside slopes. A Professional Forester or ISA Certified Arborist with experience in the San Bernardino Mountain's should review the landscaping plan before submittal to the County.

SCA-2 The landscape plan shall include tree protection guidelines which state that all construction activities should be limited to the late summer or early fall period. Heavy equipment shall be confined to skid trails, building sites, driveway pads, and parking areas. Heavy vehicle grading over two inches, operation, service, storage, placement of fill six inches or deeper, waste disposal, and construction of concrete or asphalt pads shall not take place within the dripline of remaining trees. Utility construction and foundation footings should also remain outside the dripline (if not possible, consult a professional arborist regarding if roots should be cut, tree removed, or if other preventative measures are possible). All measures should be taken to prevent damage to roots and provide subsequent treatment if injury occurs.

SCA-3 Logs shall be removed from the site within 15 days to reduce the potential for bark beetle infestations. California Forest Practice Rules allow chipping, debarking, sealing with clear plastic for four to six months, or lopping of limbs from stems greater than three inches in diameter and scattering so that all material has maximum exposure to solar radiation. Spraying of individual pine trees with carbaryl insecticide prior to construction is considered advantageous.

5.2 MITIGATION MEASURES

This section proposes mitigation measures (MM) for those impacts of the proposed project that are considered significant or potentially significant.

5.2.1 Special Status Plants

MM-1 Prior to vegetation clearing, grading, or other disturbance, the project site shall be surveyed during a year with precipitation at least 40 percent of average for the area to determine presence or absence of special status plant species and vegetation types. Surveys will

focus on listed special status vegetation types, and Threatened or Endangered, and CNPS List 1B and 2 species whose presence could not be determined during surveys due to lack of rainfall. The location and extent of special status species populations will be mapped and the size of the populations accurately documented.

The project applicant will pay compensation for the loss of special status botanical resources identified on the project site by the survey by funding the purchase and management of off-site habitat through contributions to a fund established by the California Wildlife Foundation on behalf of the CDFG. The California Wildlife Foundation is an independent 501(c)3 nonprofit corporation founded to assist the CDFG and other governmental agencies in the management of funds and mitigation banks designed to offset the impact of development on California's native flora and fauna. Off-site habitat containing the same species as those identified within resources impacted by the proposed project will be purchased at a ratio agreed upon by the County of San Bernardino, San Bernardino National Forest, USFWS, and CDFG. The typical mitigation ratio is 3:1 (i.e., three acres of habitat purchased for preservation for each acre impacted by development).

If additional surveys during a year with precipitation at least 40 percent of average do not encounter additional special status plant resources, the project applicant is responsible for the mitigation of a minimum of 11.8-acres of pebble plain and open Jeffrey pine forest in the western half of the project site that is known to be occupied by the federally-listed Threatened ash-gray Indian paintbrush (i.e., would be required to fund the purchase of 35.4-acres of offsite habitat from the California Wildlife Foundation if the agreed mitigation ratio is 3:1).

5.2.2 Special Status Wildlife

- MM-2 Trees identified on Exhibits 3 and 4 and the Bald Eagle Survey Report (Appendix E) as eagle perch locations shall be preserved in place upon project completion. Any development that may occur within the project site and in the individual lots must avoid impacts to these trees and their root structures. These restrictions on development of the individual tentative tracts must be clearly presented and explained to any potential prospective developers and/or homeowners prior to assumption of title and close of escrow.
- MM-3 Prior to vegetation clearing, grading, or other disturbance, the project site shall be surveyed to identify all large trees (i.e., greater than 20-inches in diameter at four feet from the ground) within 600 feet from the high water line. Trees identified on the project site as having a diameter in excess of 20-inches at four feet from the ground within 600 feet of the shoreline shall be documented and tagged. Any development that may occur within the project site and in the individual lots must avoid impacts to tagged trees and their root structures. These restrictions on development of the individual tentative tracts must be

clearly presented and explained to any potential prospective developers and/or homeowners prior to assumption of title and close of escrow.

- MM-4 Seven days prior to the onset of construction activities, a qualified biologist will survey within the limits of project disturbance for the presence of any active raptor nests. Any nest found during survey efforts will be mapped on the construction plans. If no active nests are found, no further mitigation would be required. Results of the surveys will be provided to the CDFG.

If nesting activity is present at any raptor nest site, the active site will be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the California Fish and Game Code. Nesting activity for raptors in the region of the project site normally occurs from February 1 to June 30. To protect any nest site, the following restrictions on construction are required between February 1 and June 30 (or until nests are no longer active as determined by a qualified biologist): (1) clearing limits will be established a minimum of 300 feet in any direction from any occupied nest and (2) access and surveying will not be allowed within 200 feet of any occupied nest. Any encroachment into the 300/200 foot buffer area around the known nest will only be allowed if it is determined by a qualified biologist that the proposed activity will not disturb the nest occupants. Construction during the nesting season can occur only at the sites if a qualified biologist has determined that fledglings have left the nest.

- MM-5 Vegetation removal, clearing, and grading on the project site will be performed outside of the breeding and nesting season (between March and September) to minimize the effects of these activities on breeding activities of migratory bird and other species.

5.2.3 Special Status Vegetation Types

- MM-6 The project applicant will pay compensation for the loss of pebble plain habitat identified on the site by the survey by contributing to the funding of purchase and management of off-site habitat through a fund established by the California Wildlife Foundation on behalf of the CDFG. The California Wildlife Foundation is an independent 501(c)3 nonprofit corporation founded to assist the CDFG and other governmental agencies in the management of funds and mitigation banks designed to offset the impact of development on California's native flora and fauna. Off-site habitat will be purchased at a ratio agreed upon by the County of San Bernardino, San Bernardino National Forest, USFWS, and CDFG. The typical mitigation ratio is 3:1 (i.e., three acres of habitat purchased for preservation for each acre impacted by development. An area containing no less than 2.1 acres of pebble plain habitat in an area located adjacent to other open space areas within the project vicinity will be preserved in perpetuity. The preserved areas shall be protected from future development through a conservation easement or other appropriate mechanism.

5.2.4 Wildlife Impacts/Indirect Impacts

- MM-7 Street lamps on the project site shall not exceed 20 feet in height, will be fully shielded to focus light onto the street surface and will avoid any lighting spillover onto adjacent open space or properties. Furthermore, street lights will utilize low color temperature lighting (e.g., red or orange).
- MM-8 Outdoor lighting for proposed homes on the individual tentative tracts shall not exceed 1,000 lumens. Furthermore, residential outdoor lighting shall not exceed 20 feet in height and must be shielded and focused downward to avoid lighting spillover onto adjacent open space or properties. These restrictions on outdoor lighting of the individual tentative tracts must be clearly presented and explained to any potential prospective developers and/or homeowners prior to assumption of title and close of escrow.
- MM-9 To limit the amount of human disturbance to adjacent natural open space areas, signs will be posted along the northeastern and eastern perimeter of the project site where the property boundary abuts open space directing people to keep out of the adjacent natural open space areas and to keep dogs leashed in areas adjacent to natural open space areas.
- MM-10 Prior to the issuance of individual building permits, landscaping designs will be submitted to the County of San Bernardino for review and approval by a qualified biologist. The review will determine that no invasive, exotic plant species are to be used in the proposed landscaping. The biologist should suggest appropriate substitutes.

6.0 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the proposed mitigation measures would reduce impacts to biological resources to a level considered less than significant. However, impacts to the following species will remain significant following implementation of mitigation:

Bald Eagle

Implementation of the proposed project would remove trees from the project site that could provide perching and roosting habitat for the federally- and state-listed Endangered bald eagle. The bald eagle rarely nests in southern California. Big Bear Lake supports the largest wintering population of bald eagle and may include as many as 30 individuals in peak years. Bald eagles were observed using several trees on the project site for perch and roost locations. A records search also demonstrated that some of the most utilized perch and roost trees on the north shore of the lake are located on the project site. Implementation of MM-2 would preserve the trees used most often by the bald eagle on the project site. However, thinning of the tree canopy and/or construction of uses in proximity to trees such that they could lose their perching or roosting habitat value for wintering

bald eagles would remain a significant impact. Additionally, although impacts to bald eagle roosting and perching habitat resulting from increased human activity and lighting on the project site would be reduced by MM-6 and MM-7, the reduced impacts would contribute to the overall decline of habitat value for this species on the project site.

7.0 REFERENCES

- Abrams, L. 1923. *Illustrated Flora of the Pacific States*, Volumes. I, II, and III. Stanford University Press, Stanford, California.
- Abrams, L. 1960. *Illustrated Flora of the Pacific States*. Volume IV. Stanford University Press, Stanford, California.
- American Ornithologists' Union (AOU). 1998. Check-list of North American Birds, 7th ed. American Ornithologists' Union, Washington, D.C.
- California Department of Fish and Game. March 2000. *RareFind Database*. California Department of Fish and Game, Natural Heritage Division, Sacramento, California.
- California Department of Fish and Game. 1991. California Wildlife Habitat Relationships Database System. Natural Heritage Division. Sacramento, California.
- California Department of Fish and Game (CDFG). 1984. Guidelines for assessing effects of proposed developments on rare and endangered plants and plant communities. Unpublished. California Department of Fish and Game, Sacramento, California.
- California Natural Diversity Data Base (CNDDB). 2002. List of special plants. Heritage section, California Department of Fish and Game. (January).
- California Department of Fish and Game (CDFG). December 1997. List of California Terrestrial Natural Communities Recognized by the Natural Diversity Data Base, Natural Heritage Division.
- California Native Plant Society (CNPS) 2000. *Electronic Inventory of Rare and Endangered Vascular Plants of California*. California Native Plant Society, Sacramento, California.
- Cronquist, A., A.H. Holmgren, N.H. Holmgren, J. Reveal, & P.K. Holmgren. 1972-1977. Intermountain Flora: Vascular Plants of the Intermountain West, USA. Vols I, VI. New York Botanical Garden, New York, NY.
- Derby, J.A. and R.C. Wilson. 1978. Floristics of pavement plains of the San Bernardino Mountains. *Aliso* 9:462-474.

- Devaud J. & Devaud S. 1990. *Bald Eagle Habitat Use of the North Shore of Big Bear Lake, San Bernardino County, California*. Unpublished Document in San Bernardino National Forest Service Files.
- Dunn, J.L., and K.L. Garrett. 1997. *A Field Guide to Warblers of North America*. Peterson's Field Guide Series; 49. Houghton Mifflin Company, New York, NY.
- Environmental Planning Consultants. 1988. *Big Bear Lake Bald Eagle Cumulative Impact Study*. Unpublished Document in San Bernardino National Forest Service Files.
- Farhig, L., and G. Merriam. 1985. *Habitat patch connectivity and population survival*. Ecology 66:1,792-1,768.
- Fiedler, P. and B. Ness. 1993. *Calochortus*. Pages 1183-1189 in J.C. Hickman (ed.). *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California.
- Flett, M.A., and S.D. Sanders. 1987. Ecology of a Sierra Nevada population of Willow Flycatchers. *Western Birds* 18:37-42.
- Garrett, K., and J. Dunn. 1981. *Birds of Southern California: Status and Distribution*. Audubon Press. Los Angeles.
- Grinnell, J. and A.H. Miller. 1944. *The Distribution of the Birds of California*. Cooper Ornithological Club, Pacific Coast Avifauna No. 27.
- Hall, E. 1981. *The Mammals of North America*. John Wiley and Sons. New York.
- Harris, J.H., S.D. Sanders, and M.A. Flett. 1987. Willow Flycatcher surveys in the Sierra Nevada. *Western Birds* 18:27-36.
- Harris, L. D., and P.B. Gallagher. 1989. *New Initiatives for Wildlife Conservation; The Need for Movement Corridors*. Pages 11-34 in G. Mackintosh, ed. *Preserving Communities and Corridors*. Defenders of Wildlife., Washington, D.C. 96pp.
- Hickman, J. C. Editor 1993. *The Jepson Manual Higher Plants of California*. University of California Press, Berkeley, California.
- Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Non-game Heritage Program, State of California Department of Fish and Game, Sacramento, California.
- Jameson, E.W., and H.J. Peeters. *California Mammals*. University of California Press, Berkeley, California.

- Johnson, J.W. and E. Walter. 1979. *A New Species of Coloradia in California (Saturniidae, Hemileucinae)*. Journal of Research on the Lepidoptera 18 (1): 60-66.
- Krantz, T. No date. A guide to the rare and unusual wildflowers of the Big Bear Valley Preserve. Friends of the Big Bear Valley Preserve, Big Bear City, California.
- Krantz, T. 1994. Phytogeography of the San Bernardino Mountains, San Bernardino County, California. Unpublished PhD dissertation, UC Berkeley.
- Loe, S.A. 1985. *Habitat Management Guide for Southern Rubber Boa (Charina bottae umbratica) on the San Bernardino National Forest*. San Bernardino National Forest. San Bernardino National Forest, San Bernardino, CA.
- Mayer, K.E., and W.F. Laudenslayer, Jr. (eds.). 1988. *A guide to wildlife habitats of California*. California Department of Fish and Game, Sacramento, California.
- McBride, J.R. 1988. Jeffrey pine. Pages 54-55 in K.E. Meyer & W.F. Laudenslayer, eds., *Guide to the wildlife habitats of California*. California Department of Fish and Game, Sacramento, California.
- McGurty, B.M. 1988. *Natural History of the California Mountain Kingsnake (Lampropeltis zonata)*. In: H.F. DeLisle, P.R. Brown, B. Kaufman, and B.M. McGurty, editors. Proceedings of the Conference on California Herpetology. Southwestern Herpetologists Society; 73-88.
- Miner, K. and P. Brown. 1996. *A Report on the Southern California Forest Bat Survey and Radio-telemetry Study of 1996*. Unpublished report on file at the Cleveland National Forest, San Diego, CA. 13 p.
- Munz, P.A. 1959. *A California Flora*. University of California Press, Berkeley, California.
- Munz, P.A. 1974. *A Flora of Southern California*. University of California Press, Berkeley, California.
- Murphy, D.D. 1990. *A Report on the California Butterflies Listed as Candidates for Endangered Status by the United States Fish and Wildlife Service*. Draft report for California Department of Fish and Game Contract No. C-1755.
- Neel, M. And K.Barrows. 1990. *Pebble Plain Habitat Management Guide and Action Plan*. USDA Forest Service, Pacific Southwest Region, San Bernardino National Forest and The Nature Conservancy, California Field Office.
- Noss, R. F. 1983. *A Regional Landscape Approach to Maintain Diversity*. BioScience 33:700-706.
- Ornduff, R. 1974. *Introduction to California Plant Life*. University of California Press, Berkeley, California.

- Remsen, J. V., Jr. 1978. *Bird Species of Special Concern in California*. California Department of Fish and Game, Nongame Investigations Report 78-1, Sacramento, California.
- Reynolds, R.T., R.T. Graham, M.H. Reiser, R.L. Basset, P.L. Kennedy, D.A. Boyce Jr., G. Goodwin, R. Smith, and E.L. Fisher. 1992. *Management Recommendations for the Northern Goshawk in the Southwestern United States*. USDA Forest Service, General Technical Report RM-217.
- Sanders, A.C., R.F. Thorne, and T. Krantz. 2000. Vascular Plants of the San Bernardino Mountains. Unpublished working draft manuscript.
- Sawyer, J.O. and Keeler-Wolf, T. 1995. *A Manual of California Vegetation*. California Native Plant Society, Sacramento, CA.
- Simpson, M.G. and J.P. Rebman. 2001. *Checklist of the vascular plants of San Diego County, 3rd edition*. San Diego State University Press, San Diego, California.
- Skinner M. and Pavlik, B. 1994a. *Inventory of Rare and Endangered Vascular Plants of California*. Special Publication No. 1 Fifth Edition, California Native Plant Society, Sacramento, California.
- Simberloff, D., and J. Cox. 1987. *Consequences and Costs of Conservation Corridors*. Conser. Biol. 1:63-71.
- Small, A. 1994. *California Birds: Their Status and Distribution*. Ibis Publishing Company. Vista, California.
- Stebbins, R. C. 1985. *A Field Guide to Western Reptiles and Amphibians*. 2nd ed. Houghton-Mifflin Company. Boston, Massachusetts.
- Stephenson, John R.; Calcarone, Gena M. 1999. Southern California mountains and foothills assessment: habitat and species conservation issues. General Technical Report GTR-PSW-172. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 402 p.
- Stewart, G.R. 1988. *The Rubber Boa (Charina bottae) in California, with particular reference to the southern subspecies, C. b. umbratica*. In: H.F. DeLisle, P.R. Brown, B. Kaufman, and B.M. McGurty, editors. Proceedings of the Conference on California Herpetology. Southwestern Herpetologists Society; 131-138.
- Tibor, D. 2001. *Inventory of Rare and Endangered Plants of California*. Special Publication No. 1, 6th Ed., California Native Plant Society, Sacramento, California.

- Unitt, P. 1984. *The Birds of San Diego County*. San Diego Society of Natural History, Memoir 13.
- Unitt, P. 1987. *Empidonax traillii extimus*: An endangered subspecies. *Western Birds*. 18:137-162.
- USDA Forest Service Southern Region. 1986. Forester's Handbook. R8-RM11. 129p
- USDI Fish and Wildlife Service. 1984. Endangered and threatened wildlife and plants; determination of endangered status for *Thelypodium stenopetalum* (slender-petaled thelypodium) and *Sidalcea pedata* (pdeate checker-mallow). Federal Register 49:34497-34500. (August 31).
- USDI Fish and Wildlife Service, February 27, 1995. *Endangered and Threatened Wildlife and Plants: Final Rule, Determining Endangered Status for the Southwestern Willow Flycatcher*. Federal Register, Vol. 60, No. 38.
- USDI Fish and Wildlife Service. 1998. Endangered and threatened wildlife and plants; determination of endangered or threatened status for six plants from the mountains of southern California. Federal Register 63:49006-49022 (September 14; addresses *Poa atropurpurea*, *Taraxacum californicum*, *Arenaria ursina*, *Castilleja cinera*, *Eriogonum kennedyi* var. *austromontanum*).
- USDI Fish and Wildlife Service. 1999. Endangered and threatened wildlife and plants; review of plant and animal taxa that are candidates or proposed for listing as endangered or threatened. Federal Register 64:57534-57547 (October 25).
- USFWS. 1997. A Southwestern Willow Flycatcher Natural History Summary and Survey Protocol. Technical Report NPS/NAUCPRS/NRTR-97/12. Colorado Plateau Research Station at Northern Arizona University. Prepared for National Park Service and Department of the
- U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants: Proposed rule to list four southwestern plants as endangered or threatened. Federal Register 59 (240): 64812-64823. (Dec. 15) [Includes *Brodiaea filifolia*].
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, editors. 1990a. *California's Wildlife Volume II: Birds*. California Department of Fish and Game. Sacramento, CA.



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December 13, 2001

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Mr. Glenn Lajoie
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Subject: Biological Constraints Report for the County of San Bernardino Land Use
Services Department, Moon Camp Environmental Impact Report

Dear Glenn:

BonTerra Consulting ecologists Brian Leatherman and Scott White conducted a field survey of the Moon Camp project site on December 10, 2001. The project site is located in Fawnskin, on the northern shore of Big Bear Lake, in San Bernardino County, California. The emphasis of the field survey was to evaluate the habitat suitability for special status plant and wildlife species and determine the need for further focused biological surveys. During the field survey, weather was partly cloudy and cold (31°F) with light to moderate wind. This letter report briefly describes the vegetation and habitat found on the property, and offers recommendations for further surveys to meet the documentation requirements of the California Environmental Quality Act (CEQA). The discussion presented in this letter report is limited to listed Threatened or Endangered plant and wildlife species and a few others of special local concern (California spotted owl [*Strix occidentalis occidentalis*], San Bernardino Mountains flying squirrel [*Glaucomys sabrinus californicus*], and white-eared pocket mouse [*Perognathus alticola alticola*]). Many other special status plant and wildlife species are known from the region, and some of these may occur on the site. These species would be addressed in more detail in the Biological Resource section of the Environmental Impact Report (EIR) for the proposed project. Appendix A contains a list of all special status plant and wildlife species within the of the region.

Vegetation and Habitat

Most of the site is open Jeffrey pine (*Pinus jeffreyi*) forest with scattered western juniper (*Juniperus occidentalis*) and California black oak (*Quercus kelloggii*) in the overstory. The tree canopy is especially open in the western half of the site. In the eastern half, especially around a mapped ephemeral stream, overstory canopy is higher. Beneath the trees, there is an open shrub layer consisting of Great Basin sagebrush (*Artemisia tridentata*), curleaf mountain mahogany (*Cercocarpus ledifolius*), birchleaf mountain mahogany (*C. betuloides*), cupleaf ceanothus (*Ceanothus greggii*) and a few other species. The herbaceous layer includes a variety of grasses and other species, most of which could not be identified this time of year. Standing dead trees, fallen trees, and leaf litter are fairly common, especially in the eastern half of the site.

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Patches of meadow and riparian habitat occur along the southern margin of the site, between Highway 38 and the lake shore. Most plants could not be identified, but dominant herbaceous species present include sedges (*Carex* spp.), rushes (*Juncus* spp.) and grasses (genera unknown). Shrubby willow trees (*Salix* sp.) occur in scattered patches.

Special Status Wildlife

In general, habitat on the site is marginally suitable for several special status wildlife species of the San Bernardino Mountains. The discussion below is limited to listed Threatened or Endangered wildlife species and a few others of special local concern.

California Spotted Owl

The California spotted owl generally does not nest in open forest habitat, but is likely to forage on the project site. The nest of a dusky-footed woodrat (*Neotoma fuscipes*), which is the owl's primary prey, was observed on the site. The California spotted owl has a low potential to nest on the site due to the lack of dense conifer, oak, or riparian forest onsite.

Southern Rubber Boa

Southern rubber boa (*Charina bottae umbratica*), a state-listed Threatened snake, generally occurs in mesic forest habitat with rocky outcrops where it hibernates. This species is extremely secretive and lives underground for much of the time and can be very difficult to detect. The southern rubber boa has a low probability of occurring on the site.

San Bernardino Mountains Flying Squirrel

San Bernardino Mountains flying squirrel generally occurs where black oak and white fir (*Abies concolor*) are more common than currently present on the project site. This species is not expected to nest on the site but likely forages in the area.

White-eared Pocket Mouse

The white-eared pocket mouse historically occurred in the San Bernardino Mountains but has not been recorded in this area in decades. It apparently occurred in pine forest with bracken fern understory, and thus would not be expected on the project site.

Mountain Yellow-legged Frog

The U.S. Geologic Service-designated blue line stream near the eastern border of the project site does not provide suitable habitat for the mountain yellow-legged frog (*Rana muscosa*), a species proposed for federal listing as Endangered. This species is not expected due to the lack of suitable habitat.

Bald Eagle

Bald eagles (*Haliaeetus leucocephalus*) overwinter at Big Bear Lake. They are commonly observed during winter roosting in trees in the immediate vicinity of the project site, and probably on the site itself, which offers a wide view of the lake surface. Hunting eagles use perches in trees on the lake shore to watch for prey (fish, waterfowl) on the lake. Although this species is not expected to nest onsite, it is expected to occur onsite during winter to forage on the adjacent lake.

Southwestern Willow Flycatcher

Patches of willow trees along the lake shore could support breeding southwestern willow flycatchers, a state and federally listed Endangered migratory bird.

Special Status Plants

Open areas in the western portion of the project site match published descriptions of "pebble plains" (Derby & Wilson 1978; 1979), a unique habitat type supporting several listed Threatened or Endangered plant species. One Threatened species, ash-gray Indian paintbrush (*Castilleja cinerea*), has been recorded on the site (MBA 2000). The site survey confirmed the occurrence of ash-gray Indian paintbrush and noted other low growing plants which could not be identified this time of year. One species on the site is a matting buckwheat, either Wright's buckwheat (*Eriogonum wrightii* ssp. *subscaposum*, a common species) or southern mountain buckwheat (*E. kennedyi* var. *austromontanum*, federally listed as Threatened). One other listed pebble plains endemic plant which could occur, but could not be documented during winter, is Bear Valley Sandwort (*Arenaria ursina*). In addition, several other special status plants not listed as Threatened or Endangered could likely occur in this habitat. These species are listed in Appendix A.

Patches of meadow and riparian habitat occur along the southern margin of the site, between Highway 38 and the lake shore. There are four federally listed plants endemic to meadows in the Big Bear Valley; these include San Bernardino bluegrass (*Poa atropurpurea*), bird's foot checkerbloom (*Sidalcea pedata*), California dandelion (*Taraxacum californicum*), and slender-petaled thelypodium (*Thelypodium stenopetalum*). These species all have a potential to occur on the project site.

Recommendations

Adverse impacts to any of the listed Threatened or Endangered species mentioned above, or to some other species not listed (California spotted owl, white-eared pocket mouse) may meet CEQA significance criteria. To evaluate the proposed project's impacts in terms of CEQA, it will be necessary to determine, to the extent possible, the presence or absence of each of the above species. Focused biological surveys that are recommended or those surveys that are not warranted for each of the species discussed above are outlined below.

California Spotted Owl

The California spotted owl has a low potential to nest on the site. Therefore focused surveys following U.S. Fish and Wildlife Service (USFWS) protocol are recommended. The site should be visited at night six times during the breeding season. (Note that the California spotted owl is not on state or federal Endangered species lists but has been petitioned for listing and its local population is in steep decline [Noon & McKelvey 1992; LaHaye et al. 1994]).

Southern Rubber Boa

The western half of the site is not suitable habitat for the southern rubber boa due to open, dry conditions with little leaf litter or other cover material. The eastern half is marginally suitable, with moderate leaf cover and numerous down logs. No rock outcrops (normally used for hibernation) occur on the site. The site is mapped as potential habitat by the California Department of Fish and Game (CDFG). The CDFG has developed a draft survey protocol that recommends three years of intensive surveys, but has not yet released the protocol. In the absence of any formal protocol, it is recommended that a survey for the rubber boa be conducted using three pitfall trap arrays, all in the eastern half of the property. Please note that failure to detect the southern rubber boa will

not enable us to reach a conclusion of “absent” because of this species secretive nature. However, a focused trapping effort will at least provide basis for a conclusion that they are unlikely to occur.

San Bernardino Mountains Flying Squirrel

Flying squirrels are uncommon and difficult to find. The site does not support their favored forest tree species in high densities and is likely only marginal habitat. Flying squirrels are almost never seen except when deliberately trapped (e.g., William La Haye, in 15 years of nocturnal spotted owl surveys, has seen only one flying squirrel). There is no formal survey protocol, but presence or absence determinations would necessitate nocturnal live-trapping surveys carried out over several nights, using fruit and/or fungi as trap bait. BonTerra does not recommend focused trapping surveys because (1) the species is not listed Threatened or Endangered and does not appear to meet this criteria under CEQA guidelines and (2) no recognized survey methodology exists, so failure to find flying squirrels may not support a determination of “absent”. We recognize that San Bernardino County may request focused surveys of some type, and will design a methodology to comply if requested.

White-eared Pocket Mouse

This pocket mouse has been considered extinct locally, but little effort has been made to substantiate this presumption. Impacts, if they occur, would probably meet CEQA significance criteria. The site does not support their favored forest understory composition (bracken fern) and is likely not suitable habitat. As described above for San Bernardino Mountains flying squirrel, there is no formal survey protocol. Surveys would likely require warm-season nocturnal live-trapping surveys carried out over several nights, using grain, peanut butter, or oats as trap bait. We do not recommend focused trapping surveys for the same reasons described above for San Bernardino Mountains flying squirrel.

Mountain Yellow-legged Frog

This species is not expected on the project site due to the lack of suitable habitat. Therefore, no focused surveys are recommended for this species.

Bald Eagle

BonTerra does not recommend surveys, since bald eagle use of perch trees in the area has already been well documented. BonTerra recommends, instead, designing a mitigation plan to minimize loss of suitable perch trees within view of the lake (especially along the lake border) and minimize noise and other human-related disturbance in the areas of suitable perch trees.

Southwestern Willow Flycatcher

Following USFWS protocol, patches of willow scrub habitat along the lake shore should be visited five times during breeding season to determine presence or absence.

Special Status Plants

The site should be thoroughly surveyed by a qualified botanist familiar with the local flora at least three times during the spring and summer, scheduled to coincide with the flowering seasons of listed species potentially occurring in the area. BonTerra recommends scheduling the field visits as follows: (1) early spring (late April or early May) to survey for San Bernardino bluegrass (it may flower through August, but is best searched for early because two very similar and abundant species, *P. pratensis* and *P. palustris* begin flowering in June); (2) late spring, to coincide with the

height of flowering season for the area; and (3) mid-summer (late July or later), to coincide with flowering season of southern mountain buckwheat.

Thank you for the opportunity to work on this project. If you have any questions about this report, please feel free to call me at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

A handwritten signature in cursive script, reading "Ann Johnston" followed by a stylized flourish.

Ann M. Johnston
Associate Principal, Biological Services

Attachments: Appendix A

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REFERENCES/LITERATURE CITED

- Barbour, R.W. and W.H. Davis. 1969. Bats of America. University Press of Kentucky, Lexington, Kentucky.
- California Department of Fish and Game, Natural Diversity Data Base. 2000. Special Animals. Unpublished report available from CDF&G, Sacramento.
- California Department of Fish and Game Natural Diversity Data Base (CNDDDB). 2000. Rarefind (electronic data base). California Department of Fish and Game, Sacramento, California.
- California Department of Fish and Game. 2000. Special plants. Unpublished report, California Department of Fish and Game Natural Diversity Data Base, Sacramento, California.
- California Native Plant Society (CNPS) 2001. Inventory of Rare and Endangered Plants of California (Sixth Edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society, Sacramento, California
- Derby, J.A. and R. Wilson. 1978. Floristics of pavement plains of the San Bernardino Mountains. *Aliso* 9:374-378.
- Derby, J.A. and R. Wilson. 1979. Phytosociology of pavement plains of the San Bernardino Mountains. *Aliso* 9:463-474.
- Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. The birder's handbook. Simon and Schuster, New York.
- Garrett, K. and J. Dunn. 1981. Birds of Southern California: Status and Distribution. Los Angeles Audubon Society, Los Angeles, California.
- Garth, J.S. and J.W. Tilden. 1986. California Butterflies. California Natural History Guide 51. University of California Press, Berkeley and Los Angeles.
- Ginnel, J. and A.H. Miller, 1944. The Distribution of the Birds of California. Cooper Ornithologist Club, Pacific Coast Avifauna No. 27
- Hall, E.R. and K.R. Kelson. 1959. The Mammals of North America. The Ronald Press Company, New York, New York.
- Hall, E. 1981. The Mammals of North America. John Wiley & Sons. New York.
- Hickman, J. (editor). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, California.
- Ingles, L.G. 1965. Mammals of the Pacific States. Stanford University Press, Stanford, California.
- Jennings, M. R. and Hayes, M.P. 1994. Amphibian and Reptile Species of Special Concern in California. Prepared for the California Department of Fish and Game.
- LaHaye, W.S., R.J. Gutierrez, H.R. Akcakaya. 1994. Spotted owl metapopulation dynamics in southern California. *Journal of Animal Ecology* 63:775-785.
- MBA. 2000. Biological assessment of the Moon Camp property site in Fawnskin, California. Unpublished report prepared for Urban Environs Redlands, Calif.

- Munz, P.A. 1974. A Flora of Southern California. University of California Press, Berkeley, California.
- National Geographic Society. 1999. Field Guide to the Birds of North America. 3rd ed. National Geographic Society, Washington DC.
- Noon, B.R. & K.S. McKelvey. 1992. Stability properties of the spotted owl metapopulation in southern California. Pages 187-206 in J. Verner et al., the California spotted owl: a technical assessment of its current status. USDA Forest Service PSW-GTR -133. Pacific Southwest Forest and Range Experiment Station, Berkeley.
- Remsen, J.V. 1978. Bird species of special concern in California. California Department of Fish and Game, Sacramento, California.
- San Bernardino National Forest. 2000. Unpublished list of bat species netted at nine sites in 1996.
- Sanders, A.C., T. Krantz and Robert Thorne. 1995. Flora of the San Bernardino Mountains. Unpublished draft working manuscript on file at San Bernardino National Forest Supervisor's Office, San Bernardino.
- Stebbins, R.C. 1954. Amphibians and Reptiles of Western North America. McGraw-Hill, New York.
- Stebbins, R.C. 1985. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company. Boston, Massachusetts.
- Stephenson, J. R. and G. M. Calcarone. 1999. Southern California Mountains and Foothills Assessment: Habitat and Species Conservation Issues. PSW-GTR-172. Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture. Albany, CA
- Tibor, D. (ed.). 2001. California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California. Special Publication No. 1, Sixth Edition, California Native Plant Society, Sacramento, California.
- US Fish and Wildlife Service. 1999 (25 Oct.). Endangered and threatened wildlife and plants; review of plant and animal taxa that are candidates or proposed for listing as endangered or threatened. Federal Register 64:57534-57547.
- Williams, D.F. 1976. Mammalian Species of Special Concern in California. Department of Fish and Game, Sacramento.
- Williams, D.F. 1986. Mammalian Species of Special Concern in California. California Department of Fish and Game, Sacramento, California.
- Williams, D.F., J. Verner, H.F. Sakai, and J.R. Waters. 1992. General biology of major prey species of the California spotted owl. Pages 207-224 in The California Spotted Owl: A Technical Assessment of Its Current Status. PSW-GTR-133, USDA Forest Service Pacific Southwest Research Station, Berkeley, California.
- Zeiner, D.C., W.F. Laudenslayer and K.E. Mayer (editors). 1988. California's Wildlife Vol. 1, Amphibians and Reptiles. California Department of Fish and Game, Sacramento, California.
- Zeiner, D.C., W.F. Laudenslayer and K.E. Mayer (editors). 1990. California's Wildlife Vol. III, Mammals. California Department of Fish and Game, Sacramento, California.

APPENDIX A

Table 1. Special status plants of the Big Bear Valley and surrounding mountains.

Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
<i>Abronia nana</i> ssp. <i>covillei</i> Coville's dwarf abronia	Carbonate and sandy soils within pinon-juniper woodlands; San Bernardino Mts. and mountains of E Mojave, ±5200-9200 ft.	May - August	Fed: none Calif: S3.2 CNPS: List 4 R-E-D:1-2-1	Low (marginally suitable habitat)
<i>Allium parishii</i> Parish's onion	Open shrublands & woodlands, gen. loose soil of bajada or mountain slopes, often carbonate soils, about 3000 - 6000 ft. elev.	Apr - May	Fed: none Calif: S3.3? CNPS: List 4 R-E-D:1-1-2	Low (suitable habitat, but above known elev. range)
<i>Antennaria marginata</i> White-margined everlasting	Dry places in conifer forests, above about 4500 ft. elev.; Arizona to Colorado, Texas, and Sonora, disjunct to San Bernardino Mts (Barton Flats area)	May - August	Fed: none Calif: S1.3 CNPS: List 2 R-E-D:3-1-1	Low (margin of geogr. range, distant from only known S.B. Mts. locn.)
<i>Arabis breweri</i> var. <i>pecuniaria</i> San Bernardino rock-cress	Only two known occurrences, on rocky ledges in San Gorgonio Wilderness above about 9000 ft. elev.	Mar - Aug	Fed: none Calif: S1.2 CNPS: List 1B R-E-D:3-2-3	Absent (well below elev. range)
<i>Arabis dispar</i> Pinyon rock-cress	Granitic gravelly soils, Joshua tree woodland, pinyon-juniper woodland, desert shrubland; about 3900 - 8000 ft. elev.; Mojave Desert & adjacent Mts.	March - June	Fed: none Calif: S2.3 CNPS: List 2 R-E-D:2-1-1	Low (poorly suitable habitat)
<i>Arabis parishii</i> Parish's rock cress	Pebble plains; open dry sites in coniferous forest; about 6300-9500 ft. elev.; San Bernardino Mts. endemic	April - May	Fed: none Calif: S2.1 CNPS: List 1B R-E-D:2-2-3	High (suitable habitat occurs)
<i>Arabis shockleyi</i> Shockley's rock-cress	Carbonate or quartzite soil, pinyon-juniper woodland; about 3000 to 7000 ft. elev.; N slope of San Bernardino Mts and disjunct to Inyo Co., Nevada, Utah	May - June	Fed: none Calif: S 2.2 CNPS: List 2 R-E-D:3-2-1	Low (poorly suitable habitat)
<i>Arenaria lanuginosa</i> ssp. <i>saxosa</i> (<i>A. confusa</i>) Rock sandwort	Streamsides, sandy soils in meadows, about 5900 to 9000 ft. elev.; San Bernardino Mts. and mts. of N Baja Calif.	July - Aug	Fed: none Calif: S1.3 CNPS: 2 R-E-D:3-1-1	Moderate (moderately suitable habitat)
<i>Arenaria ursina</i> Bear Valley sandwort	Pebble plains, carbonate soils, about 6400 - 6900 ft. elev.; San Bernardino Mts. endemic	June - July	Fed: THR Calif: S2.1 CNPS: 1B R-E-D:2-2-3	High (suitable habitat occurs)
<i>Astragalus albens</i> Cushenbury milk vetch	Carbonate outcrops and alluvial / colluvial deposits to about 6000 ft. elev.; San Bernardino Mts endemic	March - May	Fed: END Calif: S1.1 CNPS: List 1B R-E-D:3-3-3	Absent (no suitable habitat)

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<i>Astragalus bicristatus</i> Crested milk vetch	Rocky slopes, montane coniferous forests; 5500-8200 ft. elev.; San Bernardino, San Gabriel, and San Jacinto Mts	May - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	High (suitable habitat occurs)
<i>Astragalus lentiginosus</i> var. <i>sierrae</i> Big Bear Valley milk vetch	Rocky meadows, pine woodlands, 5800-8500 ft. elev.; San Bernardino Mts. endemic	April - August	Fed: none Calif: S1? CNPS: List 1B R-E-D:2-2-3	High (suitable habitat occurs)
<i>Astragalus leucolobus</i> Bear Valley woollypod	Rocky soils, pine forests and sagebrush scrub, 5600-8000 ft. elev.; San Bernardino, San Gabriel, San Jacinto, and Sta Rosa Mts.	May - July	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Occurs? (tentative identification during winter)
<i>Atriplex parishii</i> Parish's smallscale	Alkali sink, saltbush scrub; Central Valley, Palm Springs, Big Bear Valley; presumed extinct until recent rediscovery in San Jacinto Valley	June - October	Fed: none Calif: S1.1 CNPS: List 1B R-E-D:3-3-2	Absent (no suitable habitat)
<i>Berberis fremontii</i> Fremont's barberry	Rocky areas; Joshua tree, pinyon and juniper woodl, about 3000-6000 ft.; Mojave Des (CA, AZ, UT, NM) and Peninsular Ranges; historic record on Big Bear City quad now presumed extinct	April - June	Fed: none Calif: S2? CNPS: List 3 R-E-D:??-1	Absent (no suitable habitat, above elev. range)
<i>Botrychium crenulatum</i> Scalloped moonwort	Freshwater meadows, marshes, bogs, 4800-8100 ft. elev.; high mts. throughout Calif., to Washington and Utah	June - July	Fed: none Calif:S2.2 CNPS: List 2 R-E-D:2-2-1	Absent (no suitable habitat)
<i>Calochortus palmeri</i> var. <i>palmeri</i> Palmer's mariposa lily	Meadows and other sites where water available in spring, ±3900-7200 ft. elev.; S Coast Ranges, Transverse Ranges	May - June	Fed: none Calif: S2.1 CNPS: List 1B R-E-D:2-2-3	Moderate (marginally suitable habitat)
<i>Calochortus plummerae</i> Plummer's mariposa lily	Chaparral, alluvial fans, pine forest, below ±5500 ft. elev.; widespread but uncommon throughout S. Calif. mtns., foothills & valleys	May - July	Fed: none Calif: S3.2 CNPS: List 1B R-E-D:2-2-3	Absent (above elev. range)
<i>Castilleja cinerea</i> Ash-gray Indian paintbrush	Pebble plains, dry meadows, about 5900 to 9100 ft. elev.; San Bernardino Mountains endemic	May - August	Fed: THR Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Occurs (see text)
<i>Castilleja lasiorhyncha</i> (syn. <i>Orthocarpus l.</i>) San Bernardino Mountain owl's clover	Meadows, streamsides, seeps, other mesic sites, ±4200-7500 ft. elev.; S Calif. mtns.	June - July	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	High (suitable habitat occurs)

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Special Status Plants	Habitat and Distribution	Flower season	Status Designation	Occurrence Probability
<i>Dryopteris filix-mas</i> Male fern	Widespread in N hemisphere, esp. at high latitudes; only two widely separated locations in Calif., incl. one in Holcomb Valley	July - Sept.	Fed: none Calif: S1.3 CNPS: List 2 R-E-D:3-1-1	Low (local rarity)
<i>Dudleya abramsii</i> ssp. <i>affinis</i> San Bernardino Mts. <i>dudleya</i>	Pebble plains & rocky outcrops (often on carbonate); pinyon woodland, open pine forests, 5800-8500 ft. elev.; San Bernardino Mts. endemic	April - June	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Moderate (marginal habitat)
<i>Erigeron breweri</i> var. <i>jacinteus</i> San Jacinto Mts. daisy	Open rocky places on mountain slopes and ridgetops, above about 8800 ft. elev.; San Jacinto, San Bernardino, and San Gabriel Mts	June - Sept.	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	Absent (below elev. range)
<i>Erigeron parishii</i> Parish's daisy	Carbonate soils to 6400 feet elev., San Bernardino Mountains endemic	May - June	Fed: THR Calif: 2.1 CNPS: 1B R-E-D:2-3-3	Absent (no suitable habitat)
<i>Erigeron unicaulis</i> Limestone daisy	Limestone soils of desert mountain ranges; eastern Calif. to Nevada; above about 6800 ft. elev. Local report probably erroneous (misidentified <i>E. aphanactis</i> ?)	June - July	Fed: none Calif: S1 CNPS: List 2 R-E-D:3-2-1	Absent (no suitable habitat, outside geogr. range)
<i>Eriogonum foliosum</i> Leafy buckwheat	Sand; chaparral, lower montane coniferous forest, pinyon wld., 3900-7200 ft. elev.; scattered locations, Big Bear Valley to N Baja Calif.	July - Oct.	Fed: none Calif: SH CNPS: 1B R-E-D:3-2-2	High (suitable habitat occurs)
<i>Eriogonum kennedyi</i> var. <i>alpigenum</i> Southern alpine buckwheat	Granitic slopes and mountaintops above about 8750 ft. elev.; Peaks of San Gabriel, San Bernardino Mts., and Mt. Pinos, also pebble plains around Big Pine Flat	July - August	Fed: none Calif: S2.3 CNPS: List 1B R-E-D:2-1-3	Absent (below elev. range)
<i>Eriogonum kennedyi</i> var. <i>austromontanum</i> Southern mountain buckwheat	Pebble plains and similar soils, about 6200 - 6900 ft. elev.; nearly endemic to Big Bear Valley area but also occurs at Mt. Pinos	July - August	Fed: THR Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	Absent (field survey)
<i>Eriogonum ovalifolium</i> var. <i>vineum</i> Cushenbury buckwheat	Carbonate soils, outcrops, and talus; about 3900 to 7000 ft. elev.; San Bernardino Mountains endemic	May - June	Fed: END Calif: 1.1 CNPS: List 1B R-E-D:3-3-3	Absent (no suitable habitat)