



Natural Resource Protection and Restoration

Golden Gate National Recreation Area
(Compiled for presentation to NPS Federal Panel, August 2002)



NPS Management Policies

Natural Resource Management

National Park Service
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The NPS “will preserve the natural resources, processes, systems and values... in an unimpaired condition, to perpetuate their inherent integrity and to provide present and future generations with the opportunity to enjoy them.”



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Biological Diversity

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“Biodiversity is the extraordinary variety of life on Earth ~ from genes and species to ecosystems and the valuable functions they perform.”

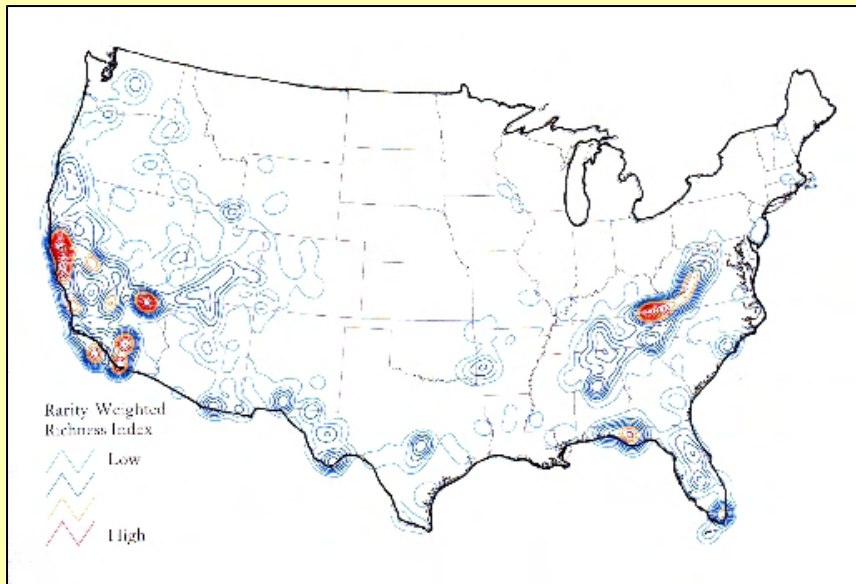
- Biodiversity provides:
 - food, medicines and natural products
 - inspiration and cultural heritage
 - ecosystem services like pollination, air and water purification, drought and flood control, nutrient cycling, and habitat
- Biodiversity is being lost to:
 - habitat loss
 - invasive species
 - overuse of resources and pollution
 - global climate change



Hotspots of Rarity in the U.S.

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Hot spots of rarity and richness

from “Precious Heritage, the Status of Biodiversity in the United States”

The Nature Conservancy and
Association for Biological Information

- San Francisco Bay Area named one of 6 hot spots of rarity in the U.S.
- California floristic province is 8th hot spot of global biodiversity
- GGNRA is part of core area of Golden Gate Biosphere Reserve
- 33 federally-listed threatened and endangered species in the park
- 3rd highest in NPS after Hawaii Volcanoes, Haleakala and Channel Islands National Parks
- \$1.5 million spent on federal T&E species 1998 - 2002 in GGNRA (approximate federal expenditures only)

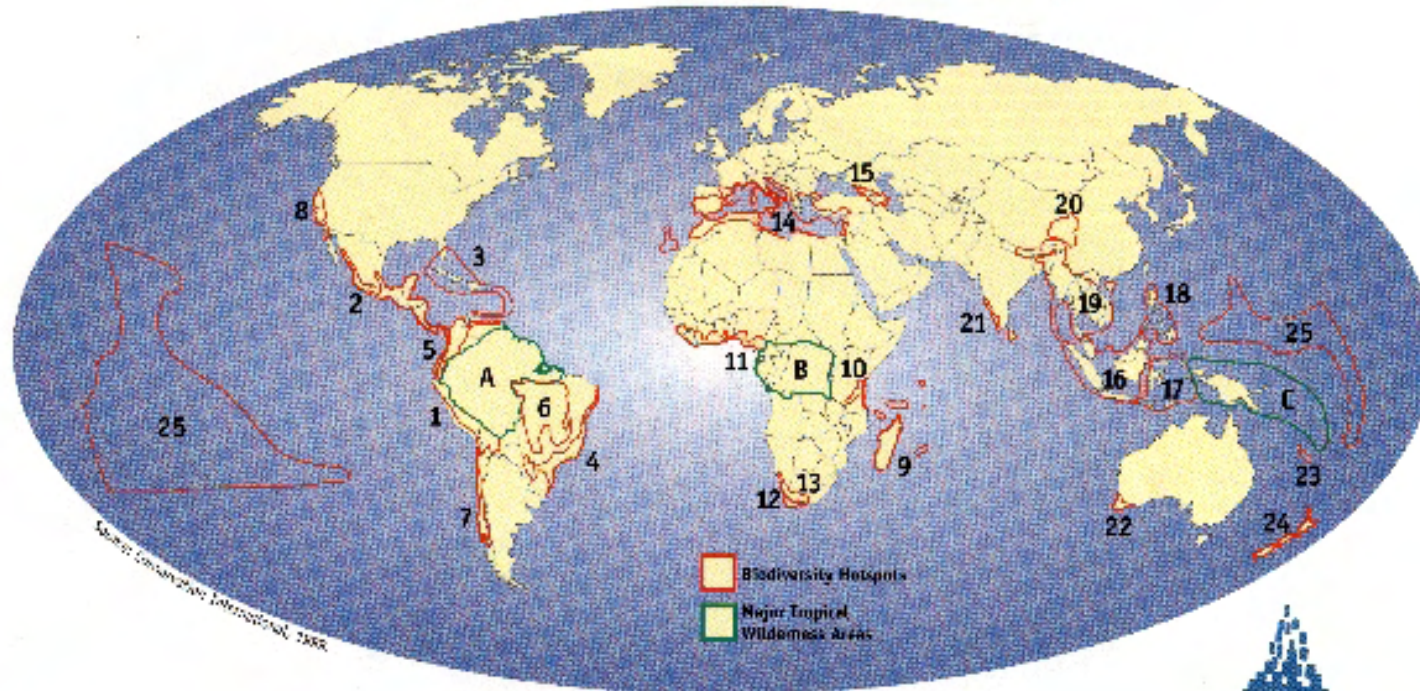
Global Biodiversity Hotspots

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People and Biological Diversity



The Global Biodiversity Hotspots and Major Tropical Wilderness Areas

Hotspots

1. Tropical Andes
2. Mesoamerica
3. Caribbean
4. Atlantic Forest Region
5. Choco-Darien-Western Ecuador
6. Brazilian Cerrado
7. Central Chile
8. California Floristic Province
9. Madagascar and Indian Ocean Islands

10. Eastern Arc Mountains and Coastal Forests of Tanzania and Kenya
11. Guinean Forests of West Africa
12. Cape Floristic Province
13. Succulent Karoo
14. Mediterranean Basin
15. Caucasus
16. Sundaland
17. Wallacea
18. Philippines
19. Indo-Burma

20. Mountains of South-Central China
21. Western Ghats and Sri Lanka
22. Southwest Australia
23. New Caledonia
24. New Zealand
25. Polynesia/Micronesia

Major Tropical Wilderness Areas

- A. Upper Amazonia and Guyana Shield
- B. Congo Basin
- C. New Guinea and Malaysian Islands



*Population Action
International*

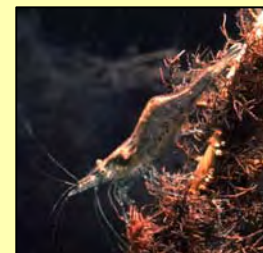
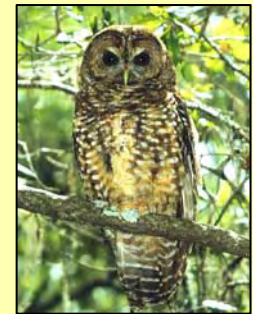
From Nature's Place: Population and
the Future of Biodiversity.
Order additional copies from:
pubinq@popact.org

On the Web at:
[http://www.populationaction.org/
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Threatened & Endangered Animals in GGNRA ~ 23 species

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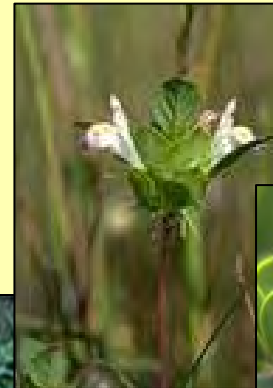
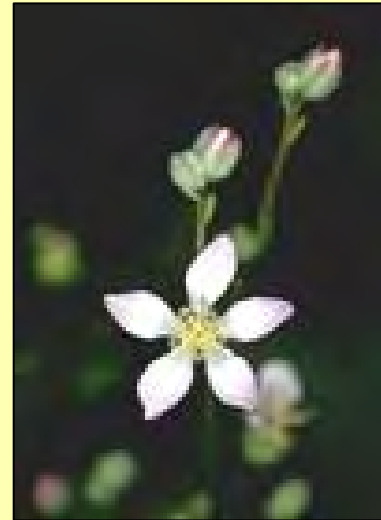
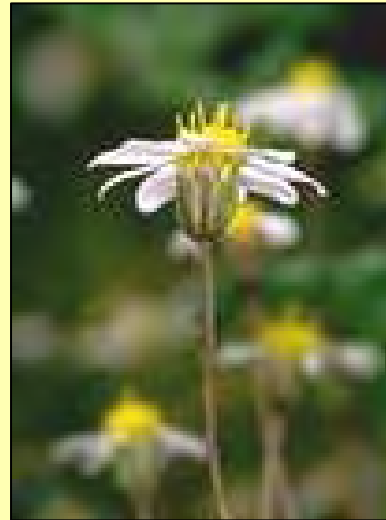
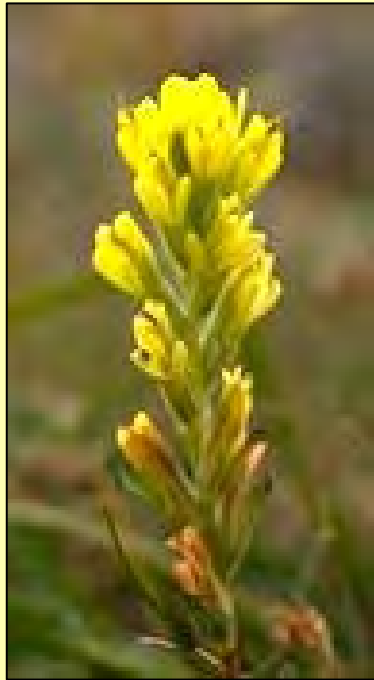


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Threatened & Endangered Plants in GGNRA ~ 10 species

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Threatened & Endangered Animals (Federally listed)

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COMMON NAME	STATUS	COMMON NAME	STATUS
• Bald eagle	T	• Northern (Steller) sea lion	T
• Bay checkerspot butterfly	T	• Northern spotted owl	T
• California brown pelican	E	• Salt-marsh harvest mouse	E
• California clapper rail	E	• San Bruno elfin butterfly	E
• Californian freshwater shrimp	E	• San Francisco garter snake	E
• California red-legged frog	T	• Southern sea otter	T
• Chinook salmon		• Steelhead	
– Sacramento River winter run	E	– Central Calif Coast ESU	T
• Coho salmon		• Steelhead	
– Central Calif Coast ESU	T	– Central Valley ESU	T
• Humpback whale	E	• Spring-run chinook salmon	T
• Least tern	E	• Tidewater goby	E
• Marbled murrelet	T	• Western snowy plover	T
• Mission blue butterfly	E		

Blue = species monitored at GGNRA



Threatened & Endangered Plants (Federally listed)

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COMMON NAME

STATUS

- California seablite E
- Fountain thistle E
- Marin dwarf flax T
- Presidio clarkia E
- Presidio manzanita E
- San Francisco lessingia E
- San Mateo wooly sunflower E
- San Mateo thornmint E
- Tiburon paintbrush E
- Whiteray pygmy daisy E

Blue = species monitored at GGNRA



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Natural Resource Stewardship and Science at GGNRA

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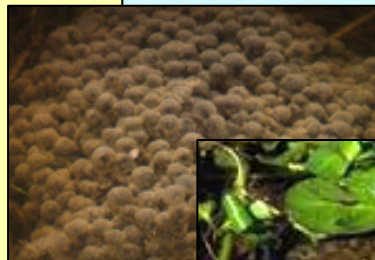
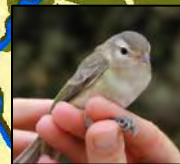
- *Inventory of park natural resources*
 - Vegetation mapping, wetland mapping, coastal inventory, avian and terrestrial vertebrate inventory, rare plant inventory, water quality
- *Vital signs monitoring*
 - Threatened and endangered species
 - Indicators of ecological health
 - water quality, stream flow, riparian nest success, Crissy marsh dynamics
- *Ecological restoration and management*
 - Invasive species control - e.g. Cape-ivy, Monterey pines, bullfrogs
 - Habitat restoration
 - Restoration planning
 - Native plant propagation and out-planting
 - Monitoring
 - Restoration of natural processes
- *Environmental stewardship and education*
- *Science in support of park management*



Spotted Owl, Coho Salmon, and California Red-legged Frog Habitat

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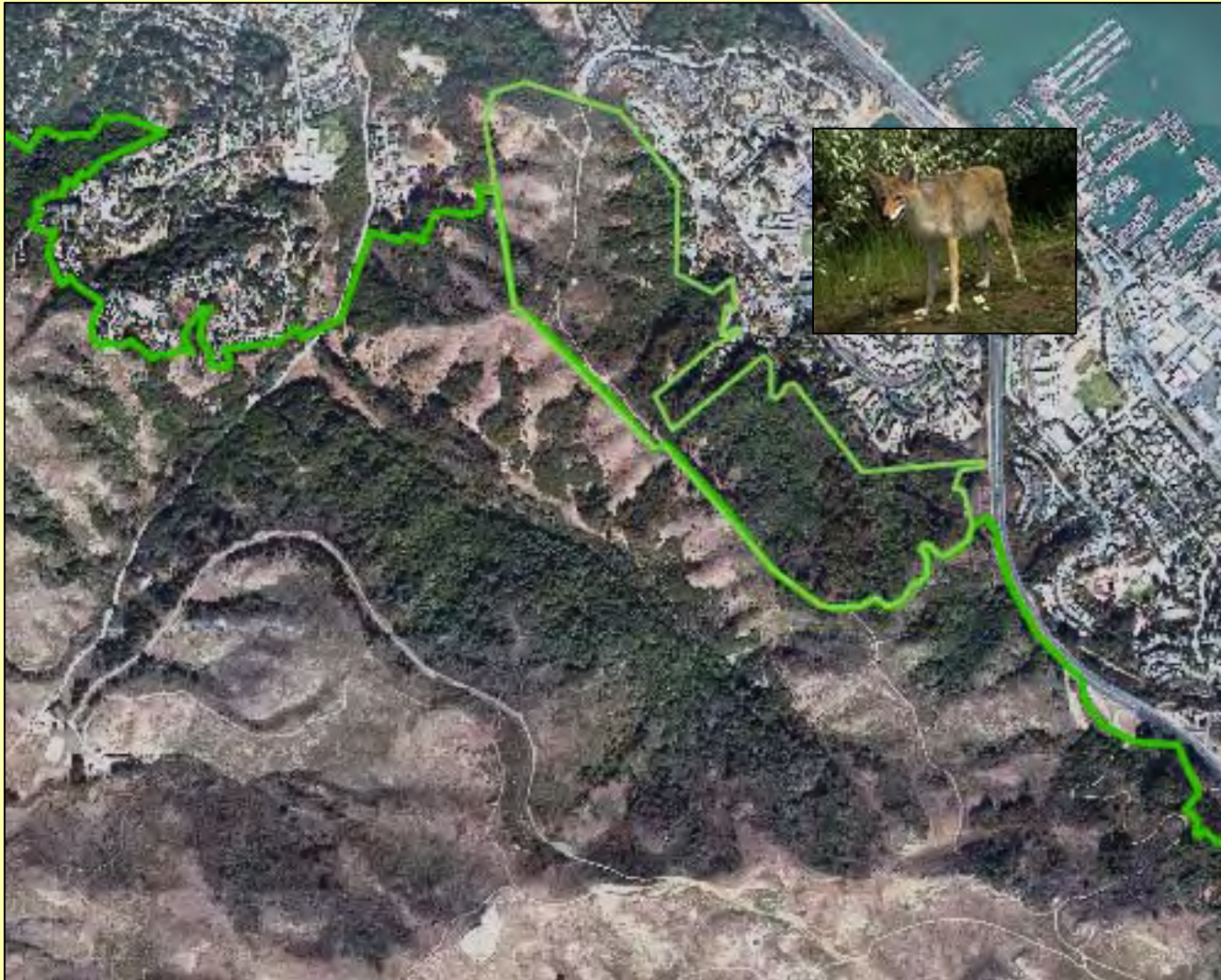
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Oakwood Valley Coyote ~ Dog Interactions

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Coyote / Mountain Lion ~ Dog Interactions

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CAUTION COYOTE HABITAT



Photo Credit: Courtesy of Golden Gate Institute

PETS MUST BE LEASHED

Coyotes occur in this area and have been observed following or approaching hikers, particularly those with pets. Leash pets or leave them at home.

- * **Avoid hiking or running alone or after dark.**
- * **Keep children and pets under close supervision.**

If you encounter a coyote at close range:

- * **REMAIN CALM- DO NOT RUN.**
- * **PICK UP SMALL CHILDREN AND PETS IMMEDIATELY.**
- * **STAND UPRIGHT, MAINTAIN EYE CONTACT, BACK AWAY SLOWLY.**
- * **BE ASSERTIVE- If approached, wave your arms, speak firmly or shout, and throw sticks or rocks.**
- * **IF ATTACKED, FIGHT BACK AGGRESSIVELY.**

We would like your help in learning more about the locations and behavior of coyotes in the park. **Please report sightings to the nearest visitor center.** Call Park Dispatch at (415)561-5510 as soon as possible if you encounter an aggressive coyote. Leave your name and phone number.

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Removal of this sign is illegal and could result in injury to others

ENTERING MOUNTAIN LION HABITAT



Mountain lions sightings generally occur infrequently and usually from a distance. You are unlikely to see a mountain lion, but it is wise to know how to behave should you do encounter one.

- * **Avoid hiking or running alone or after dark.**
- * **Keep children under close and careful supervision.**

If you encounter a lion at close range:

- * **REMAIN CALM- DO NOT RUN.**
- * **PICK UP SMALL CHILDREN IMMEDIATELY.**
- * **STAND UPRIGHT, MAINTAIN EYE CONTACT, BACK AWAY SLOWLY.**
- * **BE ASSERTIVE- If approached, wave your arms, speak firmly or shout, and throw sticks or rocks.**
- * **IF ATTACKED, FIGHT BACK AGGRESSIVELY.**

We would like your help in learning more about the number and locations of mountain lions in this area. **Please report any sightings to the nearest visitor center** or call Park Dispatch at (415)561-5510 as soon as possible. Leave your name and phone number.

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Removal of this sign is illegal and could result in injury to others

Endangered Species Habitat Marin Headlands ~ Golden Gate

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Mission Blue Butterfly Habitat Restoration and Monitoring

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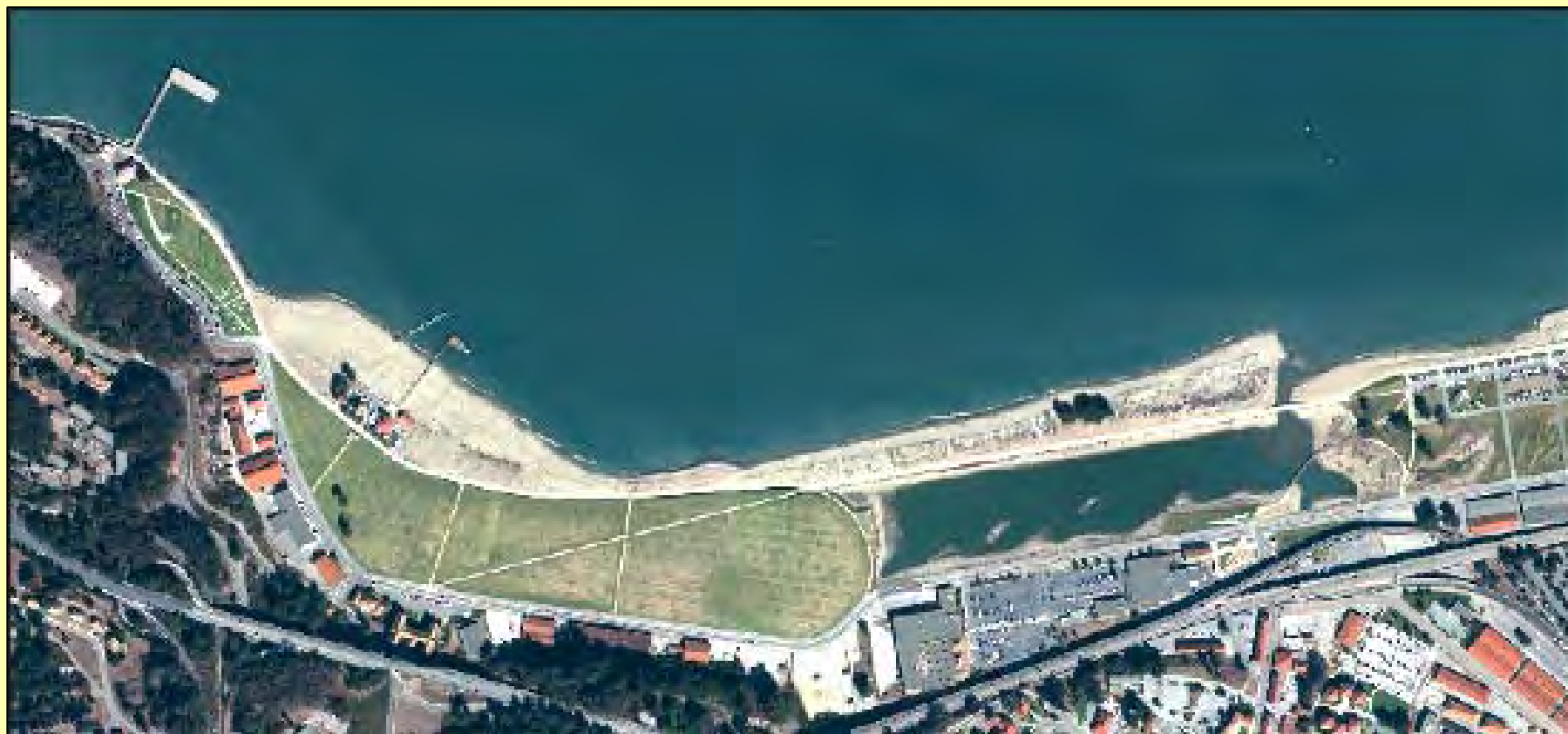
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Crissy Wetland and Dune Restoration, and Crissy Airfield

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Crissy Wetland Restoration and Monitoring

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EXPERIENCE YOUR AMERICA

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Crissy Wetland, Dune Restoration and Crissy Airfield

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Fencing Used to Protect Habitat and Restoration Sites from Off-leash Dogs

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Impacts of Off-leash Dogs on Native Habitat and Wildlife

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- Trampling, digging and uprooting of vegetation
- Deposition of nutrients from urine and feces contributes to spread of invasive species
- Impairment of water quality and increased risk of human exposure to contaminated soil and water
- Disturbance to wildlife
- Alteration of wildlife behavior
- Increased opportunities for disease transmission to and from wildlife, humans and their pets

Wildlife Protection Area, Dune Restoration, and Crissy Airfield

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T&E Plant Species ~ Potential Recovery Areas

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Serpentine endemics ~
potential habitat

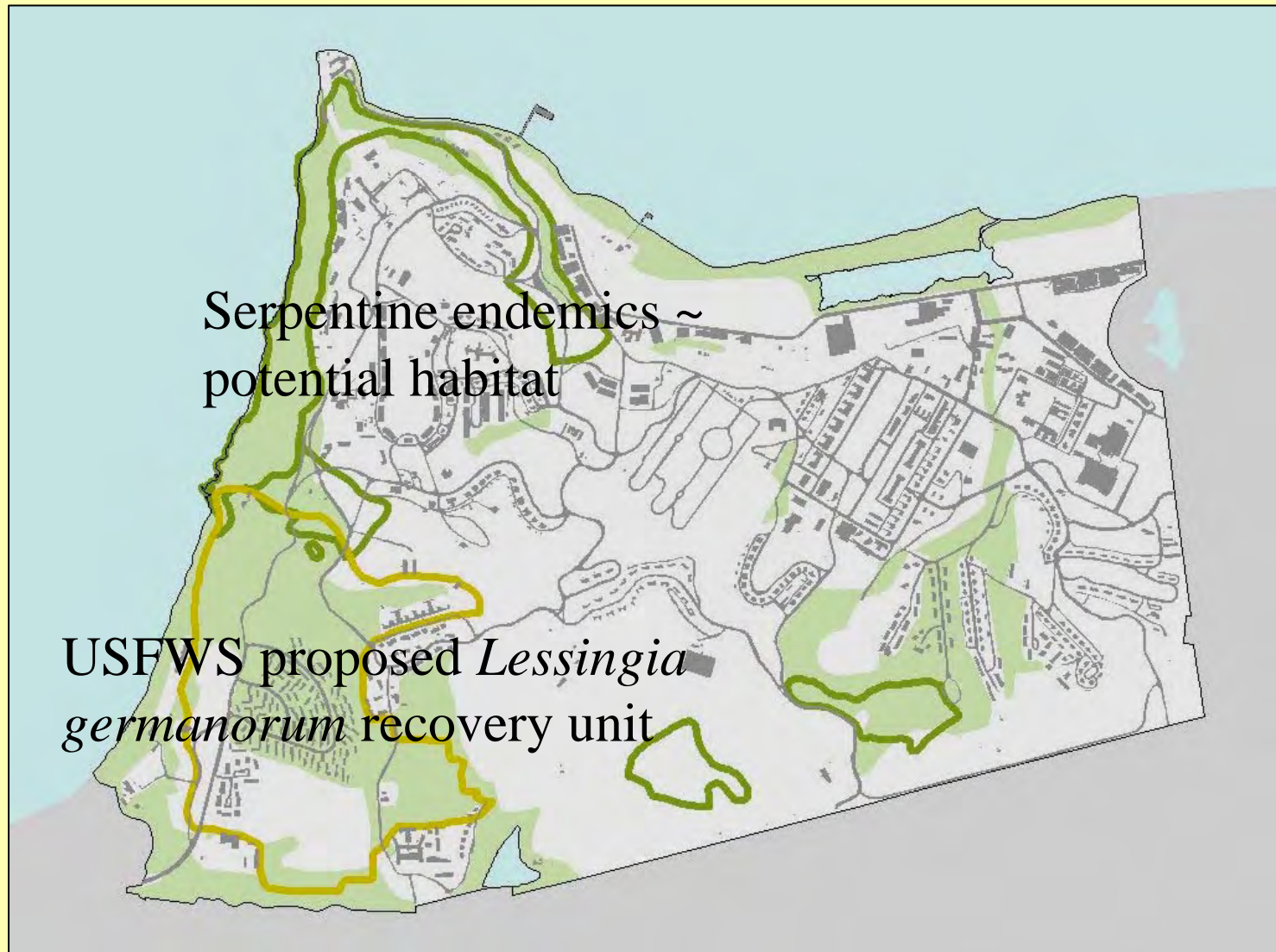
USFWS proposed *Lessingia*
germanorum recovery unit



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Native Plant Community Zone and Potential T&E Recovery Areas

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Snowy Plover Management Area Ocean Beach

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State Park Beaches to Protect Threatened Snowy Plovers

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CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

News Release



FOR IMMEDIATE RELEASE
Date: August 6, 2002

Contact: Ronald P. Schafer, District Superintendent
Phone No. (415) 330-6300

California State Parks Expands Recovery Effort for Western Snowy Plover Local Beaches to Face Strict Enforcement

The California Department of Parks and Recreation is asking for public cooperation as it enforces regulations on state beaches as part of an expanding effort to protect the western snowy plover, a shorebird listed as a threatened species under the federal Endangered Species Act. The Department will limit disruption of public use as much as possible, but at the same time maximize its protective efforts for the threatened shorebird.

The U.S. Fish and Wildlife's draft recovery plan lists many state beaches along the San Mateo Coast as critical habitat for the management of the western snowy plover. Due to the critical decline of the western snowy plover and threats to other shorebirds, the Department of Parks and Recreation has rescinded authorization that had permitted dogs on San Mateo County State Beaches. Section 4312 of the California Code of Regulations prohibits dogs on state beaches in California. Dogs near snowy plovers can frighten adult plovers into abandoning nests or chicks. They also pose a threat to plovers and other shorebirds in non-nesting habitat. While nests are usually located at the upper end of a beach, the chicks will range from the edge of the dunes all the way down to the waterline.

State Parks will strictly enforce regulations prohibiting dogs on State Beaches. Rangers will also enforce all regulations banning horses, camping, motorized vehicles, fireworks, and fires on beaches.

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Dog Impacts to Wildlife on Beaches

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- Disturbance to T&E species: Bank Swallows, Brown Pelicans and Snowy Plovers
- Flushing of 100s to 1000s of migratory and wintering shorebirds



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More Dog Impacts to Wildlife on Beaches

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- Disruption of feeding, increased energy expenditure, loss of fat reserves in shorebirds
- Disturbance to large congregations of newly fledged Caspian and Elegant Terns
- Harassment of stranded marine mammals and oiled seabirds
- Accelerated erosion of bluffs
- Crushing of Bank Swallow and Tidewater Goby burrows
- Impaired water quality



Fort Funston ~ USFWS Proposed *Lessingia* Recovery Unit

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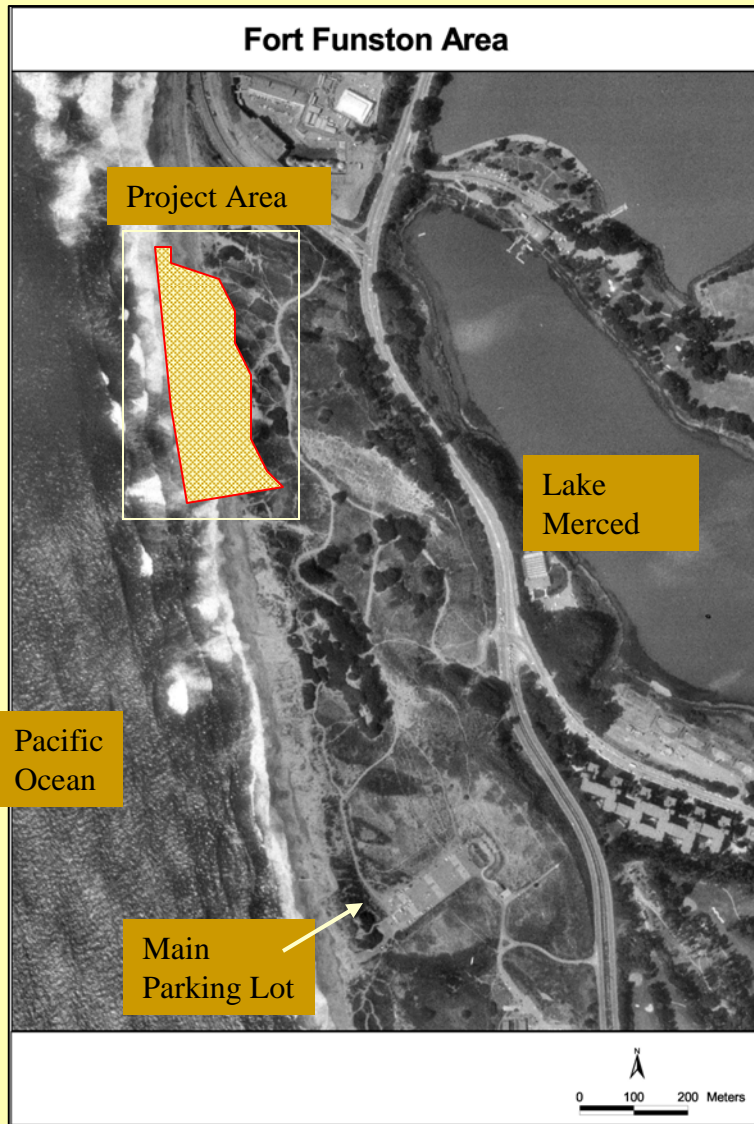
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Fort Funston Habitat Protection Closure ~ 2000

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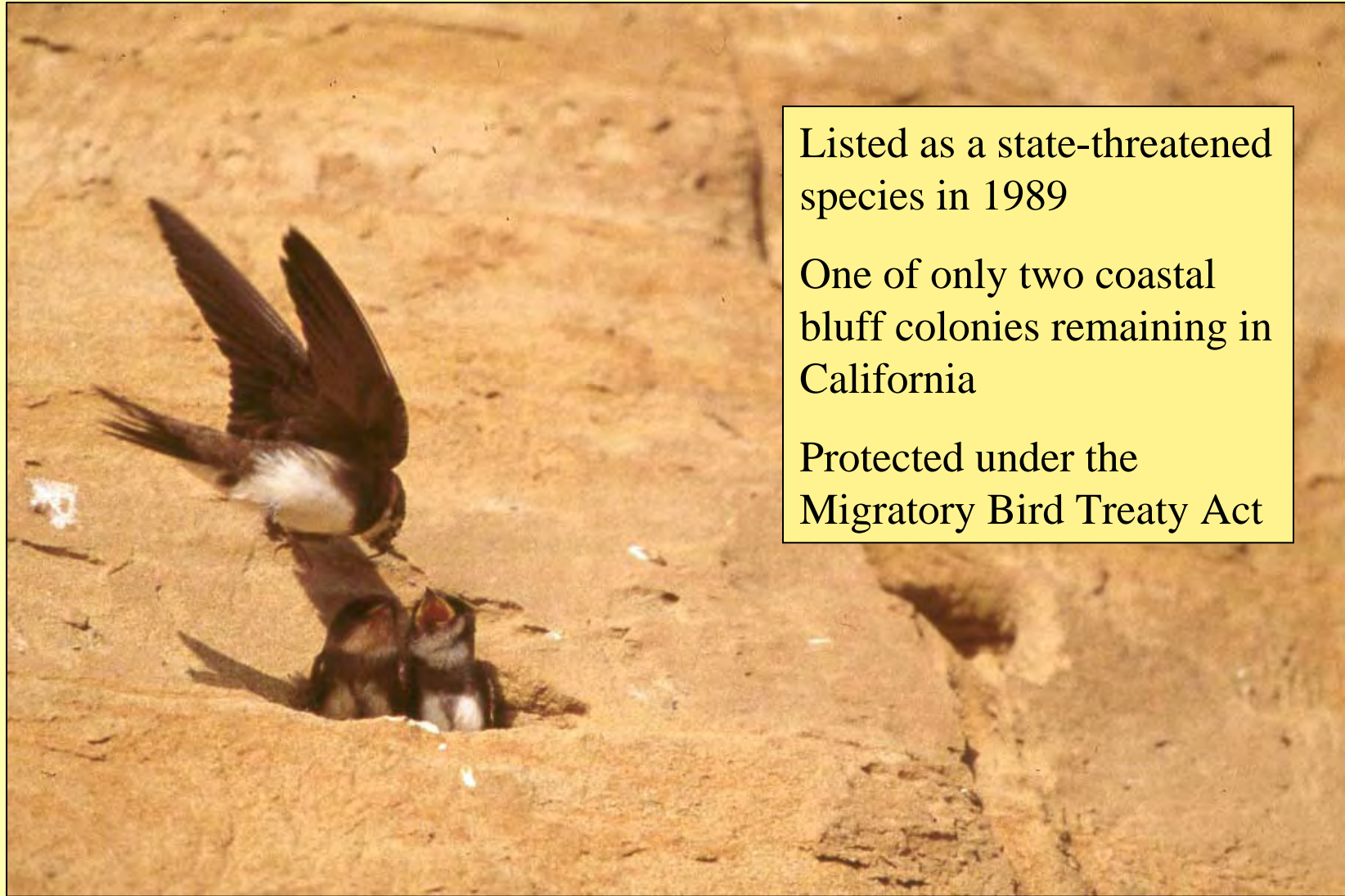
PROJECT OBJECTIVES

1. Provide increased protection to new nesting location of state-threatened Bank Swallow
2. Increase biological diversity by restoring native coastal dune scrub habitat
3. Increase public safety
4. Protect geologic resources, including bluff top and interior dunes from accelerated human-induced erosion

Fort Funston Bank Swallow Colony

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Listed as a state-threatened species in 1989

One of only two coastal bluff colonies remaining in California

Protected under the Migratory Bird Treaty Act

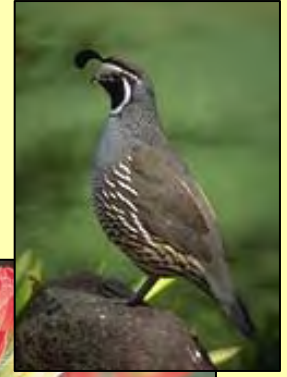
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Fort Funston ~ Habitat Restoration

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Central dune scrub



Paintbrush



Beach pea



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Coastal Dune Restoration at Fort Funston

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Milagra Ridge T&E Species

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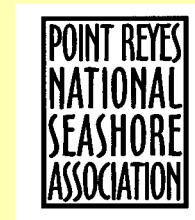
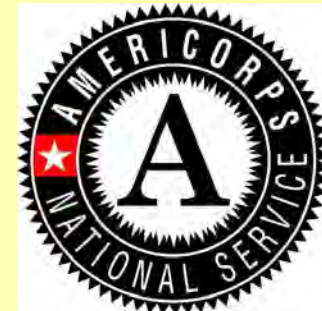
- California Academy of Sciences
- National Park Service
- Corsi, Gerald and Buff, California Academy of Sciences
- Davies, T.W., California Academy of Sciences
- Game, John
- Getty, Don
- GGNPA Site Stewardship Program
- Gross, Joyce
- Ingles, Dr. Lloyd Glenn, California Academy of Sciences
- La Tourette, Peter, California Academy of Sciences
- Leonard, William
- Lin, Dong, California Academy of Sciences
- National Park Service
- Ordano, Jo-Ann, California Academy of Sciences
- Resetar, Alan
- Ross, Edward
- Serpa, Larry
- Tashijan
- Taylor, Dean Wm.
- Thomas and Margaret Orr, Dr. Robert, California Academy of Sciences
- Tuttle, Merlin, Bat Conservation International

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Partners in Stewardship

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