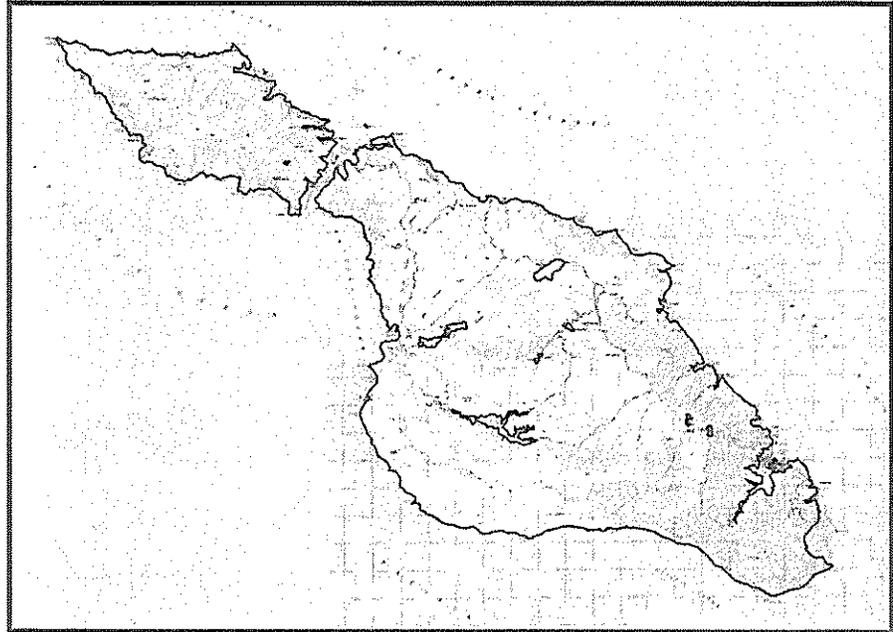


BIOLOGICAL RESOURCES ASSESSMENT  
OF THE PROPOSED  
SANTA CATALINA ISLAND  
SIGNIFICANT ECOLOGICAL AREA

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SANTA CATALINA ISLAND  
(Including All Island SEAs)

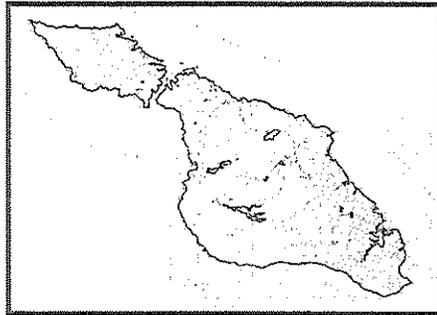
Los Angeles County, California

November 2000

PCR

**BIOLOGICAL RESOURCES ASSESSMENT  
OF THE PROPOSED  
SANTA CATALINA ISLAND  
SIGNIFICANT ECOLOGICAL AREA**

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**SANTA CATALINA ISLAND**  
(Including All Island SEAs)

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November 2000

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## EXECUTIVE SUMMARY

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**Location:** The proposed Santa Catalina Island Significant Ecological Area (SEA) is located on the Island of Santa Catalina off the Southern California coast. The island lies approximately 22 miles south of Palos Verdes Peninsula and 27 miles southwest of the Orange County shoreline. Except where disturbed, all existing Santa Catalina Island SEAs have been incorporated within the proposed SEA.

**Description:** Santa Catalina Island is approximately 21 miles long and eight miles wide. The Island consists of two parts connected by a low-lying isthmus at Two Harbors. The larger (southeastern) portion can be generally characterized by rolling hills with a gradual descent into the sea. The smaller (northwestern) part is extremely steep and rugged with steep shoreline palisades. The proposed Santa Catalina Island SEA covers 46,537 acres, nearly all of the Island, and includes a variety of topographic features.

**Existing Land Use:** The proposed Santa Catalina Island SEA currently supports few developed land uses. Nearly all of the land within the proposed SEA is undisturbed open space supporting native vegetation. Other land uses include low density residential and commercial in the community of Two Harbors and many small camp facilities scattered around the Island's shoreline and interior.

**Ownership:** Landownership within the proposed Santa Catalina Island SEA consists of both public and private holdings. The majority of the Island, approximately 86 percent, is privately owned by the Santa Catalina Island Conservancy. The Santa Catalina Island Company owns eleven percent of the Island. An additional two percent is owned by various private owners. Public ownership is limited to the remaining one percent held by the City of Avalon.

**Vegetation:** Vegetation within the proposed Santa Catalina Island SEA is composed of a variety of unique community types including maritime succulent scrub, southern coastal bluff scrub, island chaparral, island oak woodland, ironwood woodland, island cherry woodland, non-native grassland, native grassland, and disturbed vegetation.

**Wildlife:** Wildlife within the proposed SEA is diverse and abundant due to the large acreage of natural open space and the diversity of habitat types. While a few wildlife species are entirely dependent on a single vegetative community, the entire mosaic of vegetation communities within the study area and adjoining areas constitutes a functional ecosystem; this applies to a variety of wildlife species, both within the SEA and as part of the regional ecosystem.

**Wildlife Movement:** Areas that bottleneck or concentrate wildlife movement are uncommon on the Island due to the abundance of uninterrupted open space and the lack of disturbed areas. In general, movement takes place in large drainages, along ridge lines, and along dirt roads. However, the small isthmus at Two Harbors represent a significant reduction in the ability of animals to move freely between the two parts of the Island.

**Sensitive Biological Resources:** Sensitive plant communities within the proposed SEA include: maritime succulent scrub, southern coastal bluff scrub, island chaparral, island cherry woodland, island oak woodland, island ironwood forest, and native grassland. The SEA includes a large number of sensitive plant and animal species known to exist or potentially occurring within the SEA such as: Lyon's pentachaeta, beach spectaclepod, Santa Cruz Island rock cress, island rush-rose, Catalina Island mountain mahogany, the California brown pelican, bald eagle, peregrine falcon, and many others.

**Regional Biological Value:** The proposed SEA meets several SEA designation criteria and supports many regional biological values (see Criteria Table at the end of this summary). These values include all known populations of several Catalina Island endemic species and other species indigenous to the Channel Islands and several plant communities which are restricted in distribution in the Southern California region and in Los Angeles County, namely maritime succulent scrub, southern coastal bluff scrub, island chaparral, island cherry woodland, island oak woodland, island ironwood forest, and native grassland which are scattered throughout the SEA. Nearly all of the plant communities within the proposed SEA are unique in their species assemblage and are therefore of interest to science. Additionally, many species are either endemic to the Island or are unique variations of mainland species. The SEA encompasses large, mostly undisturbed examples of each of the original island community types including maritime succulent scrub, southern coastal bluff scrub, island chaparral, island oak woodland, island ironwood forest and island cherry woodland.

**Recommended Management Practices:** Proposed new development within the proposed Santa Catalina Island SEA should be designed to be highly compatible with the continued ecological function of each of the component biological resources described above. In order to preserve the integrity of the SEA, the proposed comprehensive management practices described in the *Los Angeles County SEA Update Study 2000 Background Report* are recommended. These practices address:

- Core habitat
- Habitat linkages and wildlife corridors
- Fire management

- Public access and recreation
- Infrastructure
- Wetlands, riparian habitats, and streambeds
- Non-riparian/upland woodlands

In addition to the comprehensive management practices the following proposed management practices are recommended specifically for the proposed Santa Catalina Island SEA:

- Maintain the habitat of populations of listed species including the federally and state endangered Catalina Island mountain mahogany, the federally endangered Santa Cruz Island rock cress, and the federally threatened island rush-rose. Also maintain populations of extremely rare or endemic species such as Catalina Island manzanita, Catalina dudleya, Santa Catalina monkey flower, Trask's yerba santa, St. Catherine's lace, Catalina ironwood, the Catalina wild-tomato, Santa Catalina desert thorn, *Phacelia lyonii*, Nevin's wooly sunflower, wild apple, California dissanthelium, bush-snapdragon, Nevin's gilia, hairy figwort, *Lotus argophyllus ornithopus*, southern island clover, *Trifolium microdon pilosum*, *Ceanothus arboreus*, Green's dudleya, *Ceanothus megacarpus insularia*, island poppy, island tarplant, *Heteromeles arbutifolia macrocarpa*, island jepsonia, southern island mallow, island broom, island oak, and *Rhamnus pirifolia* as well as adequate buffers to eliminate or minimize adverse impacts.
- Retain rare communities with adequate buffers so as to allow for the long term viability and integrity of plant communities as a whole. Rare communities include: maritime succulent scrub, southern coastal bluff scrub, island chaparral, island cherry woodland, island oak woodland, island ironwood forest, and native grassland
- Maintain distribution extremes of communities or species and endemic communities or species with the goal of retaining their long term viability and integrity.
- Allow impacts associated with restoration if the long term benefits to the biological resources of the Island are the clear objective (where applicable, refer to conservation easement guidelines).

**CRITERIA ANALYSIS  
OF THE PROPOSED SANTA CATALINA ISLAND SEA**

<u>Criterion</u>	<u>Status</u>	<u>Justification</u>
A) The habitat of core populations of endangered or threatened plant or animal species.	Met	The proposed SEA encompasses nearly all known populations of Santa Catalina Island endemic species including the federally and state endangered Catalina Island mountain mahogany. Several other species indigenous to the Channel Islands are within the SEA including the federally endangered Santa Cruz Island rock cress, and the federally threatened island rush-rose. Many additional unlisted species which are equally rare have all or much of their range represented within the SEA.
B) On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	Several plant communities within this SEA have restricted distribution in the Southern California region. These communities include: maritime succulent scrub, southern coastal bluff scrub, island chaparral, island cherry woodland, island oak woodland, and island ironwood forest.
C) Within Los Angeles County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	All of the plant communities mentioned above as being restricted in distribution on a regional basis are further restricted in distribution within Los Angeles County. These communities include: maritime succulent scrub, southern coastal bluff scrub, island chaparral, island cherry woodland, island oak woodland, and island ironwood forest which are scattered throughout the SEA.
D) Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in Los Angeles County.	Met	The proposed SEA is likely to serve as a concentrated resting and feeding area for marine mammals such as sea lions and for coastal nesting sea birds.
E) Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	Several of the plant communities within the proposed SEA are unique in their species assemblage and represent geographic limits of the community and are therefore of interest to science. Additionally, many species are either endemic to the Island or represent unusual variations of mainland species.
F) Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in Los Angeles County.	Met	The SEA encompasses large, mostly undisturbed examples of each of the original island community types including maritime succulent scrub, southern coastal bluff scrub, island chaparral, island oak woodland, island ironwood forest, and island cherry woodland.

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## SIGNIFICANT ECOLOGICAL AREA UPDATE STUDY

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### 1. LOCATION

#### 1.1 GENERAL

The proposed Santa Catalina Island Significant Ecological Area (SEA) is located on the Island of Santa Catalina off the Southern California coast. The island lies approximately 22 miles south of Palos Verdes Peninsula and 27 miles southwest of the Orange County shoreline. A small portion of the SEA is within the City of Avalon while the remainder is in unincorporated Los Angeles County, as shown in Figure 1, *Regional Map*, on page 2. The study area includes most of the Island and all large offshore islands and excludes only large disturbed areas such as Pebbly Beach, Middle Ranch, Catalina Airfield, the community of Two Harbors, the City of Avalon, several camping facilities, and a few other smaller areas. Except where disturbed, all existing Santa Catalina Island SEAs have been incorporated within the proposed SEA.

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Santa Catalina West, Santa Catalina North, Santa Catalina East, and Santa Catalina South as shown in Figure 2, *Existing and Proposed Boundaries* on page 3.

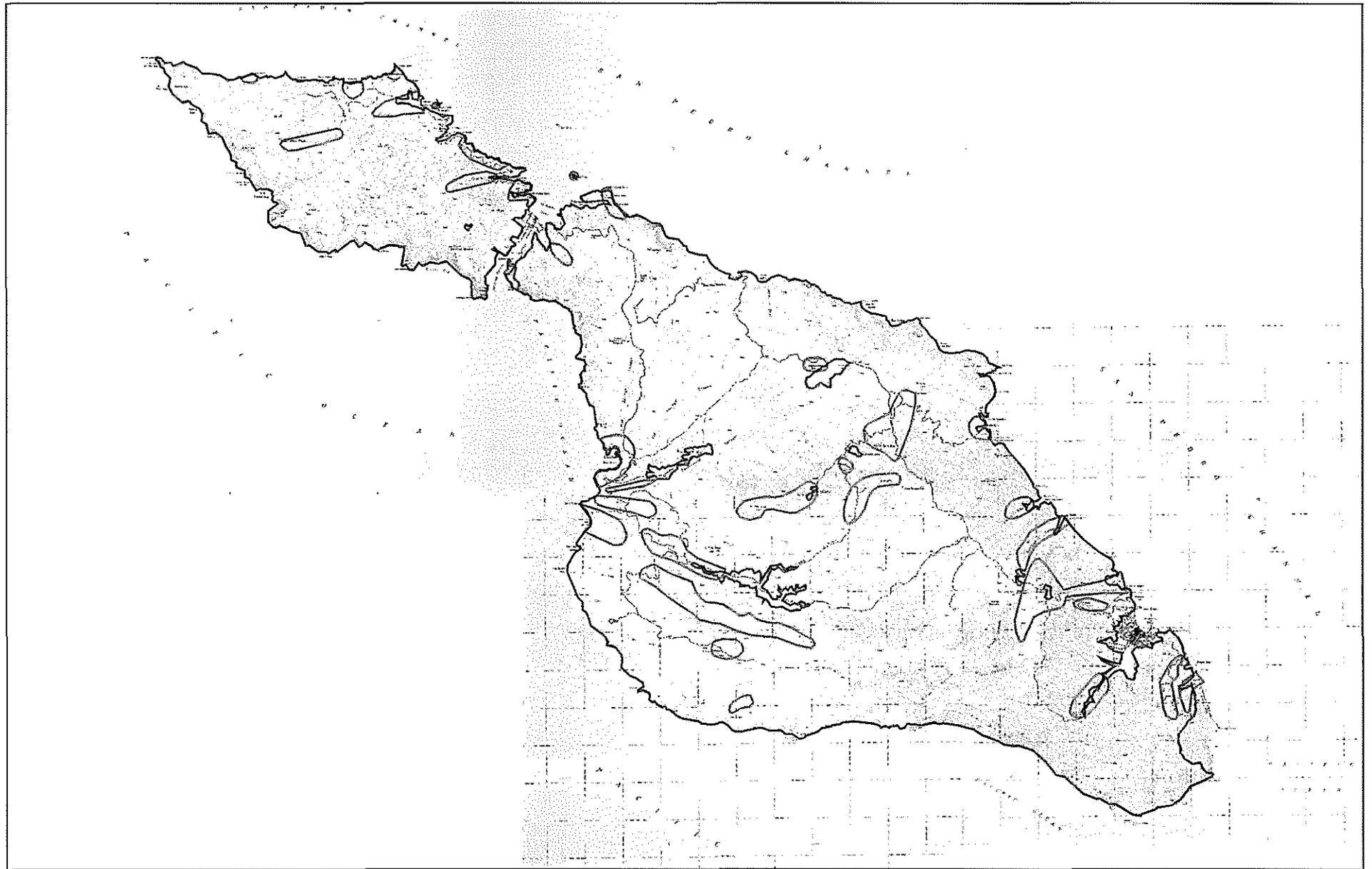
#### 1.2 BOUNDARY DESCRIPTION

The proposed Santa Catalina Island SEA encompasses nearly the entire Santa Catalina Island. The boundary traces the shoreline generally at the water-land interface and circles the Island. At Avalon, Pebbly Beach, and several camping facilities, the boundary turns inland and loops around the disturbed/developed area then turns again to follow the coastline. At Two Harbors, the disturbed area stretches across the isthmus thereby creating a break in the proposed SEA. Although the boundary illustrated in Figure 2 does not circle all offshore islands, these islands are included within the proposed SEA.

### 2. DESCRIPTION

Santa Catalina Island, part of the Channel Islands chain, is approximately 21 miles long and eight miles wide. The Island consists of two parts connected by a low-lying isthmus at Two





- ∨ Proposed SEA Boundary
- ∨ Existing SEA Boundary
- ∨ Angeles National Forest

*Figure 2*  
**Santa Catalina Island  
Significant Ecological Area  
Existing and Proposed Boundaries**

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FORMA Systems  
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Harbors. The larger (southeastern) portion can be generally characterized by rolling hills with a gradual descent into the sea. The smaller (northwestern) portion is extremely steep and rugged with steep shoreline palisades. The proposed Santa Catalina Island SEA covers 46,537 acres, nearly the entire Island, and includes a variety of topographic features. Level terrain on the Island is limited to the floors of a few large coastal canyons and areas such as Avalon, Pebbly Beach, White's Landing, Middle Ranch, Two Harbors, and Emerald Bay. Mount Orizaba, located in the central portion of the Island, represents the highest peak at 2,069 feet above mean sea level (MSL).

The climate of the Island is similar to the mainland with wet mild winters and long dry periods. The majority of the land within the proposed SEA supports undisturbed native vegetation consisting of grasslands, coastal sage scrub, woodlands, and chaparral. Nearly all disturbed areas on the island have been removed from the proposed SEA. Remaining disturbances within the SEA are small and infrequent and include minor camping areas, paved roads, dirt roads, radio tower pads, reservoirs, and other similar disturbances.

### **3. EXISTING LAND USE**

The proposed Santa Catalina Island SEA currently supports few developed land uses. Nearly all of the land within the proposed SEA is undisturbed open space supporting native vegetation. Other land uses include minor camping areas scattered around the island's shoreline with a few in the interior that were not large enough to be clearly removed from the proposed SEA.

Land use adjacent to the proposed SEA is primarily open space (including open water). Less frequent uses include high to low density residential, commercial, and industrial (including a land fill and gravel quarry) in the vicinity of Avalon, limited commercial and residential in the near Twin Harbors, camping facilities along the coast, limited agricultural at Middle Ranch, and an airport at Catalina Airfield. Additional uses include a golf course and botanical gardens within the City of Avalon.

### **4. LAND OWNERSHIP**

Landownership within the proposed Santa Catalina Island SEA consists of both public and private holdings. Approximately 86 percent is privately owned by the Santa Catalina Island Conservancy, a group established to manage, in perpetuity, the Island's biotic resources. The Santa Catalina Island Company owns eleven percent of the Island. An additional two percent is under various private ownerships. Public ownership is limited to the remaining one percent held by the City of Avalon. Jurisdictions within the SEA include a small portion within the City of Avalon (approximately 1,418 acres) and the remainder and majority within unincorporated Los Angeles County.

## 5. VEGETATION

Vegetation within the proposed Santa Catalina Island SEA is composed of a large variety of community types. The rugged topography, steep and rocky shoreline, and undisturbed condition of the island has produced a unique diversity of vegetative communities. Historically, the island was mostly brushland dominated by chamise and ceanothus on the northern slopes, and sagebrush and St. Catherine's lace on the south-facing slopes. Following the introduction of feral herbivores (goats, pigs, deer, and bison), this brushland was replaced in most areas by scrub oak, sumac, toyon, lemonade berry, black sage, and white sage which predominate today (Los Angeles County Department of Regional Planning, 1983). The lack of a significant fire history and minimal differences in vegetation along elevation gradients (due to an abundance of moisture) has resulted in slope orientation as a major determinant for species presence/absence (Los Angeles County Department of Regional Planning, 1983). All plant species observed or recorded in previous documentation within the study area are indicated in the *Comprehensive Floral & Faunal Compendium of the Los Angeles County SEA Update Study 2000 Background Report*. Sensitive plant species occurring or potentially occurring within the proposed SEA are discussed in the Sensitive Biological Resources section of this document.

Plant communities within the proposed SEA were classified using standard methodology and terminology. Most of the communities discussed in this study correspond directly with those listed in Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986 and 1992 update). Other communities are named based on dominant species within them and/or commonly used terminology. Descriptions and general locations of the each plant community present within the SEA, including maritime succulent scrub, southern coastal bluff scrub, island chaparral, island oak woodland, ironwood woodland, island cherry woodland, non-native grassland, native grassland, and disturbed are given below.

**Maritime succulent scrub** is a low, open scrub of soft-leaved shrubs and herbs with a rich admixture of stem and leaf succulents occurring on steep coastal slopes. This community is dominated by California sagebrush and prickly-pear cactus located mainly on the exposed, dry south-facing slopes typically with well-drained soils. Other species associated with this community include wild-apple, bush sunflower, St. Catherine's lace, bedstraw, island broom, laurel sumac, lemonadeberry, and black sage.

**Southern coastal bluff scrub** is a low scrub community adapted to exposed areas with nearly constant winds and high salt content. It consists of the largest reservoir of sensitive species and island endemics due to its location within inaccessible areas. This community is dominated by giant coreopsis, wild-apple, *Dudleya* spp., St. Catherine's lace, island buckwheat, and island tarplant

(David Carroll and Associates (DCA), 1994). Southern coastal bluff scrub is distributed throughout the SEA on the precipitous cliff faces typically near the mouths of canyons and adjacent to some of the island's disturbed areas on the steep seaward (east-facing) slopes and bluffs.

**Island chaparral** consists of tall broad-leafed shrubs that form a dense cover on steep slopes. Dominant species found within this community include MacDonald's scrub oak, Santa Catalina Island ceanothus, chamise, island red berry, and Santa Catalina Island manzanita. Island chaparral occurs throughout the proposed SEA and occupies canyons bottoms, most of the higher elevations, and steep, north facing slopes.

**Island oak woodland** is dominated by island canyon oak with a poorly developed shrub layer which includes wild blackberry, poison oak, heart-leaved Penstemon, and honeysuckle. Some island oak woodlands along riparian habitat include scattered arroyo willows. This community occurs in relatively moist, protected canyon bottoms with rich alluvial soils.

**Island ironwood forest** is an upland community characterized by a dominance of Catalina ironwood. This Catalina endemic is a broad-leafed tree and occurs in groves of 50-100 trees located along the north- and east-facing slopes (DCA 1994). Other species occasionally associated include scrub oak and Catalina manzanita. The understory is sparse supporting a number of herbaceous annuals and ferns. This community is typically found in protected canyons with rich alluvial soils in the northern portion of the Island.

**Island cherry woodland** is an open to dense woodland dominated by Catalina cherry with an understory consisting of Santa Catalina figwort, cudweed, common chickweed, wild cucumber, chaparral mallow, wild morning-glory, and many of the weedy forb and grass species. This community occurs mostly along riparian habitats and in valley/canyon bottoms in the northern portion of the island.

Grassland communities consist of low, herbaceous vegetation that are dominated by grasses but generally also harbor native forbs and bulbs as well as naturalized annual forbs. Grasslands within the proposed SEA include both non-native and native grasslands. **Non-native grassland** consists of dominant invasive annual grasses that are primarily of Mediterranean origin. Dominant species found within this community include slender oats, wild oats, ripgut brome, foxtail chess, and wild mustard. Non-native grasslands are located in small patches throughout the SEA; along many of the ridges and gentle slopes with shallow clay or clay loam substrates, and in more significant acreage, on rolling hill in the southeastern portion of the Island.

**Native grassland** consists of at least ten percent cover of native purple needlegrass with the remaining coverage similar to non-native grasslands. Few small patches of native grassland can be found scattered throughout the SEA mostly mixed with non-native grasslands.

**Disturbed** areas either completely lack vegetation or are dominated by ruderal species within developed areas. Vegetation typically found within the proposed SEA include horehound and tree tobacco. Several disturbed areas occur scattered throughout the proposed SEA and take the form of residential developments, paved roads, fire breaks, dirt access roads, trails, and other similarly disturbed areas.

## 6. WILDLIFE

Wildlife within the proposed SEA is diverse and abundant due to the large acreage of natural open space and the diversity of habitat types. While a few wildlife species are entirely dependent on a single vegetative community, the vegetation communities within the study area and adjoining areas constitute a functional ecosystem for a variety of wildlife species; this applies to species within the SEA, as well as the regional ecosystem.

The analysis of invertebrates in this study is severely limited due to the lack of data. The SEA, however, undoubtedly supports healthy populations of a diverse assortment of countless invertebrate species. Amphibian populations are generally abundant and diverse due to the high moisture content provided under the shade of woodlands and the abundance of drainages. Many essential reptilian habitat characteristics are present within the SEA. These include open habitats that allow free movement and high visibility and small mammal burrows for cover and escape from predators and extreme weather. These characteristics as well as the variety of habitat types present are likely to support a wide variety of reptilian species.

The scrubland, woodland, riparian, and grassland habitats in the proposed SEA provide foraging and cover habitat for year-round residents, seasonal residents, and migrating song birds. In addition, the SEA encompasses several year-round water sources located throughout the proposed SEA and abundant raptor foraging, perching, and nesting habitat. The combination of these resources as well as the confluence of many community types provides for a high diversity of bird species. Not unlike other taxonomic groups, mammal populations within the proposed SEA are diverse and reflective of the unique island habitat types.

All wildlife species previously recorded, as well as those expected to occur, within the study area are indicated in the *Comprehensive Floral & Faunal Compendium* of the *Los Angeles County SEA Update Study 2000 Background Report*. Sensitive wildlife species occurring or potentially

occurring within the SEA are discussed in the Sensitive Biological Resources section of this document.

## 7. WILDLIFE MOVEMENT

Wildlife movement occurs throughout the proposed Santa Catalina Island SEA. Concentrated movement corridors or bottlenecks are uncommon on the Island due to the abundance of uninterrupted open space and the lack of disturbed areas. In general, movement takes place in large drainages, along ridgelines, and along dirt roads. However, the small isthmus at Two Harbors represents a significant reduction in the ability for animals to move freely between the two parts of the Island. Movement across the isthmus has been further restricted by human encroachment of the Two Harbors community and Island visitors. Although a lack of movement across the isthmus may isolate some animal populations and reduce the genetic diversity on either side, this division has provided a unique opportunity for restoration by isolating and removing feral animals from the Island.

## 8. SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, rare, or otherwise, due to the species' declining or limited population sizes, usually resulting from habitat loss. Watch lists of such resources are maintained by the California Department of Fish and Game (CDFG), the United States Fish and Wildlife Service (USFWS), and special groups such as the California Native Plant Society (CNPS). The following sections indicate the habitats as well as plant and animal species present, or potentially present within the proposed SEA, that have been afforded special recognition.

### 8.1 SENSITIVE PLANT COMMUNITIES/HABITATS

The proposed Santa Catalina Island SEA supports several habitat types considered sensitive by resource agencies, namely the CDFG [California Natural Diversity Data Base (CNDDB), 2000], because of their scarcity and support of a number of state and federally listed endangered, threatened, and rare vascular plants, as well as several sensitive bird and reptile species. These communities include **maritime succulent scrub, southern coastal bluff scrub, island chaparral, island cherry woodland, island ironwood forest, island oak woodland, and native grassland** which occur throughout the Island. These communities, or closely related designations are considered highest-inventory priority communities by the CDFG, indicating that they are experiencing a decline

throughout their range. The array and composition of these communities has been discussed earlier in this report (see Section 5, Vegetation, above).

## **8.2 SENSITIVE SPECIES**

Sensitive species include those listed, or candidates for listing by the USFWS, CDFG, and CNPS (particularly List 1A, 1B, and 2 as defined in the Sensitive Species Table). The Sensitive Species Table on page 10 lists those species which have been recorded within the proposed SEA as well as those reasonably expected to occur. The table includes locations of sensitive species observed, recorded in the CNDDDB, or reported in previous documentation as observed within or in the immediate vicinity of the proposed SEA. Additional species, such as native oak or sycamore trees, may be protected under local ordinances but are not included in this table.

**SENSITIVE SPECIES  
OCCURRING OR POTENTIALLY OCCURRING  
WITHIN THE PROPOSED SANTA CATALINA ISLAND SEA**

<b>VASCULAR PLANTS</b>		<b>Agency Listing Status</b>	<b>CNPS Listing Status</b>	<b>Preferred Habitat</b>	<b>Location</b>
<b>Scientific Name</b>	<b>Common Name</b>				
<b>ANGIOSPERMS (Dicotyledons)</b>					
<b>Asteraceae</b>	<b>Sunflower Family</b>				
<i>Eriophyllum nevinii</i>	Nevin's woolly sunflower	FSC	1B	Coastal bluff / sage scrub.	Record on bank near beach, Hamilton Cyn. (1931); Avalon (1960)
<i>Hemizonia clementina</i>	island tarplant		4	Valley and foothill grasslands, coastal bluff scrub.	Reported at Little Harbor; Gallagher Cyn.; Cottonwood Cyn.; Blue Cavern Pt. near isthmus
<i>Hemizonia parryi</i> ssp. <i>australis</i>	southern tarweed	FSC	1B	Coastal salt marsh (estuaries), valley and foothill grassland vernal mesic), vernal pools.	Record near golf course SW of Avalon (1973)
<i>Isocoma menziesii</i> var. <i>decumbens</i>	decumbent goldenbush		1B	Coastal sage scrub (sandy soils, often in disturbed areas).	Jewfish Pt.; Ben Weston Beach; Cottonwood Cyn. Beach; Little Harbor; Wrigley Reservoir; and Catalina Harbor
<i>Microseris douglasii</i> var. <i>platycarpa</i>	small-flowered microseris		4	Cismontane woodland, coastal scrub, valley and foothill grassland/clay.	Record Blue Cavern Pt.

**Legend**

<b>Agency Lists</b>		<b>California Native Plant Society (CNPS) Lists</b>	
FE	Federally Listed as Endangered	SE	State Listed as Endangered
FT	Federally Listed as Threatened	ST	State Listed as Threatened
FSC	Federal Special Concern Species	SCE	State Candidate for Endangered
FPE	Federally Proposed as Endangered	SCT	State Candidate for Threatened
FPT	Federally Proposed as Threatened	SP	State Protected
FPD	Federally Proposed for Delisting	SFP	State Fully Protected
		SR	State Rare
		CSC	California Special Concern Species
		1A	Presumed extinct in California.
		1B	Rare, threatened, or endangered throughout their range.
		2	Rare, threatened, or endangered in California, but more common in other states.
		3	Plant species for which additional information is needed before rarity can be determined.
		4	Species of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat.

**SENSITIVE SPECIES  
OCCURRING OR POTENTIALLY OCCURRING  
WITHIN THE PROPOSED SANTA CATALINA ISLAND SEA  
(CONTINUED)**

**VASCULAR PLANTS**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Agency Listing Status</u>	<u>CNPS Listing Status</u>	<u>Preferred Habitat</u>	<u>Location</u>
<i>Pentachaeta lyonii</i>	Lyon's pentachaeta	FE, SE	1B	Openings in chaparral, valley and foothill grasslands. Generally coastal habitats below 500 feet.	Known to occur in Santa Catalina N quad, Gallagher Cyn., and the isthmus
<b>Boraginaceae</b>		<b>Borage Family</b>			
<i>Harpagonella palmeri</i>	Palmer's grappling hook	FSC	2	Variety of Southern California plant communities, including sage scrub; clay soils; below 2,500 feet.	Potential where habitat occurs
<b>Brassicaceae</b>		<b>Mustard Family</b>			
<i>Dithyrea maritima</i>	beach spectaclepod	FSC, ST	1B	Coastal dunes.	Historic record (1923)
<i>Sibara filifolia</i>	Santa Cruz Island rock cress	FE	1B	Coastal scrub.	Historic record (1901), unknown locales
<b>Cactaceae</b>		<b>Cactus Family</b>			
<i>Bergerocactus emoryi</i>	golden-spined cereus		2	Closed-cone coniferous forest, chaparral, coastal scrub / sandy.	Reported in Santa Catalina N, S, W quads; the isthmus; Indian Head Pt.; and Salta Verde

**Legend**

**Agency Lists**

FE	Federally Listed as Endangered	SE	State Listed as Endangered
FT	Federally Listed as Threatened	ST	State Listed as Threatened
FSC	Federal Special Concern Species	SCE	State Candidate for Endangered
FPE	Federally Proposed as Endangered	SCT	State Candidate for Threatened
FPT	Federally Proposed as Threatened	SP	State Protected
FPD	Federally Proposed for Delisting	SFP	State Fully Protected
		SR	State Rare
		CSC	California Special Concern Species

**California Native Plant Society (CNPS) Lists**

1A	Presumed extinct in California.
1B	Rare, threatened, or endangered throughout their range.
2	Rare, threatened, or endangered in California, but more common in other states.
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OCCURRING OR POTENTIALLY OCCURRING  
WITHIN THE PROPOSED SANTA CATALINA ISLAND SEA  
(CONTINUED)**

**VASCULAR PLANTS**

<u>Scientific Name</u>	<u>Common Name</u>	<u>Agency Listing Status</u>	<u>CNPS Listing Status</u>	<u>Preferred Habitat</u>	<u>Location</u>
<b>Chenopodiaceae</b>		<b>Goosefoot Family</b>			
<i>Aphanisma blitoides</i>	aphanisma	FSC	1B	Coastal shrubland, bluffs, sand, <100m.	Record E side of Catalina Harbor near Ballast Pt. (1965); near Avalon (1901)
<i>Atriplex coulteri</i>	Coulter's saltbush		1B	Coastal bluff scrub, coastal scrub, valley and foothill grassland.	Occurrences reported in N, S and W quads of island, recent record (1994)
<i>Atriplex pacifica</i>	south coast saltscale	FSC	1B	Coastal bluff scrub, coastal scrub, playas.	Record Middle Ranch Cyn. (1931); along road W of Cactus Peak (1971); Avalon (1901); lower Cottonwood Cyn. (1965)
<i>Suaeda taxifolia</i>	wooly sea-blite		4	Coastal bluffs, margins of salt marshes.	Potential where habitat occurs
<b>Cistaceae</b>		<b>Rock-Rose Family</b>			
<i>Helianthemum greenei</i>	island rush-rose	FT	1B	Dry, rocky slopes, ridges, chaparral.	NE side of Black Jack Mtn. (1963)

**Legend**

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<b>Convolvulaceae</b>		<b>Morning-Glory Family</b>			
<i>Convolvulus simulans</i>	small-flowered morning glory		4	Coastal scrub, valley and foothill grassland/clay, serpentine seeps.	Historic record
<i>Dichondra occidentalis</i>	western dichondra		4	Chaparral, Cismontane woodland, Coastal scrub, valley and foothill grasslands.	Avalon; Cottonwood Cyn.; and Salta Verde Cyn.
<b>Crassulaceae</b>		<b>Stonecrop Family</b>			
<i>Dudleya greenei</i>	Greene's dudleya		4	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub / volcanic cliffs.	Historic record
<i>Dudleya virens</i>	bright green dudleya	FSC	1B	Chaparral, coastal bluff scrub, coastal sage scrub.	Hamilton Beach; vicinity of Avalon (1893); Little Harbor (1943)
<b>Crossosomataceae</b>		<b>Crossosoma Family</b>			
<i>Crossosoma californicum</i>	Catalina crossosoma		4	Dry, rocky slopes, coastal sage scrub, cyps. <500m.	Known to occur in Avalon Cyn. and at Pebbly Beach

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<b>Ericaceae</b>	<b>Heath Family</b>				
<i>Arctostaphylos catalinae</i>	Santa Catalina Island manzanita	FSC	1B	Chaparral between 650 and 3,000 feet.	Near Gallagher Cyn. along roadside from Avalon (1965); ridgetops of Gallagher Cyn. (1994); Middle Ranch Cyn. (1970); NE slope of Black Jack Mt. (1966)
<b>Euphorbiaceae</b>	<b>Spurge Family</b>				
<i>Euphorbia misera</i>	cliff spurge		2	Coastal bluff / sage scrub, rocky soils.	Record 0.3 mi. NE of Little Harbor (1993)
<b>Fabaceae</b>	<b>Legume Family</b>				
<i>Lotus dendroideus</i> var. <i>dendroideus</i>	island broom		4	Coastal bluff / sage scrub, Valley and foothill grasslands.	Gallagher Cyn.; Avalon
<i>Trifolium gracilentum</i> var. <i>palmeri</i>	southern island clover		4	Coastal bluff scrub, valley and foothill grasslands.	Potential where habitat occurs

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<i>Quercus engelmannii</i>	Engelmann oak		4	Chaparral, cismontane woodland (below 4,000 feet), riparian woodland, valley and foothill grassland.	Bulrush Cyn.
<i>Quercus tomentella</i>	island oak		4	Chaparral, cismontane woodland, closed-cone coniferous forest, riparian woodland.	Gallagher Cyn.; Pebbly Beach; and Mt. Orizaba; common
<b>Grossulariaceae</b>	<b>Gooseberry Family</b>				
<i>Ribes viburnifolium</i>	Santa Catalina Island currant		4	Chaparral.	Pebble Beach; Avalon; Swains Cyn.; Gallagher Cyn.; Bulrush Cyn.; and other locations
<b>Lamiaceae</b>	<b>Mint Family</b>				
<i>Lepechinia fragrans</i>	fragrant pitcher sage		4	Open areas (especially slopes) in chaparral, sage scrub.	Between Black Jack Mt. and Echo Lake

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<b>Malvaceae</b>	<b>Mallow Family</b>				
<i>Lavatera assurgentiflora</i> ssp. <i>glabra</i>	southern island mallow	FSC	1B	Coastal bluff scrub.	Bird Rock, Isthmus Harbor (1966); Indian Rock, Emerald Bay (1962); near mouth of Hamilton Cyn. (1965); Avalon Terrace (1962)
<b>Nyctaginaceae</b>	<b>Four O'Clock Family</b>				
<i>Abronia maritima</i>	red sand-verbena		4	Coastal dunes <100m.	Potential where habitat occurs
<b>Orobanchaceae</b>	<b>Broom-Rape Family</b>				
<i>Orobanche parishii</i> ssp. <i>brachyloba</i>	short-lobed broom-rape	FSC	1B	Sandy soils near ocean.	Ben Weston Beach (1965)
<b>Papaveraceae</b>	<b>Poppy Family</b>				
<i>Dendromecon harfordii</i> var. <i>rhamnoides</i>	island tree poppy	FSC	4	Chaparral, cismontane woodland, coastal sage scrub.	Blackjack Mtn. (1978); Renton Mine; several known to occur between Cherry Valley and Johnson's Landing

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<u>Scientific Name</u>	<u>Common Name</u>				
<i>Eschscholzia ramosa</i>	island poppy		4	Chaparral, coastal bluff scrub.	Potential where habitat occurs
<b>Polemoniaceae</b>	<b>Phlox Family</b>				
<i>Gilia nevinii</i>	Nevin's gilia		4	Coastal bluff scrub, valley and foothill grasslands.	Potential where habitat occurs
<b>Polygonaceae</b>	<b>Buckwheat Family</b>				
<i>Eriogonum grande</i> var. <i>grande</i>	island buckwheat		4	Coastal bluff scrub, succulent scrub.	Gallagher Cyn.; Hamilton Cyn.; Pebbly Beach; Little Harbor; Cherry Valley
<i>Nemacaulis denudata</i> var. <i>denudata</i>	coast woolly-heads		2	Coastal dunes.	Potential where habitat occurs
<b>Portulacaceae</b>	<b>Purslane Family</b>				
<i>Calandrinia maritima</i>	seaside calandrinia		4	Coastal bluff scrub, valley and foothill grassland.	Little Harbor
<b>Cercocarpus</b>	<b>Mountain-Mahogany Family</b>				
<i>Cercocarpus betuloides</i> spp. <i>blancheae</i>	island mountain-mahogany		4	Chaparral.	Campus By The Sea; multiple records

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<i>Cercocarpus traskiae</i>	Catalina Island mountain-mahogany	FE, SE	1B	Chaparral.	Wild Boar Gully, (1974, 84, and 87); Black Ridge (1987)
<b>Rosaceae</b>	<b>Rose Family</b>				
<i>Lyonothamnus floribundus</i> ssp. <i>floribundus</i>	Santa Catalina Island ironwood	FSC	1B	Broadleafed upland forest, cismontane woodland, chaparral.	Near Sullivan's Beach (1980); Black Jack Mtn. (1980); Gallagher Cyn.; Swains Cyn.; Cherry Valley
<b>Rubiaceae</b>	<b>Madder Family</b>				
<i>Galium catalinense</i> ssp. <i>catalinense</i>	Santa Catalina Island bedstraw		4	Chaparral, coastal scrub.	Reported in Gallagher Cyn., Middle Ranch, Cottonwood Cyn., the Isthmus and Little Harbor
<i>Galium nuttallii</i> ssp. <i>insulare</i>	Nuttall's island bedstraw		4	Cismontane woodland, chaparral, lower montane coniferous forest,	Potential where habitat occurs

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<u>Scientific Name</u>	<u>Common Name</u>				
<b>Saxifragaceae</b>	<b>Saxifrage Family</b>				
<i>Jepsonia malvifolia</i>	island jepsonia	FSC	4	Coastal sage scrub.	Avalon; Blue Cavern Pt.; Cherry Valley
<b>Scrophulariaceae</b>	<b>Figwort Family</b>				
<i>Galvezia speciosa</i>	island snapdragon	FSC	1B	Coastal scrub.	White's Landing (1966); Moonstone Cove (1966); W of Pebbly Beach (1924); Swains Cyn. (1952); Blue Cavern Pt. (1970)
<i>Mimulus traskiae</i>	Santa Catalina Island monkey-flower	FSC	1A	Coastal scrub, shade.	Near Avalon (1904)
<i>Scrophularia villosa</i>	Santa Catalina figwort	FSC	1B	Coastal scrub, chaparral.	Near USC Marine Sciences Station (1968); Cherry Valley (1978); near Black Jack Mt; near Empire Landing; multiple additional records

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<b>Solanaceae</b>	<b>Nightshade Family</b>				
<i>Lycium brevipes</i> var. <i>hassei</i>	Santa Catalina Island desert-thorn		1B	Coastal bluff / sage scrub.	Avalon (1973)
<i>Solanum wallacei</i>	Wallace's nightshade		4	Chaparral, cismontane woodland/rocky.	Potential where habitat occurs
<b>ANGIOSPERMS (Monocotyledons)</b>					
<b>Liliaceae</b>	<b>Lily Family</b>				
<i>Calochortus catalinae</i>	Catalina mariposa lily		4	Openings in chaparral, valley and foothill grassland, cismontane woodland; heavy soils.	Campus By The Sea
<b>Poaceae</b>	<b>Grass Family</b>				
<i>Dissanthelium californicum</i>	California dissanthelium	FSC	1A	Coastal Sage Scrub.	Historic collection (1848)
<i>Hordeum intercedens</i>	vernal barley		3	Vernal pools, valley and foothill grasslands (saline flats and depressions).	Potential where habitat occurs

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<b>INVERTEBRATES</b>				
<u>Scientific Name</u>	<u>Common Name</u>	<u>Agency Listing Status</u>	<u>Preferred Habitat</u>	<u>Location</u>
<b>GASTROPODA – Snails and slugs</b>				
<i>Radiocentrum avalonense</i> ( <i>Drechelixa</i> )	Catalina mountain snail	FSC	Scrub communities.	Catalina E quad, (1987), specific location info suppressed by CNDDB

<b>INSECTA – Grasshoppers, katydids, crickets, beetles, flies, butterflies, moths</b>				
<u>Order</u>	<u>Common Name</u>	<u>Agency Listing Status</u>	<u>Preferred Habitat</u>	<u>Location</u>
<b>Order Coleoptera</b>	<b>Beetles</b>			
<i>Cicindela hirticollis grvida</i>	sandy beach tiger beetle	FSC	Non-brackish water along coast in clean, dry, light-colored sand.	Historic collection

<b>VERTEBRATES</b>				
<u>Scientific Name</u>	<u>Common Name</u>	<u>Agency Listing Status</u>	<u>Preferred Habitat</u>	<u>Location</u>
<b>REPTILES</b>				
<b>Colubridae</b>	<b>Colubrid Snake Family</b>			
<i>Thamnophis hammondii</i>	two-striped garter snake	FSC, CSC, SP	Riparian and freshwater marshes with perennial water.	Lower Cottonwood Cyn. (1980); unknown location 1994

<b>BIRDS</b>				
<u>Scientific Name</u>	<u>Common Name</u>	<u>Agency Listing Status</u>	<u>Preferred Habitat</u>	<u>Location</u>
<b>Pelecanidae</b>	<b>Pelican Family</b>			
<i>Pelecanus occidentalis californicus</i>	California brown pelican	FE, SE, SFP	Coastal, salt bays, ocean, and beaches.	Cherry Cove

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<b>Gaviidae                      Loon Family</b>				
<i>Gavia immer</i>	common loon	CSC	Coasts, bays, lakes, rivers, and seas.	Near Camp Cherry Valley area in waters immediately offshore.
<b>Accipitridae                Hawks, Kites, Harriers and Eagle Family</b>				
<i>Accipiter striatus</i>	sharp-shinned hawk	CSC	Woodlands; forages over chaparral and other scrublands; prefers riparian habitats and north-facing slopes, with plucking perch sites.	Uncommon winter visitor from early Oct. - mid Apr.
<i>Haliaeetus leucocephalus</i>	bald eagle	FT, FPD, SE, CSC	Lakes, reservoirs, rivers, offshore islands, and some rangelands and coastal wetlands in Southern California.	East-end Catalina territory (1993); vicinity of Pinnacle Rock (1997); between Goat Harbor and Italian Gardens (1997)
<i>Pandion haliaetus</i>	osprey	CSC	Rivers, lakes, and coasts, mixed conifer.	Occasional and infrequent occurrence along the coast near Camp Cherry Valley (1995)
<b>Falconidae                Falcon Family</b>				
<i>Falco peregrinus anatum</i>	American peregrine falcon	SE, SFP, formerly FE	Coastal estuaries, open country, cliffs to coasts.	Observed near reservoirs above Gallagher Cyn. to the coast. Federally delisted Aug. 1999

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FSC	Federal Special Concern Species	SCE	State Candidate for Endangered
FPE	Federally Proposed as Endangered	SCT	State Candidate for Threatened
FPT	Federally Proposed as Threatened	SP	State Protected
FPD	Federally Proposed for Delisting	SFP	State Fully Protected
		SR	State Rare
		CSC	California Special Concern Species

**SENSITIVE SPECIES  
OCCURRING OR POTENTIALLY OCCURRING  
WITHIN THE PROPOSED SANTA CATALINA ISLAND SEA  
(CONTINUED)**

<b>VERTEBRATES</b>		<b>Agency Listing</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Status</b>	<b>Preferred Habitat</b>	<b>Location</b>
<b>Strigidae</b>		<b>True Owl Family</b>		
<i>Asio flammeus</i>	short-eared owl	CSC	Prairies, marshes (fresh and salt dunes, tundra.	Potential where habitat occurs
<i>Athene cunicularia</i>	burrowing owl	FSC, CSC	Dry grasslands, desert habitats, open pinyon-juniper, and ponderosa pine woodlands below 5,300 feet; berms, ditches, grasslands adjacent to rivers, agricultural, and scrub areas.	USC Marine Lab; Little Harbor area; Middle Cyn.
<b>Laniidae</b>		<b>Shrike Family</b>		
<i>Lanius ludovicianus</i>	loggerhead shrike	FSC, CSC	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Uncommon to common resident
<b>Emberizidae</b>		<b>Wood Warblers, Tanagers, Buntings, and Blackbird Family</b>		
<i>Aimophila ruficeps canescens</i>	Southern California rufous-crowned sparrow	FSC, CSC	Generally, steep, rocky areas within coastal sage scrub and chaparral, often with scattered bunches of grass; prefers relatively recently burned areas.	Camp Cherry Valley
<b>MAMMALS</b>				
<b>Soricidae</b>		<b>Shrew Family</b>		
<i>Sorex ornatus willetti</i>	Santa Catalina ornate shrew	FSC, C SC	Valley foothill and montane riparian, also wide variety of woodland, chaparral, grassland, and emergent wetland habitats.	Avalon Cyn. (1942); lower Cottonwood Cyn. (1983)

**Legend**

**Agency Lists**

FE	Federally Listed as Endangered	SE	State Listed as Endangered
FT	Federally Listed as Threatened	ST	State Listed as Threatened
FSC	Federal Special Concern Species	SCE	State Candidate for Endangered
FPE	Federally Proposed as Endangered	SCT	State Candidate for Threatened
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**SENSITIVE SPECIES  
OCCURRING OR POTENTIALLY OCCURRING  
WITHIN THE PROPOSED SANTA CATALINA ISLAND SEA  
(CONTINUED)**

<b>VERTEBRATES</b>		<b>Agency Listing</b>		
<b>Scientific Name</b>	<b>Common Name</b>	<b>Status</b>	<b>Preferred Habitat</b>	<b>Location</b>
<b>Vespertilionidae</b>		<b>Evening Bat Family</b>		
<i>Antrozous pallidus</i>	pallid bat	CSC	Nests in dry, rocky habitats/caves, crevices in rocks, arid habitats including deserts, chaparral, and scrublands.	Potential where habitat occurs
<i>Corynorhinus (Plecotus) townsendii pallescens</i>	pale big-eared bat	CSC	Needs caves, tunnels, or other structures for roosting, vegetation and mesic edges for feeding, extremely sensitive to roosting site disturbance, maternity roosts are in warm places.	Potential where habitat occurs
<b>Canidae</b>		<b>Wolves and Fox Family</b>		
<i>Urocyon littoralis</i>	island fox	FSC, ST	Complex, layer vegetation with high density of woody, perennial fruiting shrubs.	Haypress Reservoir (1989-90); Gallagher Cyn. (1994); Bulrush Cyn. and Airport (1989-90); many additional records

**Legend**

**Agency Lists**

FE	Federally Listed as Endangered	SE	State Listed as Endangered
FT	Federally Listed as Threatened	ST	State Listed as Threatened
FSC	Federal Special Concern Species	SCE	State Candidate for Endangered
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## 9. REGIONAL BIOLOGICAL VALUE

The proposed Santa Catalina Island SEA meets all SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

*Criterion A: The Habitat of Core Populations of Endangered or Threatened Plant or Animal Species.*

The proposed SEA encompasses nearly all known populations of Santa Catalina Island endemic species including Catalina Island manzanita, Catalina dudleya, Santa Catalina monkey flower, Trask's yerba santa, St. Catherine's lace, Catalina ironwood, the Catalina wild-tomato, and the federally and state endangered Catalina Island mountain mahogany. Several other species are indigenous to the Channel Islands including Santa Catalina desert thorn, *Phacelia lyonii*, Nevin's wooly sunflower, wild apple, California dissanthelium, bush-snapdragon, Nevin's gilia, hairy figwort, *Lotus argophyllus ornithopus*, southern island clover, *Trifolium microdon pilosum*, *Ceanothus arboreus*, Green's dudleya, *Ceanothus megacarpus insularia*, island poppy, island tarplant, *Heteromeles arbutifolia macrocarpa*, island jepsonia, southern island mallow, island broom, island oak, *Rhamnus pirifolia*, the federally endangered Santa Cruz Island rock cress, the federally threatened island rush-rose, Santa Catalina ornate shrew, and the island fox. Although many of these species are unlisted, the SEA contains all or much of their extremely limited distributions.

*Criterion B: On a Regional Basis, Biotic Communities, Vegetative Associations, and Habitat of Plant or Animal Species that are either Unique or are Restricted in Distribution.*

Several plant communities within this SEA have restricted distribution in the Southern California region. These communities include: maritime succulent scrub, southern coastal bluff scrub, island chaparral, island cherry woodland, island oak woodland, and island ironwood forest which are scattered throughout the SEA

*Criterion C: Within Los Angeles County, Biotic Communities, Vegetative Associations, and Habitat of Plant or Animal Species that are either Unique or are Restricted in Distribution.*

All of the plant communities mentioned above as being restricted in distribution on a regional basis are further restricted in distribution within Los Angeles County. These communities include: maritime succulent scrub, southern coastal bluff scrub,

island chaparral, island cherry woodland, island oak woodland, and island ironwood forest which are scattered throughout the SEA

*Criterion D: Habitat that at some point in the Life Cycle of a Species or Group of Species, Serves as Concentrated Breeding, Feeding, Resting, or Migrating Grounds and is Limited in Availability either Regionally or in Los Angeles County.*

The proposed SEA is likely to serve as a concentrated resting and feeding area for marine mammals such as sea lions and for coastal nesting sea birds.

*Criterion E: Biotic Resources that are of Scientific Interest because they are either an Extreme in Physical/Geographical Limitations, or Represent Unusual Variation in a Population or Community.*

Several of the plant communities within the proposed SEA are unique in their species assemblage and represent geographic limits of the community and are therefore of interest to science. Additionally, many species are either endemic to the Island or represent unusual variations of mainland species.

*Criterion F: Areas that would Provide for the Preservation of Relatively Undisturbed Examples of the Original Natural Biotic Communities in Los Angeles County.*

The SEA encompasses large, mostly undisturbed examples of each of the original island community types including maritime succulent scrub, southern coastal bluff scrub, island chaparral, island oak woodland, island ironwood forest, and island cherry woodland.

In conclusion, the area described in this report is proposed to be an SEA because it contains: 1) the habitat of core populations of endangered and threatened plant and animal species as well as many endemic species; 2) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in Los Angeles County, or regionally; 3) concentrated breeding, feeding, resting, or migrating grounds which are limited in availability in Los Angeles County; 4) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and 5) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in Los Angeles County.

## 10. RECOMMENDED MANAGEMENT PRACTICES

Proposed new development within the proposed Puente Hills SEA should be designed to be highly compatible with the continued ecological function of the component biological resources described above; retention of existing natural biotic resources should be ensured. Although a comprehensive evaluation of all possible future land uses within this SEA cannot be made here, a general approach is outlined below and is recommended for use on a project specific basis. In order to preserve the integrity of the SEA, the proposed comprehensive management practices described in the *Los Angeles County SEA Update Study 2000 Background Report* are recommended. These practices address:

- Core habitat
- Habitat linkages and wildlife corridors
- Fire management
- Public access and recreation
- Infrastructure
- Wetlands, riparian habitats, and streambeds
- Non-riparian/upland woodlands

In addition to the comprehensive management practices the following proposed management practices are recommended specifically for the proposed Santa Catalina Island SEA:

- Maintain the habitat of populations of listed species including the federally and state endangered Catalina Island mountain mahogany, the federally endangered Santa Cruz Island rock cress, and the federally threatened island rush-rose. Also maintain populations of extremely rare or endemic species such as Catalina Island manzanita, Catalina dudleya, Santa Catalina monkey flower, Trask's yerba santa, St. Catherine's lace, Catalina ironwood, the Catalina wild-tomato, Santa Catalina desert thorn, *Phacelia lyonii*, Nevin's woolly sunflower, wild apple, California dissanthelium, bush-snapdragon, Nevin's gilia, hairy figwort, *Lotus argophyllus ornithopus*, southern island clover, *Trifolium microdon pilosum*, *Ceanothus arboreus*, Green's dudleya, *Ceanothus megacarpus insularia*, island poppy, island tarplant, *Heteromeles arbutifolia macrocarpa*, island jepsonia, southern island mallow, island broom, island oak, and *Rhamnus pirifolia* as well as adequate buffers to eliminate or minimize adverse impacts.

- Retain rare communities with adequate buffers so as to allow for the long term viability and integrity of plant communities as a whole. Rare communities include: maritime succulent scrub, southern coastal bluff scrub, island chaparral, island cherry woodland, island oak woodland, island ironwood forest, and native grassland
- Maintain distribution extremes of communities or species and endemic communities or species with the goal of retaining their long term viability and integrity.
- Allow impacts associated with restoration if the long term benefits to the biological resources of the Island are the clear objective (where applicable, refer to conservation easement guidelines).

Additionally, proposed development should be reviewed when required by federal, state, or local laws before implementing plans which may impact biotic resources and/or sensitive species. Potential impacts to listed species or wetland areas require permitting in accordance with applicable laws.

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