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.

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BonTerra
CONSULTING
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December 13, 2001

Mr. Glenn Lajoie
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VIA FACSIMILE AND MAIL
(949) 837-4122

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*), curlleaf 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 that 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 cinera*), 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

Ann M. Johnston
Associate Principal, Biological Services

Attachments: Appendix A

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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
Abronia nana* ssp. *covillei **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)
Allium parishii **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)
Antennaria marginata **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.)
Arabis breweri* var. *pecuniaria **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)
Arabis dispar **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)
Arabis parishii **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)
Arabis shockleyi **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)
***Arenaria lanuginosa* ssp. *saxosa* (*A. confusa*)** **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)
Arenaria ursina **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)
Astragalus albens **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)

APPENDIX A

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

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Astragalus bicristatus **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)
Astragalus lentiginosus **var. *sierrae*** **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)
Astragalus leucolobus **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)
Atriplex parishii **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)
Berberis fremontii **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)
Botrychium crenulatum **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)
Calochortus palmeri **var. *palmeri*** **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)
Calochortus plummerae **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)
Castilleja cinerea **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)
Castilleja lasiorhyncha **(syn. *Orthocarpus l.*)** **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)

APPENDIX A

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Dryopteris filix-mas **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)
Dudleya abramsii **ssp.** ***affinis*** **San Bernardino Mts. dudleya**	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)
Erigeron breweri **var.** ***jacinteus*** **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)
Erigeron parishii **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)
Erigeron unicaulis **Limestone daisy**	Limestone soils of desert mountain ranges; eastern Calif. to Nevada; above about 6800 ft. elev. Local report probably erroneous (misidentified *E. aphanactis*?)	June - July	Fed: none Calif: S1 CNPS: List 2 R-E-D:3-2-1	**Absent** (no suitable habitat, outside geogr. range)
Eriogonum foliosum **Leafy buckwheat**	Sand; chaparral, lower montane coniferous forest, pinyon wdld., 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)
Eriogonum kennedyi **var.** ***alpigenum*** **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)
Eriogonum kennedyi **var.** ***austromontanum*** **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)
Eriogonum ovalifolium **var.** ***vineum*** **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)

APPENDIX A

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Eriophyllum lanatum* var. *obovatum **Southern Sierra woolly sunflower**	Open montane coniferous forests, 4200-8100 ft. elev.; S Sierra Nevada and western San Bernardino Mts.	June - July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	**Low** (margin of geogr. range)
Fimbristylis thermalis **Hot springs fimbristylis**	Alkaline meadows near hot springs; San Bernardino Mts., Sierra Nevada Mts. (Kern, Mono, Inyo Cos.), Nevada, and Arizona; wide elev. range	July - Sept.	Fed: none Calif: S2.2 CNPS: List 2 R-E-D:2-2-1	**Absent** (no suitable habitat)
Galium jepsonii **(syn. *G. angustifolium* var. *subglabrum*)** **Jepson's bedstraw**	Sandy or gravelly soils, montane coniferous forest, 6500-8100 ft. elev.; San Gabriel and San Bernardino Mts	July - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	**High** (suitable habitat occurs)
Galium johnstonii **(syn. *G. angustifolium* var. *pinetorum*)** **Johnston's bedstraw**	Dry rocky slopes, open mixed conifer forest, 5300-7500 ft. elev.; San Gabriel and San Bernardino Mts.	June - July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	**High** (suitable habitat occurs)
Gentiana fremontii **Moss gentian**	Meadows; only Calif. occurrences in San Gorgonio Wilderness above about 7800 ft. elev.; widespread in much of interior Western N America	June - August	Fed: none Calif: S2.3 CNPS: List 2 R-E-D:3-1-1	**Absent** (well below elev. range)
Gilia leptantha* ssp. *leptantha **San Bernardino Mtn. gilia**	Sandy or gravelly soils in open pine forest; endemic to San Bernardino Mts., about 5000 to 7700 ft. elev.	June - Aug	Fed: none Calif: S2.3 CNPS: List 1B R-E-D:2-1-3	**High** (suitable habitat occurs)
Helianthus nuttallii* ssp. *parishii **Los Angeles sunflower**	Freshwater marsh, coastal salt marsh (Skinner & Pavlik 1994), wet ground, 1000-1500 ft. (Munz 1974); historic sites (extirpated) in LA, San Bern. and Orange Cos.	Aug. - Oct.	Fed: C1* Calif: SH CNPS: List 1A R-E-D: n/a	**Absent** (presumed extinct; no suitable habitat, well above elev. range)
Heuchera hirsutissima **Shaggy-haired alum root**	Subalpine and upper montane forests, above about 7200 ft. elev.; endemic to San Jacinto and Santa Rosa Mts (one unconfirmed record from San Bernardino Mts.)	May - July	Fed: none Calif: S2.3 CNPS: List 1B R-E-D:3-1-3	**Low** (poorly suitable habitat)
Heuchera parishii **Parish's alumroot**	Rocky places, montane coniferous forests and alpine boulderfields, above 4800 ft. elev.; San Bernardino Mts endemic	June - July	Fed: none Calif: S2.3 CNPS: List 1B R-E-D:2-1-3	**Low** (poorly suitable habitat)
Horkelia wilderae **Barton Flats horkelia**	Pine forest and chaparral, endemic to Barton Flats area; about 7000 to 10,000 ft. elev.	May - Sept.	Fed: none Calif: S1.1 CNPS: List 1B R-E-D:3-3-3	**Low** (probably outside geogr. range)

APPENDIX A

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Hulsea vestita* ssp. *parryi **Parry's sunflower**	Rocky sites in conifer forests, gen. loose eroding soil and talus; San Bernardino Mts and Little San Bern. Mts; about 5500-9500 ft. elev.	April - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	**Low** (poorly suitable habitat)
Hulsea vestita* ssp. *pygmaea **Pygmy hulsea**	Subalpine forest, gen above about 10,000 ft. elev., San Gorgonio Wilderness	Summer	Fed: none Calif: S2.3 CNPS: List 1B R-E-D:2-1-3	**Absent** (well below elev. range)
Ivesia argyrocoma **Silver-haired ivesia**	Pebble plains, dry or seasonally moist meadows and drainages; ±5000-7500 ft. elev.; San Bernardino Mts and a long-disjunct site in Baja Calif mts	June - August	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-2	**Occurs** (reported by MBA 2000)
Juncus duranii **Duran's rush**	Meadows or other wet places, montane coniferous forest, 5800-9000 ft. elev.; San Bernardino, San Gabriel, and San Jacinto Mts	July - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	**High?** (suitable habitat occurs)
Lesquerella kingii* var. *bernardina **San Bernardino Mtns. bladderpod**	Carbonate soils above about 6800 ft. elev.; San Bernardino Mts. endemic	May - June	Fed: **END** Calif: S1.1 CNPS: List 1B R-E-D:3-3-3	**Absent** (no suitable habitat)
Lewisia brachycalyx **Short-sepaled lewisia**	Wet meadows, forest openings, 4500-7500 ft. elev.; San Bernardino Mts to Baja Calif, Utah, New Mex.	May - June	Fed: none Calif: S3.2 CNPS: List 2 R-E-D:2-2-1	**Low-Moderate** (marginal habitat)
Lilium humboldtii* ssp. *ocellatum **Ocellated Humboldt lily**	Stream banks and shaded forest or chaparral, usually N-facing slopes; below about 6000 ft. elev; S and central Calif mts	June - July	Fed: none Calif: S3.2 CNPS: List 4 R-E-D:1-2-3	**Absent** (above elev. range, marginal habitat)
Lilium parryi **Lemon lily**	Meadows and streambanks above about 4000 ft. elev.; mts. of S Calif. and SE Arizona	July - August	Fed: none Calif: S2.1 CNPS: List 1B R-E-D:2-2-2	**Low** (marginal habitat)
Linanthus killipii **Baldwin Lake linanthus**	Pebble plains, alkaline meadows, forest openings, 5500-7800 ft. elev.; San Bernardino Mts endemic	May - July	Fed: none Calif: S2.1 CNPS: List 1B R-E-D:2-2-3	**High** (suitable habitat occurs)
Malaxis monophyllos* ssp. *brachypoda **Adder's mouth**	Meadows above about 7200 ft. elev., San Gorgonio Wilderness (San Bernardino Mts.); historically known from Tahquitz Meadow but evidently extinct there; widely distributed in N America	June - August	Fed: none Calif: S1.1 CNPS: List 2 R-E-D:3-3-1	**Absent** (no suitable habitat, well below local elev. range)

APPENDIX A

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Mimulus exiguus **San Bernardino Mountain monkeyflower**	Meadows, seeps, drainages, 5800-7500 ft. elev.; San Bernardino Mts and high mts of Baja Calif.	June - July	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-2	**High** (suitable habitat occurs)
Mimulus purpureus **var. *purpureus*** **Purple monkeyflower**	Meadow edges, forests, drainages, seeps, 6100-7500 ft. elev.; San Bernardino Mts and high mts of Baja Calif.	May - July	Fed: none Calif: S2.2 CNPS: List 2 R-E-D:2-2-2	**High** (suitable habitat occurs)
Monardella macrantha **ssp. *hallii*** **Hall's monardella**	Montane forests and mixed chaparral, ±2000-6500 ft. elev.; San Bernardino, San Gabriel, and Peninsular Ranges	June - August	Fed: none Calif: S3.3 CNPS: List 1B R-E-D:2-1-3	**Absent** (poorly suitable habitat, above elev. range)
Navarretia peninsularis **Baja navarretia**	Open, seasonally wet places in coniferous forests, 4800-7500 ft. elev.; mts of central and S Calif. and N Baja Calif.	June - August	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-2	**Low** (small patches of marginal habitat)
Oxytheca caryophylloides **Chickweed oxytheca**	Sandy soils in conifer forests, 3900-8500 ft. elev.; S Sierra Nevada, Transverse Ranges, San Jacinto Mts.	July - Sept.	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	**High** (suitable habitat occurs)
Oxytheca parishii **var. *cienegensis*** **Cienega seca oxytheca**	Sandy, gen. alluvial granitic soils in open, ±arid conifer forest; perhaps also on carbonate soil in pinyon woodland; about 7000-8000 ft. elev. (lower on carbonate soils?)	June - Sept.	Fed: none Calif: S1.3 CNPS: List 1B R-E-D:3-1-3	**Low** (all known occurrences well to south and east)
Oxytheca parishii **var. *goodmaniana*** **Cushenbury oxytheca**	Carbonate soils, about 4200 to 7700 ft. elev.; San Bernardino Mts. endemic; populations fluctuate widely year to year	May - Sept.	Fed: **END** Calif: S1.1 CNPS: List 1B R-E-D:3-3-3	**Absent** (no suitable habitat)
Oxytropis oreophila **Mountain oxytrope**	Alpine and subalpine forest, summit of Mt. San Gorgonio, above ca. 11,000 ft. elev.	July - Aug	Fed: none Calif: S2.3 CNPS: List 2 R-E-D:3-1-1	**Absent** (well below elev. range)
Perideridia parishii **ssp. *parishii*** **Parish's yampah**	Meadows, moist areas in coniferous forest above about 6500 ft. elev.; San Bernardino Mountains and (disjunct) Arizona and New Mex.	June - August	Fed: none Calif: S2.2? CNPS: List 2 R-E-D:2-2-1	**High** (suitable habitat occurs)
Phacelia exilis **(syn. *P. mohavensis* var. *exilis*)** **Transverse Range phacelia**	Sandy or gravelly soils, forest openings, meadows, pebble plains, 3500-8800 ft. elev.; S Sierra Nevada and Transverse Ranges	May - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	**High** (suitable habitat occurs)

APPENDIX A

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Phacelia mohavensis **Mojave phacelia**	Sandy or gravelly soils, woodlands, conifer forests, dry meadows and streambeds, 4500-8100 ft. elev.; San Gabriel & San Bernardino Mts	April - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-3	**High** (suitable habitat occurs)
Phlox dolichantha **Bear Valley phlox**	Montane coniferous forest; 6500-8800 ft. elev.; San Bernardino Mts endemic	June - July	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	**High** (suitable habitat occurs)
Poa atropurpurea **San Bernardino bluegrass**	Open, flat meadows, 4800-7200 ft. elev.; San Bernardino Mts and Laguna Mts (San Diego Co.)	May - June	Fed: **END** Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	**High** (suitable habitat occurs)
Poliomintha incana **Frosted mint**	Subshrub; dunes, sandy soils, rocky slopes below about 5500 ft. elev.; SW states; only CA record, Cushenbury Spr, now presumed extinct	June - July	Fed: none USFS: none Calif: SH CNPS: List 1A	**Absent** (no suitable habitat, above elev. range)
Polystichum kruckebergii **Krukeberg's sword fern**	Rocky places, montane coniferous forest, 6800-10,400 ft. elev.; Calif. mts to British Columbia, Montana, Utah (occurrence in San Bernardino Mts uncertain)	June - August	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-1	**Absent** (poor habitat, geogr. range)
Populus angustifolia **Narrow-leaved cottonwood**	Riparian habitat in montane coniferous forests, Sierra Nevada Mts. Local report in CNPS data base presumably in error.	Mar - April	Fed: none Calif: S2S3 CNPS: List 2 R-E-D:3-2-1	**Absent** (local reports based on misidentification)
Pyrrocoma uniflora **ssp.** ***gossypina*** (*Haplopappus uniflorus* ssp. *gossypinus*) **Bear Valley pyrrocoma**	Meadows (usually alkaline), pebble plains, about 5200 - 7600 ft. elev.; San Bernardino Mts endemic	July - August	Fed: none Calif: S2.2 CNPS: List 1B R-E-D:2-2-3	**High** (suitable habitat occurs)
Rupertia rigida **(syn.** ***Psoralea rigida*****)** **Parish's rupertia**	Chaparral, forests, and woodlands, below ±8100 ft. elev.; San Bernardino Mts, Peninsular Ranges, Baja Calif.	June - July	Fed: none Calif: S3.3 CNPS: List 4 R-E-D:1-1-2	**High** (suitable habitat occurs)
Scutellaria bolanderi **ssp.** ***austromontanum*** **Southern mountain skullcap**	Stream banks and other moist sites, a few scattered sites from Victorville through San Diego Co; 1900-6500 ft. elev.	June - August	Fed: none Calif: S2.2? CNPS: List 1B R-E-D:2-2-3	**Low** (marginal habitat, above elev. range)
Sedum niveum **Davidson's stonecrop**	Rocky ledges and crevices, upper montane coniferous forest, 7100-9800 ft. elev.; San Bernardino Mts, Santa Rosa Mts	June - July	Fed: none Calif: S3.2 CNPS: List 4 R-E-D:1-2-2	**Absent** (no suitable habitat)