

**APPENDIX B
SPECIES-SPECIFIC CONSERVATION ANALYSES AND CONDITIONS FOR COVERAGE**

Aphanisma

Aphanisma blitoides

USFWS: Federal Species of Concern (former Category 2 candidate)

CDFG: None

CNPS:

Covered Species	Existing	Conserved	Percent Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Aphanisma blitoides</i>	26	26	100.0	0	96.3

Conservation Goals

The preserve shall be managed to ensure species survival by conserving major populations and the required habitat of *Aphanisma*.

Conservation Strategy

Conserve and manage along with the amount and configuration of suitable habitat to contribute to species recovery (including occupied habitat and unoccupied habitat that may support a persistent seed bank). Implement species-specific management actions as necessary to enhance or protect habitat quality and increase population size. These may include prohibiting adverse activities within preserve areas, enhancing declining populations and restoring damaged habitat, and establishing a seed bank for this species.

Coverage Determination and Permit Conditions

Coverage Determination: **Covered** 100% Conservation of known locations

Rationale. Levels of conservation expected under the Subarea plans meet the conservation goals for this species. Although the amount of potentially suitable habitat that will be conserved for this species in the preserve is adequate (100%), habitat in the study area occurs in narrow strands along the coast where it will likely be subject to edge effects.

Conditions. Not applicable

Background

Distribution, Abundance, and Trends. Historically, *Aphanisma* occurred from Ventura County southward to Baja California, Mexico, and on most of the Channel Islands. It is now apparently extirpated in much of the northern portion of its range and is facing steep declines in all other mainland locations as well (CNPS 2001). *Aphanisma* is a small annual herb that occurs on sandy soils near the coast in coastal bluff scrub and coastal sage scrub (CNPS 2001). It occurs at elevations from 3-60 m (10-200 ft) and is found from Santa Barbara County to northern Baja California, Mexico and on all the Channel Islands except San Miguel (Junak et al. 1995). This fleshy species blooms from April to May. *Aphanisma* is in steep decline on the mainland and declining on the islands as well (CNPS 2001).

Mainland populations are declining due to recreational use of beaches and development along the coast (Reiser 1994). *Aphanisma* was located in RPV in the coastal bluff scrub from Portuguese Point along the coast to the RPV/San Pedro City limit. Extant populations of *Aphanisma* occur primarily on bluffs where they may be subjected to limited trampling but are otherwise relatively protected from impacts associated with development. It is not known whether population numbers documented to date for these species reflect inherently small population sizes, population fluctuations due to climatic variability, or declining populations due to direct or indirect human-induced impacts. If monitoring indicates continued declines in population size that cannot be correlated with climatic variability and that do not respond positively to protective measures recommended elsewhere in this plan, then reintroduction may be appropriate for these species.

Threats and Limiting Factors. Threats to this species include urbanization, recreational development, and foot traffic (CNPS 2001)

Special Considerations. *Aphanisma* is an annual plant that may experience yearly fluctuations in population size. This species is presumably wind-pollinated (McArthur and Sanderson 1984) and seeds are presumably self-dispersed. The level of survey effort for this species in the study area is unknown.

Conservation Analysis

Conservation and Take Levels: 100% Conservation.

Preserve Configuration Issues. Within the Subarea Plan most of this acreage occurs as relatively small stands of habitat that may not allow for population fluctuations and would likely be subject to edge effects.

Effects on Population Viability and Species Recovery. It is not certain if protection and conservation through implementation of the Subarea Plan would necessarily enhance population viability or further species recovery. Preserved habitat may not be sufficiently large to support viable populations of this species or to buffer populations from adverse edge effects.

South Coast Saltscale

Atriplex pacifica

USFWS: Federal Species of Concern (former Category 2 candidate)

CDFG: None

CNPS: List 1B, 3-2-2

Covered Species	Existing Point Locations	Point Locations Conserved	Percent Point Locations Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Atriplex pacifica</i>	8	8	100.0	0	96.3

Conservation Goals

The preserve shall be managed to conserve the required habitat of South Coast Saltscale.

Conservation Strategy

Conserve and manage along with an amount and configuration of suitable habitat to contribute to species recovery (including unoccupied habitat that may support a persistent seed bank). Implement species-specific management actions as necessary to enhance or protect habitat quality and increase population size. These may include prohibiting adverse activities within preserve areas, enhancing declining populations and restoring damaged habitat, and establishing a seed bank for this species.

Coverage Determination and Permit Conditions

Coverage Determination: **Covered** 100% Conservation of known locations

Rationale. Levels of conservation expected under the Subarea plans meets the conservation goals for this species. *Atriplex* is currently known from Portuguese Point and from Halfway Point to Shoreline Park in the study area. Although the amount of potentially suitable habitat that will be conserved for this species in the Subarea Plan is adequate (100%), the populations occur in small, disjunct stands along the coast where it will likely be subject to edge effects. The habitat within the Reserve will be actively managed to minimize edge effects and the long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the local population viability.

Conditions. Not applicable

Background

Distribution, Abundance, and Trends. South Coast saltscale occurs in coastal bluff scrub, coastal sage scrub, and alkali playas (CNPS 2001). This small, wiry, prostrate annual herb grows in openings between shrubs in xeric often mildly disturbed locales. This species occurs from Ventura County to Sonora and Baja California, Mexico and on San Clemente, Anacapa, Santa Catalina, Santa Cruz, San Nicholas, and Santa Rosa islands (Reiser 1994). South Coast saltscale is severely declining throughout

its coastal range on the mainland (Reiser 1994). In Rancho Palos Verdes, this species has been detected on Portuguese Point and along the coast between Halfway Point and Shoreline Park.

Extant populations of South Coast saltscale occur primarily on bluffs where they may be subjected to limited trampling but are otherwise relatively protected from impacts associated with development. It is not known whether population numbers documented to date for these species reflect inherently small population sizes, population fluctuations due to climatic variability, or declining populations due to direct or indirect human-induced impacts. If monitoring indicates continued declines in population size that cannot be correlated with climatic variability and that do not respond positively to protective measures recommended elsewhere in this plan, then reintroduction may be appropriate for these species.

Threats and Limiting Factors. Threats to this species include urbanization, recreational development, and foot traffic (Skinner and Pavlik 1994).

Special Considerations. *Aphanisma* is an annual plant that may experience yearly fluctuations in population size. This species is presumably wind-pollinated? (McArthur and Sanderson 1984) and seeds are presumably self-dispersed. The level of survey effort for this species in the study area is unknown.

Conservation Analysis

Conservation and Take Levels. 100% Conserved

Preserve Configuration Issues. Within the Subarea Plan most of this acreage occurs as relatively small stands of habitat that may not allow for population fluctuations and would likely be subject to edge effects.

Effects on Population Viability and Species Recovery. It is not certain if protection and conservation through implementation of the Subarea Plan would necessarily enhance population viability or further species recovery. Preserved habitat may not be sufficiently large to support viable populations of this species or to buffer populations from adverse edge effects. However, habitat within the Reserve will be actively managed to minimize edge effects and the long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the local population viability.

Peirson's Morning-glory

Calystegia peirsonii

USFWS: None

CDFG: None

CNPS: List 4, 1-2-3

Covered Species	Existing Point Locations	Point Locations Conserved	Percent Point Locations Conserved	Expected Take	Percent Conserved Potential Habitat
Calystegia peirsonii	0	0	0	0	96.3

Conservation Goals

The preserve shall be managed to ensure species survival by conserving major populations and the required habitat of Peirson's Morning-glory.

Conservation Strategy

Conserve and manage along with the amount and configuration of suitable habitat to contribute to species recovery (including occupied habitat and unoccupied habitat that may support a persistent seed bank). Implement species-specific management actions as necessary to enhance or protect habitat quality and increase population size. These may include prohibiting adverse activities within preserve areas, enhancing declining populations and restoring damaged habitat, and establishing a seed bank for this species.

Coverage Determination and Permit Conditions

Coverage Determination: **Covered** 96.3% of Potential Habitat

Rationale. No populations of Peirson's Morning-glory are known to occur within the Subarea Planning Area, but 96.3 percent of potentially suitable habitat will be conserved. The long-term habitat restoration program provides the opportunity to expand the distribution of this species to increase the regional population viability.

Conditions. Not applicable

Background

Peirson's morning-glory is found in chaparral, coastal sage scrub, chenopod scrub, and woodlands (CNPS 2001). It is a perennial herb from a rhizome, and blooms from May to June. The elevation range of this species is 30-1,500 m (100-5,000 ft; CNPS 2001). Peirson's morning-glory was previously known only from Antelope Valley in the San Gabriel Mountains of Los Angeles County (Hickman 1993); however, recent studies indicate that this species frequently intergrades with other *Calystegia* species (CNPS 2001). This species has not been observed within the Rancho Palos Verdes City limits.

Threats and Limiting Factors. Threats to this species include urbanization, recreational development, and foot traffic (CNPS 2001).

Special Considerations. Peirson's morning-glory is an annual plant that may experience yearly fluctuations in population size. This species is presumably wind-pollinated (McArthur and Sanderson 1984) and seeds are presumably self-dispersed. The level of survey effort for this species in the study area is unknown.

Conservation Analysis

Conservation and Take Levels: 96.3% Conservation of suitable habitat.

Preserve Configuration Issues. Within the Subarea Plan most of this acreage occurs as relatively small stands of habitat that may not allow for population fluctuations and would likely be subject to edge effects.

Effects on Population Viability and Species Recovery. It is not certain if protection and conservation through implementation of the Subarea Plan would necessarily enhance population viability or further species recovery. Preserved habitat may not be sufficiently large to support viable populations of this species or to buffer populations from adverse edge effects. The long-term habitat restoration program provides the opportunity to expand the distribution of this species to increase the regional population viability.

Catalina Crossosoma

Crossosoma californicum

USFWS: No status

CDFG: No status

CNPS: List 1B: R-E-D Code 1-2-2

Covered Species	Existing	Conserved	Percent Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Crossosoma californicum</i>	3	3	100	0	96.3

Conservation Goals

The preserve shall be managed to ensure species survival by conserving major populations and the required habitat of *Crossosoma*. Note: The species is recovering well on San Clemente Island.

Conservation Strategy

Conserve and manage along with the amount and configuration of suitable habitat to contribute to species recovery (including occupied habitat and unoccupied habitat that may support a persistent seed bank). Implement species-specific management actions as necessary to enhance or protect habitat quality and increase population size. These may include prohibiting adverse activities within preserve areas, enhancing declining populations and restoring damaged habitat, and establishing a seed bank for this species.

Coverage Determination and Permit Conditions

Coverage Determination: **Covered** 100% Conservation of known locations, 96.3% of suitable habitat.

Rationale. Levels of conservation expected under the Subarea plans meet the conservation goals for this species. Although the amount of potentially suitable habitat that will be conserved for this species in the preserve is adequate (100%), habitat in the study area will likely be subject to edge effects that would be minimized through active habitat management and restoration program.

Conditions. Not applicable

Background

Distribution, Abundance, and Trends.

Catalina crossosoma is a deciduous shrub that can reach 5 m (16 ft) in height. This shrub is usually found on dry, rocky slopes and canyons in coastal sage scrub below 500 m (1600 ft) elevation (Skinner and Pavlik 1994; Hickman 1993). It is known from Palos Verdes Peninsula, San Clemente Island, Santa Catalina Island and Guadalupe Island, Mexico (Hickman 1993). Catalina crossosoma was detected in three locations in the RPV city limits: north of Pirate Drive, and on the ridgeline and in the canyon west of Gando Drive, south of Crest Road. Less than 1000 individuals have been detected in the planning area.

Threats and Limiting Factors. Threats to this species include urbanization, recreational development, and foot traffic (CNPS 2001)

Special Considerations. Preserved habitat may not be sufficiently large to support viable populations of this species or to buffer populations from adverse edge effects. Active management to increase the population size through seed collection and cuttings will be necessary to improve the local viability of this species. Steep slopes of adjacent private lands may support individuals of this species.

Conservation Analysis

Conservation and Take Levels: 100% Conservation.

Preserve Configuration Issues. Within the Subarea Plan most of this acreage occurs as relatively small stands of habitat that may not allow for population fluctuations and would likely be subject to edge effects. The largest patches of potential habitat are being conserved and the restoration program will increase the amount of potential habitat for this species to be introduced into.

Effects on Population Viability and Species Recovery. It is not certain if protection and conservation through implementation of the Subarea Plan would necessarily enhance population viability or further species recovery. Preserved habitat may not be sufficiently large to support viable populations of this species or to buffer populations from adverse edge effects. Active management to increase the population size through seed collection and cuttings will be necessary to improve the local viability of this species. The long-term habitat restoration program provides the opportunity to expand the distribution of this species to increase the regional population viability.

Bright Green Dudleya
Dudleya vires

Covered Species	Existing Point Locations	Point Locations Conserved	Percent Point Locations Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Dudleya vires</i>	35	35	100	0	96.3

USFWS: No status
CDFG: No status
CNPS: List 1B, 2-2-2

Conservation Goals

Maintain the potential for Bright Green Dudleya to occur in the plan area by conserving suitable habitat to allow for population expansion or natural recolonization.

Conservation Strategy

Conserve and manage all major populations and locations along with an amount and configuration of suitable habitat to contribute to species recovery (including occupied habitat and adjacent habitat that supports pollinators). Implement species-specific management actions as necessary to enhance or protect habitat quality. These may include prohibiting adverse activities within preserve areas and enhancing declining populations (if present) and restoring damaged habitat.

Coverage Determination and Permit Conditions

Coverage Determination. **Covered** 100% of known locations conserved

Rationale. Current levels of conservation expected under the Subarea Plan meet the conservation goals for this species. 100% of the population will be conserved. Within Rancho Palos Verdes, bright green dudleya occurs along the coastal bluffs from Point Vicente east to the Rancho Palos Verdes/San Pedro City limit. The habitat within the Reserve will be actively managed to minimize edge effects and the long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the local population viability.

Special Conditions. Not applicable.

Background

Distribution, Abundance, and Trends. Bright green dudleya is a succulent perennial with a basal rosette of leaves from a caudex (i.e., a short woody stem at or below the ground; Hickman 1993). This species occurs on steep slopes in chaparral, coastal bluff scrub, and coastal sage scrub habitats below 400 m (1300 ft) (CNPS 2001; Hickman 1993). It is known from Los Angeles County, San Clemente, San Nicholas, and Santa Catalina islands, and Guadalupe Island, Mexico (Hickman 1993). Within Rancho Palos Verdes, bright green dudleya occurs along the coastal bluffs from Point Vicente east to the Rancho Palos Verdes/San Pedro City limit.

Threats and Limiting Factors. Threats to this species include development and past livestock grazing.

Special Considerations. Bright green dudleya is an herbaceous perennial plant. It is insect-pollinated (e.g., bees, bee flies, Wyatt 1983) and seeds are presumably self-dispersed.

Conservation Analysis

Conservation and Take Levels. 100% of the known population will be conserved in the Subarea Plan.

Preserve Configuration Issues. The proposed preserve design will conserve an estimated 100% of known locations and 96.3% of suitable habitat for this species inside the Subarea. Most of this occupied occurs as narrow strands of habitat the study area.

Effects on Population Viability and Species Recovery. Implementation of the Subarea Plan would protect populations of this species, if present in the study area. It is not certain, however, if protection and conservation alone would necessarily enhance population viability. The Subarea Plan preserve design conserves about 96.3% of potentially suitable habitat, which is scattered throughout the study area. Preserved populations would be subject to edge effects and, possibly, inbreeding depression. In addition, preserved habitat may or may not be sufficiently large to support appropriate pollinators. The habitat within the Reserve will be actively managed to minimize edge effects and the long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the local population viability.

Special Considerations. Bright green dudleya apparently requires insects for pollination. In addition, it may be susceptible to surface disturbances (e.g., vehicular traffic, trampling by hikers and horses).

Adaptive Management Program

Not applicable.

Woolly Seablite
Suaeda taxifolia

Covered Species	Existing Point Locations	Point Locations Conserved	Percent Point Locations Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Suaeda taxifolia</i>	N/A	N/A	N/A	N/A	99.3

USFWS: No status
CDFG: No status
CNPS: List 4, 1-2-1

Conservation Goals

Maintain the potential for woolly seablite to occur in the plan area by conserving suitable habitat to allow for population expansion or natural recolonization.

Conservation Strategy

Conserve and manage all major populations and locations along with an amount and configuration of suitable habitat to contribute to species recovery (including occupied habitat and adjacent habitat that supports pollinators). Implement species-specific management actions as necessary to enhance or protect habitat quality. These may include prohibiting adverse activities within preserve areas and enhancing declining populations (if present) and restoring damaged habitat.

Coverage Determination and Permit Conditions

Coverage Determination. **Covered** 99.3% of suitable and occupied habitat conserved.

Rationale. Current levels of conservation expected under the Subarea Plan meet the conservation goals for this species. Nearly the entire population within the plan area will be conserved. Within Rancho Palos Verdes, woolly seablite occurs along the coastal bluffs throughout the plan area. The habitat within the Reserve will be actively managed to minimize edge effects and the long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the local population viability.

Special Conditions. Not applicable.

Background

Distribution, Abundance, and Trends. Woolly seablite is a herbaceous perennial usually restricted to coastal salt marsh; it rarely grows in peripheral scrublands adjacent to salt marshes or as isolated plants along beaches (Reiser 1994). This species occurs along the coast from Santa Barbara County to Baja California, Mexico and on Santa Barbara, San Clemente, Santa Cruz, Santa Catalina, San Nicholas, and Santa Rosa Islands and on Guadalupe Island, Mexico (CNPS 2001). In Rancho Palos Verdes, woolly seablite occurs as isolated plants along the peninsula shoreline from Torrance Beach to San Pedro.

Threats and Limiting Factors. Threats to this species include development and landslides along coastal bluffs.

Special Considerations. Not applicable.

Conservation Analysis

Conservation and Take Levels. 99.3% of the suitable habitat will be conserved in the Subarea Plan. Potential take possible during landside abatement activities.

Preserve Configuration Issues. The proposed preserve design will conserve 99.3% of suitable habitat for this species inside the Subarea. Most of this occupied areas occurs as narrow strands of habitat the study area.

Effects on Population Viability and Species Recovery. Implementation of the Subarea Plan would protect populations of this species, if present in the study area. It is not certain, however, if protection and conservation alone would necessarily enhance population viability. The Subarea Plan preserve design conserves about 99.3% of potentially suitable habitat, which is scattered along the study area's shoreline. Preserved populations would be subject to edge effects. The habitat within the Reserve will be actively managed to minimize edge effects and the long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the local population viability.

Special Considerations. Not applicable.

Adaptive Management Program

Not applicable.

Santa Catalina Island Desert-thorn

Lycium brevipes var. hassei

USFWS: No status

CDFG: No status

CNPS: List 1B, 3-3-3

Covered Species	Existing Point Locations	Point Locations Conserved	Percent Point Locations Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Lycium brevipes var. hassei</i>	3	3	100.0	0	99.3%

Conservation Goals

Maintain the potential for Santa Catalina Island Desert-thorn to occur in the plan area by conserving suitable habitat to allow for population expansion or natural recolonization.

Conservation Strategy

Conserve and manage all major populations and locations along with an amount and configuration of suitable habitat to contribute to species recovery (including occupied habitat and adjacent habitat that supports pollinators). Implement species-specific management actions as necessary to enhance or protect habitat quality. These may include prohibiting adverse activities within preserve areas and enhancing declining populations (if present) and restoring damaged habitat.

Coverage Determination and Permit Conditions

Coverage Determination. **Covered:** 100% of known locations conserved

Rationale. Current levels of conservation expected under the Subarea Plan meet the conservation goals for this species. 100% of the population will be conserved. Within Rancho Palos Verdes it is found on coastal bluff slopes in coastal bluff scrub and coastal sage scrub habitats at elevations below 300 m (1,000 ft); CNPS 2001; Hickman 1993). The habitat within the Reserve will be actively managed to minimize edge effects and the long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the local population viability.

Conditions. Not applicable.

Background

Distribution, Abundance, and Trends. Santa Catalina Island desert-thorn is a deciduous shrub that can reach 4 m (13 ft) in height (Hickman 1993). It is found on coastal bluff slopes in coastal bluff scrub and coastal sage scrub habitats at elevations below 300 m (1,000 ft; CNPS 2001; Hickman 1993). This species was rediscovered on the Palos Verdes Peninsula in 1976. Historical localities include San Clemente and Santa Catalina islands. Within Rancho Palos Verdes, Santa Catalina Island desert-thorn occurs on Portuguese Point

Threats and Limiting Factors. Threats to this species include development and recreational foot traffic.

Special Considerations. Santa Catalina Island desert-thorn is a deciduous shrub. It is insect-pollinated (e.g., bees, bee flies, Wyatt 1983) and seeds are presumably self-dispersed.

Conservation Analysis

Conservation and Take Levels. 100% of the known population will be conserved in the Subarea Plan.

Preserve Configuration Issues. The proposed preserve design will conserve an estimated 100% of potentially suitable habitat for this species inside the Subarea Plan. Most of this acreage occurs on coastal bluff slopes in coastal bluff scrub and coastal sage scrub habitats at elevations below 300 m.

Effects on Population Viability and Species Recovery. Implementation of the Subarea Plan would protect populations of this species. It is not certain, however, if protection and conservation alone would necessarily enhance population viability. The Subarea Plan preserve design conserves 100% habitat. Preserved populations would be subject to edge effects and, possibly, inbreeding depression. In addition, preserved habitat may or may not be sufficiently large to support appropriate pollinators. The habitat within the Reserve will be actively managed to minimize edge effects and the long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the local population viability.

Special Considerations. Santa Catalina Island Desert-thorn apparently requires insects for pollination. In addition, it may be susceptible to surface disturbances (e.g., trampling). Therefore, effective conservation of Santa Catalina Island desert-thorn must include protection from trampling or other soil surface disturbance.

Adaptive Management Program

Not applicable.

Pentachaeta lyonii

Lyon's Pentachaeta

USFWS: Endangered

CDFG: Endangered

CNPS: List 1B: Rare, Threatened, or endangered in California.

R-E-D Code 3-3-3

Covered Species	Existing	Conserved	Percent Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Lyon's Pentachaeta</i>	0	0	0	0	96.3

Conservation Goals

Though this species does not occur in RPV, the preserve shall be managed to ensure habitat suitability for this species is maintained and enhanced by conserving and restoring the required habitat of Lyon's Pentachaeta.

Conservation Strategy

Conserve and manage the amount and configuration of suitable habitat required to contribute to species recovery.

Coverage Determination and Permit Conditions

Coverage Determination: **Covered** 96.3% Conservation of suitable habitat

Rationale. Levels of conservation expected under the Subarea plans meet the conservation goals for this species. Although the amount of potentially suitable habitat that will be conserved for this species in the preserve is adequate (96.3%), habitat in the study area will likely be subject to edge effects that would be minimized through active habitat management and restoration program. If deemed appropriate, active management to establish a local population through seed collection and cuttings will be necessary.

Conditions. Not applicable

Background

Distribution, Abundance, and Trends.

Lyon's pentachaeta is an annual herb that blooms from March to August (Skinner and Pavlik 1994). It occurs in openings in chaparral and valley and foothill grasslands near the coast at elevations below 150 m (500 ft) (Skinner and Pavlik 1994; Hickman 1993). This species is known from Los Angeles and Ventura counties and Santa Catalina Island. Currently, less than 20 populations are known to occur (Skinner and Pavlik 1994). Lyon's pentachaeta has not been reported within the RPV city limits.

Threats and Limiting Factors. Threatened by development, fire regimes, and recreational activities. (CNPS 2001)

Special Considerations. Preserved habitat may not be sufficiently large to support viable populations of this species or to buffer populations from adverse edge effects. The largest patches of potential habitat are being conserved and the restoration program will increase the amount of potential habitat for this species to be introduced into.

Conservation Analysis

Conservation and Take Levels: 96.3 % Conservation of suitable habitat.

Preserve Configuration Issues. Within the Subarea Plan most of the suitable acreage occurs as relatively small stands of habitat that may not allow for population fluctuations and would likely be subject to edge effects.

Effects on Population Viability and Species Recovery. It is not certain if protection and conservation through implementation of the Subarea Plan would necessarily enhance population viability or further species recovery. Preserved habitat may not be sufficiently large to support viable populations of this species or to buffer populations from adverse edge effects.

Palos Verdes Blue Butterfly
Glaucopsyche lygdamus palosverdesensis

Covered Species	Historical Point Locations	Point Locations Conserved	Percent Point Locations Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Glaucopsyche lygdamus palosverdesensis</i>	18	17	94.4	1	96.3

USFWS: Endangered
CDFG: No status

Conservation Goals

Ensure persistence of habitat that would support recolonization of this species in the plan area. Contribute to regional population viability and species recovery. Allow for natural recolonization or reintroduction into unoccupied or restored habitat.

Conservation Strategy

Include within the preserve system large areas of coastal scrub habitat where larval host plants are plentiful. Facilitate coordination of local, state, and federal conservation and management actions for this species.

Coverage Determination and Permit Conditions

Coverage Determination. **Covered:** 94% of historical point locations conserved. No occupied habitat is currently extant in RPV; 94.0% of historical host plant locations are conserved.

Rationale. 96.3% of suitable habitat potentially used by the species (coastal sage scrub) would be conserved. Palos Verdes Blue is restricted to three locations on the PV Peninsula outside of RPV. The long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the regional population viability.

Conditions. None

Background

Distribution, Abundance, and Trends. The Palos Verdes blue butterfly (PVB) is a rare subspecies of butterfly (Perkins and Emmel 1977; Arnold 1987). The PVB is restricted to open coastal sage scrub habitats that support either ocean milk vetch (*Astragalus trichopodus* var. *lonchus*) or deerweed (*Lotus scoparius*), which are this species’ larval food plants (Mattoni 1992). Currently PVB are known to be extant only at the Naval Fuel Depot in San Pedro (between Western Avenue and Gaffey Street, south of Palos Verdes Drive North; Mattoni 1992), Malaga Dunes, and was recently introduced at the Chandler Preserve. Historical occurrences of PVB within RPV include locations near “The Switchback” area of Palos Verdes Drive East, locations within the landslide moratorium area (Edward’s Canyon in Area 4, Portuguese Canyon, Forrestal [Klondike] Canyon), Agua Amarga, and the open space area west of Hesse Park (Arnold 1987; Mattoni 1992). Habitat for PVB is typified by open coastal sage scrub and ecotone areas between sage scrub and grasslands. The milk vetch is the primary larval host plant present in RPV. Deerweed does not generally occur within RPV and is mostly restricted to the northeast slope of the

Peninsula. Milk vetch is an early successional or disturbance associated species; thus, this species will decline if there is an extended period of time without disturbance (e.g., mechanical disturbance, fire). Habitat loss and fragmentation associated with agriculture and residential development, fire suppression (e.g., fuel modification activities), severe weather conditions, and over-collecting by butterfly enthusiasts have contributed to the current endangered status of this species (Arnold 1987; Mattoni 1992). Federal Designated Critical Habitat includes “The Switchback” area of Palos Verdes Drive East, Agua Amarga Canyon, and potential habitat adjacent to Hesse Park (USFWS 1980, Federal Register Vol. 45, No. 129, pp. 44942)

Special Considerations. Optimal PV Blue habitat is an early successional stage habitat that must be managed at a three-year interval in order to maintain habitat suitable for continuous butterfly occupation.

Conservation Analysis

Conservation and Take Levels. The level of conservation of the coastal scrub ecological communities may benefit this species. No currently occupied habitat occurs in RPV.

Effects on Population Viability and Species Recovery. The long-term habitat restoration program provides the opportunity to expand the population size and distribution of this species to increase the regional population viability

Special Considerations: Optimal PV Blue habitat is an early successional stage habitat that must be managed at a three-year interval in order to maintain habitat suitable for continuous butterfly occupation.

Adaptive Management Program

Not applicable.

El Segundo Blue Butterfly

Euphilotes battoides allyni

USFWS: Endangered

CDFG: None

Covered Species	Existing Point Locations	Point Locations Conserved	Percent Point Locations Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Euphilotes battoides allyni</i>	1	1	100	0	100

Conservation Goals

Allow for natural recolonization or reintroduction into unoccupied or restored habitat.

Conservation Strategy

Include within the open space preserve system large areas of remnant coastal dune habitats where larval host plant exists. Implement species-specific management actions, as necessary to increase habitat quality and population size. Facilitate coordination of local, state, and federal conservation and management actions for this species.

Coverage Determination and Permit Conditions

Coverage Determination. **Covered**, 100% Conservation of suitable habitat conserved.

Rationale. One population was discovered in 2000 in coastal bluff scrub at the York Long Point site. Occupied area and all potentially suitable habitat is included in the Reserve.

Conditions. The Reserve Manager shall evaluate potential opportunities to expand this species habitat.

Background

Distribution, Abundance, and Trends. The El Segundo Blue (ESB) is a rare subspecies of butterfly (subfamily Polyomattinae) restricted to remnant coastal dune habitats at four locations: Ballona Wetlands south of Marina del Rey, LAX Airport Dunes, Chevron El Segundo Preserve and adjacent habitat in El Segundo, and Torrance Beach/Malaga Cove (Mattoni et al. 1997). The coast buckwheat (*Eriogonum parvifolium*) is the larval food plant of this subspecies. The historical distribution of ESB included dune habitats in Redondo Beach and Manhattan Beach. A recovery plan for ESB has been prepared with the Malaga Cove population as the most southern management unit (Torrance Recovery Unit) of the recovery plan. The Malaga Cove population is small, between 10 and 30 individuals utilizing between 50 and 100 individuals of *E. parvifolium* (R. Arnold, pers. comm.). There is no dune habitat within the jurisdiction of RPV, but coast buckwheat is known to occur within the coastal bluff scrub habitat between Point Vicente and Abalone Cove. Dr. Richard Arnold conducted a butterfly survey in the summer of 1998 with negative results for ESB in this area of RPV. Subsequent biological surveys in 2000 for proposed development of the York Long Point site detected a population of ESB in coastal bluff scrub habitat.

Threats and Limiting Factors. The decline of the butterfly populations is attributed to loss of habitat from urban development and loss of host plants.

Special Considerations. Distribution limited by larval host plant.

Conservation Analysis

Conservation and Take Levels. 100% of the population discovered in 2000 is conserved. No take is anticipated. A recovery plan for ESB has been prepared in neighboring areas that may serve as a model for the RPV population.

Effects on Population Viability and Species Recovery. There is no dune habitat within the jurisdiction of RPV, but coast buckwheat is known to occur within the coastal bluff scrub habitat between Point Vicente and Abalone Cove. A population of ESB occurs in that coastal bluff scrub habitat. The Subarea Plan preserve and policies will maintain consistency with other recovery planning and management goals for species. The Subarea plan will increase regional coordination and funding for monitoring and management, which may improve current management of butterfly habitat and species stability.

Special Considerations. Distribution limited by larval host plant.

Adaptive Management Program

None.

Coastal California Gnatcatcher
Polioptila californica californica

USFWS: Threatened
CDFG: Species of Special Concern

Covered Species	Existing Point Locations	Point Locations Conserved	Percent Point Locations Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Polioptila californica californica</i>	88	88	100.0	0	96.3

Conservation Goals

Ensure species persistence within the plan area and contribute to local metapopulation viability and species recovery by ensuring genetic and demographic connectivity within the plan area.

Conservation Strategy

Conserve and manage sufficient breeding habitat in relatively large, contiguous patches, and sufficient habitat linkages and dispersal stepping stones between breeding areas to ensure species persistence within the plan area and to maintain genetic and demographic connectivity. Restore degraded and disturbed areas to gnatcatcher habitat where necessary to increase size of breeding populations and functionality of linkages.

Coverage Determination and Permit Conditions

Coverage Determination. **Covered:** 100% of point locations conserved; 96.3% of CSS habitats conserved.

Rationale. The Subarea Plan will adequately conserve this species through conservation of occupied habitat and restoration of disturbed habitats that will increase the regional habitat carrying capacity and population viability. Potential cowbird nest parasitism will be managed.

Background

Distribution, Abundance, and Trends. The coastal California gnatcatcher is restricted to the coastal slopes of southern California, from Los Angeles County south to El Rosario, Baja California, Mexico. It is closely associated with coastal sage scrub vegetation, particularly Diegan coastal sage scrub occurring on gentle slopes within the maritime and coastal climate zones.

The California gnatcatcher population in the U.S. is estimated to exceed 3,400 pairs in the United States (USFWS 1996). The Palos Verdes Peninsula supports a remnant population of 26 to 56 pairs that is considered isolated from the remainder of the U.S. population (Atwood et al. 1998). The center point locations of gnatcatcher territories within the GIS database include cumulative data gathered during the Manomet Center 5-year study. The primary cause of this species' decline is the cumulative loss of coastal sage scrub vegetation to urban and agricultural development (Atwood 1993). This species' habitat is being formally protected and managed through the NCCP program, ESA Section 10 HCP processes and ESA Section 7 agency consultations on federal lands. Federal Designated Critical

Habitat for the gnatcatcher includes suitable habitats throughout the Palos Verdes Peninsula. This species is probably extirpated from much of Ventura and San Bernardino counties and is declining proportionately with the continued loss of coastal sage scrub habitat in the four remaining southern California counties located within the coastal plain. The territory size requirements of the gnatcatcher vary with habitat quality and distance from the coast. Documented home ranges have varied from 1 to 7 acres on the Peninsula (Impact Sciences 1990, Atwood et al. 1995). Over a 5-year period, gnatcatcher productivity and survival have varied on the Peninsula. Annual reproduction has varied from 2.3 to 3.9 fledglings per pair. Annual adult survival has varied from 23 to 70 percent; juvenile over-winter survival varied from 20 to 43 percent. Studies of the species' habitat preferences on the Peninsula and elsewhere indicate that California sagebrush (*Artemisia californica*) and flat-topped buckwheat (*Eriogonum fasciculatum*) are the primary plants used by gnatcatchers when foraging for insects (Atwood et al. 1995, Impact Sciences 1990, RECON 1987, ERCE 1990, Ogden 1992a). Breeding gnatcatchers on the Peninsula are noticeably absent from most sage scrub dominated by lemonade berry (*Rhus integrifolia*).

Regional Population Estimates and Trends. Atwood (1990, 1992b) estimated that approximately 1,811 to 2,291 pairs of coastal California gnatcatchers remained in southern California. Based on later information, the USFWS (1993) estimated that about 2,562 pairs of coastal California gnatcatchers remained in the United States. Approximately 2,800 pairs of *P. c. californica* are estimated to occur in the Mexican portion of the subspecies' range (J. Newman personal communication 1992). U.S. population is likely to exceed 5,000 pairs during years with favorable weather conditions.

Subarea Plan Population Estimate. The gnatcatcher population within the Subarea Plan study area is estimated at 26 to 56 pairs. The Subarea Plan database (1995) currently includes 88 point locality records detected over 5 years. The current Subarea Plan database represents a reasonably complete and unbiased overview of species distribution in the study area.

Threats and Limiting Factors. The decline of the California gnatcatcher populations is attributed to loss of habitat from urban and agricultural development. Susceptible to cowbird nest parasitism.

Special Considerations: Breeding sites limited by slope gradient (prefer <40% slopes for nest sites) and CSS species composition (avoids *Rhus*-dominated CSS).

Conservation Analysis

Conservation and Take Levels. 100% of point locations conserved; 95.5% of CSS habitats conserved. Long-term habitat restoration program will increase local habitat carrying capacity. All habitat linkages between larger patches of conserved habitat are included in the Reserve. Monitoring and management of cowbird parasitism will occur.

Effects on Population Viability and Species Recovery: Long-term habitat restoration program will increase local habitat carrying capacity. Monitoring and management of cowbird parasitism will occur. Local population size will increase proportional to amount of suitable habitat is restored during the permit period.

Special Considerations. Breeding sites limited by slope gradient (prefer <40% slopes for nest sites) and CSS species composition (avoids *Rhus*-dominated CSS).

Adaptive Management Program

In addition to conserving habitat, the Subarea Plan will manage and monitor conserved areas to help refine the management program so that management activities can be adjusted to maximize species viability in the study area and contribute to species recovery. Initiate cowbird trapping program if the nest parasitism rate exceeds 5%.

Coastal Cactus Wren

Campylorhynchus brunneicapillus

USFWS: Federal Species of Special Concern (former Category 2 Candidate)

CDFG: Species of Special Concern, NCCP Focal Species

Covered Species	Existing Point Locations	Point Locations Conserved	Percent Point Locations Conserved	Expected Take	Percent Conserved Potential Habitat
<i>Campylorhynchus brunneicapillus</i>	99	95	96.0	4	98.9

Conservation Goals

Ensure species persistence within the plan area. Maintain connectivity for dispersal between Subarea Plan populations.

Conservation Strategy

Conserve existing major populations and critical locations of coastal cactus wren and all coastal sage scrub habitat with patches of tall cactus. Create or enhance additional habitat to increase population size and extent. Facilitate coordination of local, state, and federal conservation and management actions for this species.

Coverage Determination and Permit Conditions

Coverage Determination. **Covered:** 96% of point locations conserved; 98.9% of suitable habitat conserved. All important habitat linkages conserved.

Rationale. The Subarea Plan is expected to adequately conserve this species by conserving at least 96% of current carrying capacity for cactus wren and by managing preserve areas consistent with species' needs. Long-term habitat restoration will increase habitat carrying capacity for this species.

Background

Distribution, Abundance, and Trends.

The coastal cactus wren occurs in the coastal plain counties of southern California, with the largest remaining contiguous populations in southern Orange County (Mock 1993). Coastal southern California populations of cactus wren are seriously endangered throughout the coastal plain from Ventura to the Mexican border (Rea and Weaver 1990). This species is common throughout the deserts of the Southwest.

Coastal populations breed in coastal sage scrub dominated by extensive stands of tall prickly pear or cholla cacti. Once widespread in coastal southern California, by 1990 cactus wrens had been reduced to fewer than 3,000 pairs scattered into colonies of widely varying size; many colonies are isolated by distance from other colonies (Mock 1993). The Palos Verdes Peninsula cactus wren population has been relatively stable at about 58 ± 5 pairs during the mid-1990s (Atwood et al. 1998). Reproduction averages above 3 fledglings per pair, and adult survivorship varies from 57 to 73 percent; juvenile over-winter survivorship varies from 9 to 36 percent. Home range size for Peninsula cactus wrens varies from 1 to 3 acres.

Threats and Limiting Factors. The coastal cactus wren is declining due to loss, degradation, and fragmentation of coastal sage scrub habitat containing cactus (Rea and Weaver 1990; Mock 1993). Unnaturally frequent fires eliminate cactus and have greatly reduced cactus wren populations. (Rea and Weaver 1990, Harper and Salata 1991, Bontrager et al. 1995).

Special Considerations. This species nests only in tall (≥ 3 feet) cactus patches. Unoccupied suitable habitat may be recolonized in future years; therefore, 98.9% of the suitable habitat within the Subarea Plan will be conserved. Frequent wildfires kill the cactus that this species depend upon, and it may take many decades for suitable habitat to recover naturally.

Conservation Analysis

Conservation and Take Levels. 96% of point locations conserved; 98.9% of suitable habitat conserved. All important habitat linkages conserved.

Effects on Population Viability and Species Recovery. Implementation of the Subarea Plan is expected to maintain and likely enhance population viability of the coastal cactus wren and therefore contribute to species recovery due to 96% conservation and long-term habitat restoration efforts.

Special Considerations. Active adaptive management and close monitoring is required to identify and respond to these potential impacts as quickly as possible. Their dispersal abilities should allow cactus wrens to colonize created habitat areas. It takes many decades for cactus to achieve the size and density required for optimal habitat condition, so wildfire that kills mature cactus can have long-term detrimental effects on local populations.

Adaptive Management Program

Monitoring results will help refine the management program so that management activities can be adjusted to maximize species viability in the study area and contribute to species recovery.