

Salinas River National Wildlife Refuge

Comprehensive Conservation Plan Summary

Vision Statement

“The Refuge will be managed for the conservation and enhancement of populations of native species of plants, wildlife, fish, and their habitats. Endangered or threatened species will receive management priority, with special emphasis placed on the conservation and recovery of the western snowy plover. Whenever possible, habitats and populations will be managed in partnership with local landowners, local and regional organizations, and local, State, and other Federal agencies to achieve regional conservation goals.”

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Sand verbenas - USFWS Photo

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Introduction

The Salinas River National Wildlife Refuge (Refuge) encompasses 367 acres 11 miles north of Monterey, California, where the Salinas River empties into Monterey Bay (Figure 1). The Refuge is part of the San Francisco Bay National Wildlife Refuge Complex, which has its headquarters in Fremont, California. Refuge lands include a range of terrestrial and aquatic habitats, including coastal dunes and beach, grasslands, wetlands, and riparian scrub. Because it is within the Pacific Flyway, the Refuge is used by a variety of migratory birds during breeding, wintering, and migrating periods. It also provides habitat for several threatened and endangered species, including western snowy plover, California brown pelican, Smith's blue butterfly, Monterey gilia, and Monterey spineflower. Approximately 40 species that exist or are suspected to exist on the Refuge are considered sensitive by Federal or State agencies. Current recreational uses on the Refuge include wildlife observation and photography and access to surf fishing and waterfowl hunting.

Purpose and Need for the Plan

The purpose of developing the Comprehensive Conservation Plan (CCP) for the Refuge is to provide managers with a 15-year strategy for achieving refuge purposes and contributing toward the mission of the National Wildlife Refuge System (Refuge System). The National Wildlife Refuge System Improvement Act of 1997 (Improvement Act) requires that all National Wildlife Refuges be managed in accordance with an approved CCP by 2012. Moreover, the Refuge currently has no integrated plan that guides the management of all of its resources and uses. To meet the dual needs of complying with the Improvement Act and providing long-term integrated management guidance for the Refuge, the U.S. Fish and Wildlife Service (Service) has prepared this CCP.



Saline Pond on Salinas River Refuge - USFWS Photo

The National Wildlife Refuge System

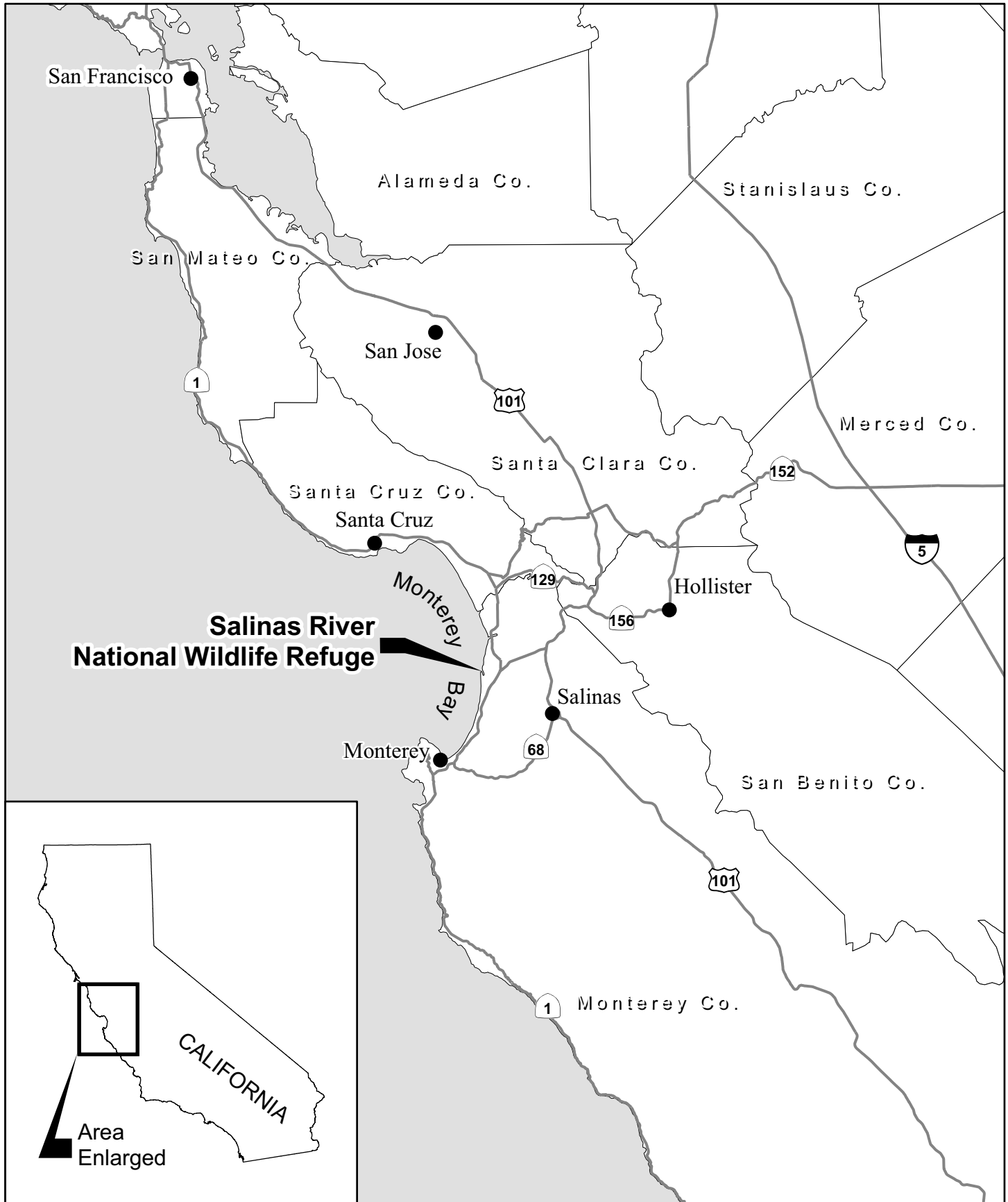
The Refuge System is the world's largest collection of lands specifically managed for fish and wildlife conservation. Operated and managed by the Service, the Refuge System comprises more than 540 national wildlife refuges with a combined area of more than 94 million acres. The majority of refuge lands (approximately 77-million acres) are in Alaska. The remaining acres are spread across the other 49 states and several island territories.

The mission of the Refuge System, as stated in the Improvement Act, is "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (16 USC 668dd et seq.).

Our Vision for the Refuge

The Refuge will be managed for the conservation and enhancement of populations of native species of plants, wildlife, fish, and their habitats. Endangered or threatened species will receive management priority, with special emphasis placed on the conservation and recovery of the western snowy plover. Whenever possible, habitats and populations will be managed

Figure 1. Location Map



CA/NV Refuge Planning Office - July 2001



in partnership with local landowners, local and regional organizations, and local, State, and other Federal agencies to achieve regional conservation goals.

Background

The Refuge was established in 1973 because of its “particular value in carrying out the national migratory bird management program” (USC Sec. 667b). The Service acquired the land through a transfer of surplus military land from the U.S. Army and the U.S. Coast Guard. From 1974 through 1991, what is now the Refuge was operated as a Wildlife Management Area under a cooperative agreement with the California Department of Fish and Game. By the mid-1980s, growing awareness of the Refuge’s importance as habitat for sensitive species prompted a shift toward more active management and protection of its resources. In 1991, the Service began managing the area as a National Wildlife Refuge. The approved refuge boundary contains 533 acres (Figure 2). Of this, the Service owns 363 acres in fee and a four acre access easement. The State of California owns the remaining lands within the approved boundary (primarily tide lands).

Since 1991, Refuge management efforts have focused on protecting sensitive species, enhancing habitat (including riparian restoration along the Salinas River), and managing public use. Limited recreational opportunities have also been available to the public, including waterfowl hunting, access to surf fishing, and wildlife observation and photography. Much of the management and monitoring on the Refuge has been accomplished in cooperation with various partner organizations. The Service’s approach to managing the Refuge has been regional in perspective, and has emphasized balancing appropriate uses among the various public lands in the Monterey Bay area.

Issues

A variety of issues, concerns, and opportunities were identified through discussions with planning team members and through written and oral comments received during the public scoping period. Below is a summary of the issues, concerns, and opportunities organized by category.

Recreation and Public Use

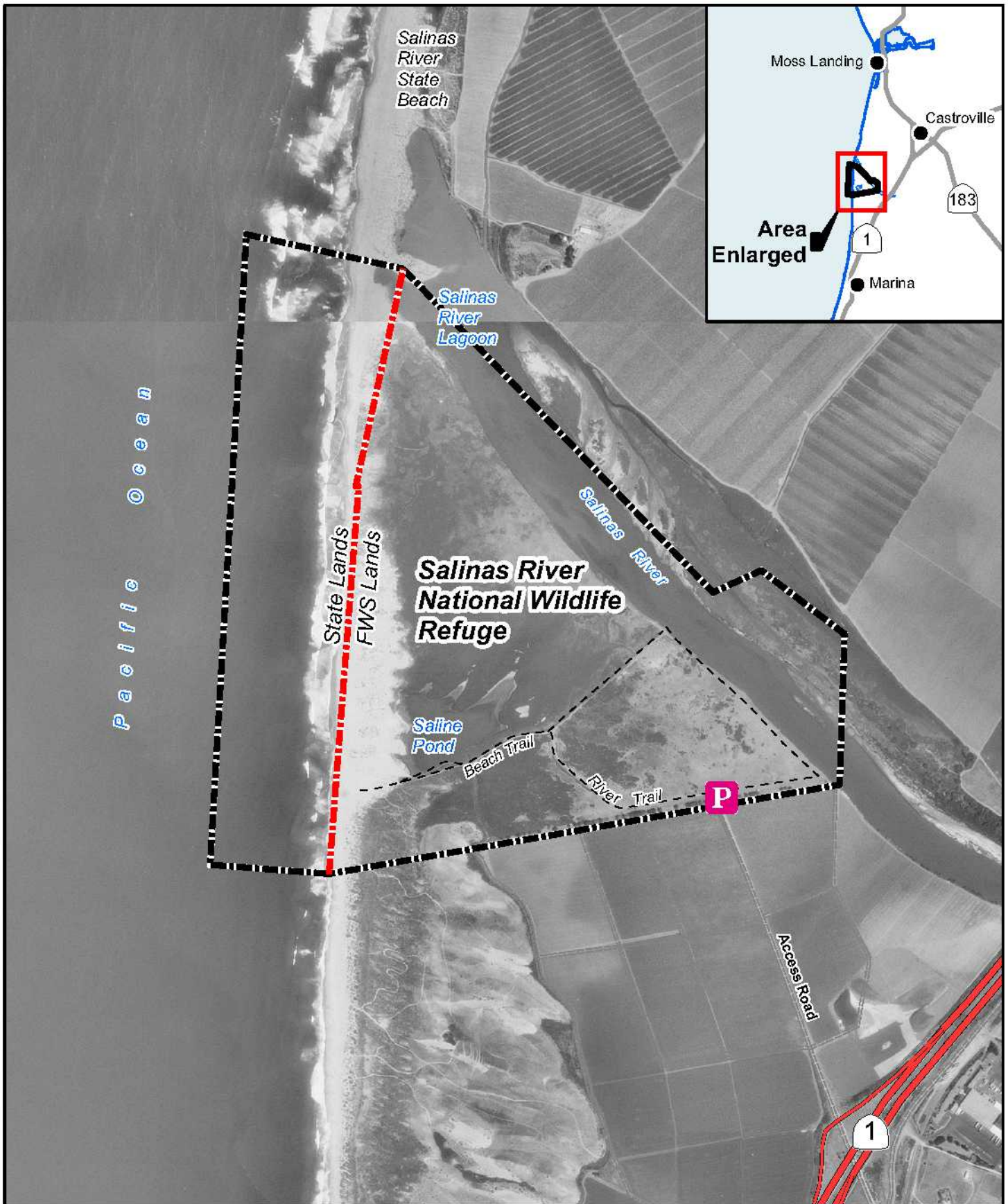
- Prohibit access to the portion of Salinas River mouth below high tide.
- Address the effects of human population density and recreational use on native plants and wildlife.
- Post snowy plover signs in English, Spanish, Chinese, and Tagalog.
- Develop map showing areas in the Monterey region where dogs are allowed.
- Enhance signs to identify areas of the Salinas River where fishing is permitted.
- Investigate impacts of hunting and other recreational activities on wildlife.
- Consider the compatibility of recreational hunting on the Refuge.

Habitat and Wildlife Management

- Address the loss of wildlife habitat.
- Make protecting, restoring, and enhancing wildlife populations and habitats a Refuge priority.
- Develop a database of scientific information regarding habitats and wildlife on the Refuge.
- Conduct a rigorous biological assessment and inventory of all plant, fish, and wildlife species present on the Refuge.
- Use prescribed burning to restore grassland.
- Control invasive species.
- Consider additional approaches to avian predator management.

Refuge Purpose: *The Refuge was established in 1974 because of its “particular value in carrying out the national migratory bird management program” (USC Sec. 667b).*

Figure 2. Refuge Map



CA/NV Refuge Planning Office - July 2001



----- Approved Refuge Boundary

----- State Lands / FWS Lands Boundary



Parking Lot

- Address need for long-term, effective, humane, and socially acceptable predator-management strategies.
- Maintain good water quality on the Refuge.

Administration and Management

- Improve and expand Refuge publicity.
- Determine the CCP's consistency with other relevant programs and existing watershed and ecosystem efforts and ensure partnership with the California Department of Fish and Game.
- Comply with each requirement of the Refuge Administration Act.
- Prioritize activities proposed in the CCP.
- Adopt monitoring, evaluation, and adaptive management strategies.
- Provide additional refuse receptacles at the Refuge.
- Maintain the access road as unpaved.
- Move the Refuge entrance and parking lot to a location directly adjacent to the highway.
- Clearly define areas in the Salinas River where fishing is allowed.
- Improve communication with local airports to address low-flying airplanes and hang gliders.
- Identify additional research opportunities.
- Identify additional funding sources to support expanding the Refuge.

Vegetation

The Refuge supports seven different types of natural plant communities that are typical of coastal dune, salt marsh, riparian, and disturbed environments on the central California coast. The diversity of plant communities on the Refuge reflects variations in soils, topography, and hydrology. Wetland plant communities are found along the Salinas River, Salinas River Lagoon, saline pond, and in low-lying areas in the central portion of the Refuge. Wetland communities include northern coastal salt marsh, coastal brackish marsh, and central coast riparian scrub. Upland plant communities are found at higher elevations on the Refuge.

The Refuge's sand dune complex, which includes both active and stabilized dunes and consists of sands deposited by the Salinas River and redistributed by wind and wave action, provides the major topographic relief on the Refuge. The plant communities of the active dune and beach areas include central foredunes and central dune scrub. The dominant plant community on the Refuge is coyote brush scrub, which occupies stabilized dune uplands over most of the southern portion of the Refuge.

Wildlife

The Refuge provides valuable habitat for a diversity of wildlife species, in part because of its location adjacent to other highly productive wetland and marine habitats. Approximately 279 vertebrate species are known to exist or expected to exist in and around the Refuge, including 116 species of waterbirds. Some 40 special-status wildlife species are known or believed to use habitats on the Refuge.



California brown pelican - Dr. Antonio J. Ferreira Photo

The Salinas River Lagoon is generally too saline to support amphibians and reptiles. However, the Refuge's wetlands provide habitat for numerous resident and migratory bird species. The sandbar at the mouth of the

Salinas River Lagoon, the lagoon shoreline, and islands in the lagoon provide important roosting sites for California brown pelican and roosting and nesting sites for western snowy plover; both species are federally listed. These areas also support stilts, avocets, herons, kingfishers, egrets, terns, gulls, ducks and several other species of waterfowl and shorebirds. During periods of low water, such as late summer, exposed mud and sand provide important foraging habitat for shorebirds. Larger shorebirds, dabbling ducks, herons, and egrets forage in shallow nearshore waters of the lagoon. Areas of deeper water provide foraging for grebes, cormorants, diving ducks, terns, and osprey. Areas of northern coastal salt marsh on the Refuge are frequented by a range of species similar to that found in the lagoon, especially those favoring shallow and more saline water. Wintering waterfowl populations on the Refuge vary from 500 to 3,000 depending on the availability of water. Use is also heavy during the spring migration, when as many as 500 dabbling ducks roost and forage in the area. Waterfowl use both the Salinas River and the saline pond. The central coast arroyo willow riparian forest and scrub communities are frequented by insectivorous birds; the larger trees are used as perches by raptors such as northern harrier, white-tailed kite, osprey, and barn owl.

A variety of mammals use the Refuge's wetland habitats. They include: muskrat, beaver, gray fox, red fox, striped skunk, longtail weasel, Virginia opossum, vagrant shrew, broad-footed mole, brush rabbit, raccoon, dusky-footed woodrat, deer mouse, and coyote. Foxes and coyotes (in addition to raptors) contribute substantially to predation on ground-nesting birds.

The coyote brush scrub habitat of the Refuge's uplands is used by reptiles, birds, and mammals. Common reptiles found in coyote brush scrub and the grassland patches that intergrade with it include the western skink, racer, gopher snake, common king snake, and western terrestrial garter snake. Many birds forage in this habitat, including raptors such as northern harrier, red-tailed hawk, turkey vulture, white-tailed kite, osprey, and barn owl. Typical upland mammals include gray and red foxes, longtail weasel, California ground squirrel, black-tailed jackrabbit, Botta's pocket gopher, deer mouse, and western harvest mouse.

Because dune and beach habitats are unstable and typically lack fresh water, cover, and forage, they generally support a limited range of wildlife. Birds are the most commonly observed wildlife species in these communities. Several bird species use the beaches and dunes of the Refuge for foraging, roosting, and nesting; they include shorebirds, passerines, gulls, and raptors. Other wildlife species observed or expected in the dune and beach habitats of the Refuge are western fence lizard, gopher snake, deer mouse, gray fox, red fox, and longtail weasel.

Fish

The composition of the fish population in the Salinas River Lagoon is typical of that found in lagoon/rivermouth habitats elsewhere on the central California coast. A variety of native freshwater and saltwater fish are found in the occasionally brackish water of the lagoon. Native freshwater species include Sacramento blackfish, Sacramento sucker, Sacramento squawfish, California roach, threespine stickleback, steelhead, and rainbow trout. Introduced freshwater species that may exist in the Salinas River Lagoon include: carp, white bass, bluegill, green sunfish, mosquitofish, and threadfin shad. Year-round saltwater fish include starry flounder and staghorn sculpin. During periods of saltwater connectivity, saltwater species commonly found in the lagoon include: Pacific herring, topsmelt, shiner surfperch, walleye surfperch, silver surfperch, spotfin surfperch, white surfperch, surf smelt, northern anchovy, jacksmelt, English sole, and striped bass. Green sturgeon are also thought to occasionally inhabit the lagoon.

Federally Listed Species at the Refuge

The following sections provide more information on selected special-status species that are known to exist or that may exist on the Refuge. Because the Refuge is charged with the mission of managing for the benefit of federally listed species, this section focuses on federally listed species.

Monterey Gilia (*Gilia tenuiflora* ssp. *arenaria*). Monterey gilia is an annual herb in the phlox family, and is federally listed as endangered. It is known from about 15 locations in coastal Monterey County. The plants found on the Refuge represent the northernmost documented population of the species. Monterey gilia is found on sandy soils in openings in maritime chaparral, cismontane woodland, coastal sand dunes, and coastal scrub communities. Within the Refuge, Monterey gilia is expected to be found in open patches within dune scrub, preferring relatively stable sites that have some leaf litter accumulation and soil development, that offer protection from high winds and salt spray, and that experience no wave or storm-surge activity. It was documented on the Refuge in 1992 by the California Native Plant Society. Threats to the species include small mammal herbivory, loss of habitat because of development and sand mining, and invasion by nonnative species.



Coastal sand dunes - USFWS Photo

Menzies' Wallflower (*Erysimum menziesii*). Menzies' wallflower is a perennial or biennial herb of the mustard family and is federally listed as endangered. Populations of Menzies' wallflower in the vicinity of the Refuge include those at Marina State Beach

and on several private properties near Marina. Menzies' wallflower is not known to exist on the Refuge but suitable habitat exists. Threats to the wallflower include natural disturbances such as storm surges, changes in the course of the Salinas River, habitat loss because of development and sand mining, off-road vehicle traffic, trampling, and invasion of nonnative species such as common ice plant.

Monterey Spineflower (*Chorizanthe pungens* var. *pungens*). The Monterey spineflower is an annual herb in the buckwheat family, and is federally listed as threatened. The spineflower exist near the coast in northern Monterey County and southern Santa Cruz County. It is found in a wide range of habitats but prefers openings on sandy soils in maritime chaparral, oak woodland, coastal dunes, coastal scrub, and grassland communities. In grasslands, the species can be found along road margins, in fuel breaks, and on other disturbed sites. Monterey spineflower was observed on the Refuge in 1992 and again in 2001. The Refuge supports suitable habitat for the Monterey spineflower on open, sandy patches on active dunes and in dune scrub communities. Threats to the Monterey spineflower include loss of habitat as a result of development, and invasion by nonnative species, especially common ice plant.

Smith's Blue Butterfly (*Euphilotes enoptes smithi*). Smith's blue butterfly is federally listed as endangered. It is found in coastal dune scrub and coastal sage scrub plant communities at several Monterey County localities; the Refuge represents the northern limit of the species' range. Both the larval and adult stages of Smith's blue butterfly rely on seaside

buckwheat and seacliff buckwheat host plants for food. At the Refuge, seaside buckwheat and seacliff buckwheat exist in the central dune scrub and northern foredune vegetation communities, and the Refuge supports a population of Smith's blue butterfly of unknown size. Threats to this species in the vicinity of the Refuge include habitat loss because of land development, and damage to remaining habitat from off-road vehicle use and invasion by nonnative species such as common ice plant and European beach grass.

Steelhead (Oncorhynchus mykiss). The steelhead is federally listed as threatened. Steelhead may be present in small numbers in the Salinas River and the Salinas River Lagoon; they were collected in the Salinas River Lagoon during intensive sampling in 1963 and in 1991. The National Marine Fisheries Service has designated the Salinas River Basin as critical habitat for the steelhead. Suitable habitat for steelhead is greatly limited in the

Salinas River system, in part because yearly flows in the lower reaches of the river are extremely variable and water temperatures are inhospitably high during low-flow periods, and also because the migration required to reach upstream spawning and rearing habitats is excessively long.

Western Snowy Plover

(Charadrius alexandrinus nivosus). The western snowy plover is a small, pale-colored shorebird that ranges from southern Washington to Baja California del Sur, Mexico. The Pacific coast population of the western snowy plover is federally listed as threatened. The plover inhabits open beaches in marine, estuarine, and lacustrine settings. It nests in sandy or gravelly substrates such as sand dunes and forages for



Western snowy plover chick - USFWS Photo

invertebrates on wet, sandy shorelines and receding lake or estuary margins. Its breeding season extends from mid-March through mid-September. The Refuge is home to an important breeding population of western snowy plovers. This population consists of a combination of year-round residents and migratory birds that are present only during the breeding season. Migratory plovers may winter in southern California or in coastal Mexico. The birds typically return to the same nest locations each year, although individual nests are generally not reused because of the unstable and shifting nature of coastal dunes. At the Refuge, foraging and nesting areas include the beach strand and foredunes, the unvegetated margins of northern coastal salt marsh habitat, saline pond, and sandy islands within the Salinas River and Salinas River Lagoon. The primary predators of snowy plover adults, chicks, and eggs at the Refuge include nonnative red foxes, free-roaming cats, skunks, northern harriers, kestrels, and gulls. Other potential threats to nesting success include high winds, storm surges, domestic dogs, and crushing by vehicles or pedestrians.

California Brown Pelican (Pelecanus occidentalis californicus). The brown pelican ranges from Central California to Chile; California populations are federally listed as endangered. During the nonbreeding season, the central California coast, including the Refuge, provide important for communal roosting sites. At the Refuge, California brown pelicans use portions of the beach strand, islands in the Salinas River Lagoon, and the

lagoon side of the lagoon-mouth sandspit for day roost areas. Historic threats to the California brown pelican include loss of nesting habitat, disturbance of nesting and roosting sites, egg harvesting, and the use of DDT, which reduced eggshell strength; pelicans were also killed by fishermen.

California Least Tern (Sterna antillarum browni). The California least tern is federally listed as endangered. The species ranges from Baja California northward through the San Francisco Bay area, but nesting is currently restricted to a few sites from San Francisco Bay south to San Diego County. Least terns prefer sparsely vegetated, open, sandy areas. Their nesting habitat is similar to that of the western snowy plover and they are known to nest in close proximity to snowy plovers. Least terns can be found on the Refuge as occasional spring migrants and likely forage in the surf adjacent to the Refuge. Although the Refuge provides suitable nesting habitat, there have been no records of nesting terns on the Refuge since 1937.

Southern Sea Otter (Enhydra lutris nereis). The southern sea otter is federally listed as threatened. The species ranges from Pigeon Point in southern San Mateo County to Purisima Point in Santa Barbara County. Southern sea otters generally remain within about 1 mile of the shoreline. They rest and groom in kelp forests, and dive to forage for sea urchins, crabs, clams, mussels, abalone, and other shellfish. Southern sea otters can be observed in the offshore areas in the vicinity of the Refuge, but they are more likely to be seen in areas where kelp beds are abundant, such as the northern and southern portions of Monterey Bay, which have a rocky substrate. Historically, the southern sea otter was threatened by overhunting for its fur.

Public Use

Recreational Activities at the Refuge.

Waterfowl hunting, access to fishing, and nonconsumptive uses such as wildlife viewing and photography are the primary activities currently occurring at the Refuge.

The Refuge provides access to the beach where surf fishing and hiking occur. Fishing in the Salinas River is prohibited. Wildlife viewing and photography are allowed on the Refuge from designated trails only. Dogs and horses are prohibited on the Refuge. In an effort to protect rare and endangered species most of the Refuge is closed to public use.

The Refuge is one of two sites in the local area open for seasonal public waterfowl hunting, from October through January, and is the only local site offering walk-in hunting opportunities. The Refuge encompasses approximately 120 acres along the Salinas River that would be conducive to hunting; hunting is currently permitted in an area of approximately 45 acres. Species hunted include geese, ducks, coots, and common moorhen.

The Refuge is a key resource for local waterfowl hunters. The nearest alternative location for public waterfowl hunting is the Moss Landing Wildlife Area, approximately 10 miles to the north, which can only be accessed by boat, and other public hunting areas such as the San Luis National Wildlife Refuge near the community of Los Banos are 80 miles or more away.

Facilities at the Refuge.

Because no overnight parking or camping is allowed at the Refuge, existing facilities are limited to an isolated, unpaved parking area and several walking trails. The parking area is small and can only accommodate an estimated 14 to 18 vehicles during the summer. During the winter, when the

parking area is wet, capacity falls to an estimated 5 to 6 parking spaces (Barr pers. comm.). The Refuge has no restroom or picnic facilities and recreationists must carry their own trash off the Refuge. Interpretive signs at the Refuge are limited to one informational sign, near the entrance, which lists allowed uses.

Current Management

The Refuge currently has no integrated plan to guide the management of all of its resources and uses. Current management efforts on the Refuge focus on protecting sensitive species, enhancing their habitats, and managing public access to and use of Refuge lands. A major emphasis of current management is the protection of the western snowy plovers by a variety of means, including: “Sensitive Wildlife Habitat – Closed Area” signs; nest exclosures; symbolic fencing (low cable fence used to discourage humans from approaching nests); and law enforcement patrols. Western snowy plovers are monitored each breeding season for reproductive success and all chicks are banded for further monitoring. In addition, mammalian predators (including nonnative red foxes, feral cats, and skunks) are managed to selectively remove problem predators during the snowy plover breeding season. Black legless lizards are surveyed monthly using a standardized protocol. Coastal sand dune habitat on the Refuge is maintained by intensive hand-weeding and chemically controlling nonnative species. Native grassland has been restored and is maintained by regular mechanical mowing and weed-whacking, and riparian restoration is an ongoing effort along the Salinas River.

Wildlife and habitat protection has been a clear management priority for the Refuge because of the Refuge System’s conservation responsibility. Unlimited or uncontrolled public use is not compatible with this mission nor with the purpose for which the Refuge was created. However, limited recreational opportunities have been available for the public on the Refuge, including waterfowl hunting, surf fishing access, and wildlife observation and photography. Because the State owns the land below mean high water, the Service cannot, under any alternative, prohibit public access to the tidal lands adjacent to the approved Refuge boundary.

Future Management Direction: Goals, Objectives, and Strategies

Following is a description of the future management direction for the Refuge expressed as goals, objectives, and strategies. Goals are broad, open-ended statements of refuge direction. Objectives are concise statements of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Strategies are specific actions, tools, techniques, or a combinations of actions, tools, and techniques used to meet unit objectives.

Goal 1.0. Protect, restore, and enhance populations of migratory birds and other native species and their habitats

Objective 1.1: By 2017, the Refuge will restore native riparian vegetation along at least 1,500 feet of the south bank of the Salinas River to increase the density and diversity of migratory and resident songbirds on the Refuge.

- Continue to plant and maintain riparian trees and shrubs native to the lower Salinas River along the riverbank using cuttings from upstream populations; focus on improving structural diversity and corridor width and maintaining a dense shrub and herbaceous vegetation layer.
Continue to provide support to partners such as the Watershed Institute of California State University Monterey Bay to implement this strategy.
- Work with restoration partners to develop by 2005 a long-term monitoring strategy to evaluate the survival and density of riparian revegetation.
- Evaluate the erosion of the south bank of the Salinas River and the effectiveness of riparian restoration in stabilizing this erosion by

monitoring its location using Global Positioning System equipment. These data will be entered into the Refuge Geographical Information System (GIS) database.

- By 2010, establish a program to monitor the response of migratory and resident bird populations to riparian restoration on the Refuge. Work with staff from the Service's Migratory Bird and Habitat Programs to develop the monitoring strategy, and foster partnerships with nonprofit groups such as the Ventana Wilderness Society to help implement this strategy.

Objective 1.2: Within the mosaic of grassland and northern coastal scrub habitat, the Refuge will maintain between 50 and 75 percent cover of native grassland composed of at least 90 percent (by plant cover) grasses and herbs native to the local area.

- Continue mowing the grassland annually and applying herbicide to control invasive plants such as poison hemlock and wild radish.
- By 2004, initiate prescribed a burn program on the Refuge as an additional management tool (to augment mowing and herbicide use) for the enhancement and maintenance of native grassland.
- By 2005, inventory and quantify the composition of the grassland on the Refuge. This inventory will include documenting historical land use of the grassland and the methodology and results of past restoration efforts.

Objective 1.3: The Refuge will maintain and enhance its wetland and aquatic habitat.

- By 2005, conduct a hydrologic study of the Refuge that includes quantifying the water balance of the saline pond, conducting water quality testing of the pond, and determining the possible sources of any contaminants in the pond.
- By 2005, determine the historic extent of wetlands on the Refuge and the potential to restore degraded wetlands.
- By 2010, complete a two-year inventory of the species present in the Salinas River Lagoon.
- Manage the saline pond for black-necked stilts, American avocets and other shorebirds, as well as waterfowl, other waterbirds, and other species that depend on this habitat.
- Continue to coordinate with the California Coastal Commission, National Marine Fisheries Service, and the Service's Endangered Species division regarding breaching of the Salinas River mouth by the Monterey County Water Resources Agency. If, in the future, this activity is proposed for lands owned or leased by the Service, a special use permit from the Service and continued consultation with the Coastal Commission will be required.



Central dune scrub habitat on Salinas River Refuge - Jones and Stokes Photo

Objective 1.4: The Refuge will enhance the coastal dune habitat for a diversity of native species.

- Maintain and enhance partnerships with the California Department of Parks and Recreation to share information and coordinate monitoring to cooperatively and consistently manage coastal dune habitat.
- Implement techniques to control invasive plants, using a combination of chemical and mechanical means. Chemical control may be conducted only during the nonbreeding season (from October through March). Hand-weeding may be conducted year-round in the backdunes, but only from October through March in the foredunes, where plovers nest. The method to be used will be determined by weed infestation size, potential for habitat disturbance, effects on nontarget species, and efficiency.

Goal 2.0. Protect and enhance populations of endangered, threatened, and rare species, and promote their recovery by restoring and enhancing their natural habitats

Objective 2.1: The Refuge will implement management actions to protect, conserve, and enhance populations of special-status species on the Refuge. Priority will be given to species that are federally or state listed, are proposed for listing, or are candidates for listing.



Beach access trail - Jones and Stokes Photo

- By 2004, develop a GIS database for the Refuge and overlay vegetation and wildlife habitat types. This database will be used to record locations of special-status species and to track habitat management actions, restoration projects, and maintenance actions.
- By 2005, complete a 2-year inventory of the special-status species that exist on the Refuge. This inventory will include mapping the distribution and estimating the size of all populations of special-status species. Inventories will consist of field surveys and literature searches for historical records of special-status species. Locations of special-status species will be entered in the GIS database.
- After completing the 2-year baseline inventory of species on the

Refuge, develop and implement a long-term monitoring program that tracks the effects of management actions and public use on special-status species. Monitoring data will be stored in the Refuge's GIS database.

- By 2008, evaluate and prioritize the special-status species that exist on the Refuge to determine which species require active management and the level and type of management needed. Criteria for prioritization will include: listing status, implementation of actions identified in Recovery Plans, status in the Monterey Bay area, taxonomic distinctiveness, population size on the Refuge, threats to survival, sensitivity to disturbance, and the ability of the Refuge to contribute to the recovery or conservation of the species.
- Encourage research on each priority special-status species on the Refuge to determine its ecology relevant to conservation. Research could be conducted by local universities or other organizations with assistance from the Refuge in the form of funding, supplies, volunteers, or technical assistance.

- By 2006 (assuming additional lands are acquired), establish a satellite Refuge office in Monterey or Santa Cruz County to permit more efficient management of the two Monterey Bay area National Wildlife Refuges. Currently, Refuge staff are headquartered 80 miles away in Fremont, and a significant amount of time is spent commuting to and from the Refuge. This strategy will assist the Refuge in achieving all of the goals and objectives in this CCP.
- By 2010, develop habitat management strategies to preserve and enhance populations of high-priority special-status species on the Refuge. The impacts of public use on special status species will also be monitored. These strategies will include detailed prescriptions for habitat management, protocols to monitor the status of these species, and methods to evaluate the effectiveness of management actions. The strategies will cover federally listed species such as the California brown pelican, Smith's blue butterfly, Monterey gilia, and Monterey spineflower, and high-priority special-status species such as the black legless lizard.

Objective 2.2: The Refuge will enhance the population of the western snowy plover on the foredunes of the Refuge so that by 2017 the snowy plover produces at least 1.0 fledged chick per male and there is at least 35 acres of high-quality breeding habitat for the plover.

- Continue to facilitate regular meetings of the Monterey Bay Area Snowy Plover Working Group to share information and develop successful management strategies to increase the population and geographic extent of snowy plovers throughout the Monterey Bay area.
- Continue partnership with Point Reyes Bird Observatory to monitor snowy plover reproductive success on the Refuge. Each nest will be closely monitored and data will be collected on adult breeding population size, hatch rates, and fledge rates. All snowy plover chicks will be banded in order to collect information on survival and movement patterns.
- Remove all European beach grass, iceplant, and other invasive plants from the foredunes of the Refuge by 2017. Control invasive plants in fall and winter (outside the plover breeding season) using chemical and mechanical means such as herbicide spraying, hand pulling, or heavy equipment. Techniques will be chosen based on their likelihood of success, their financial and labor costs, and their low potential for adverse environmental effects.
- Install clearer 'closed area' signs at the boundary of sensitive dune habitat by 2003. These signs should be similar to signs used at other plover nesting sites in the region. Install entrance signs, at the parking lot and at the northern and southern beach access points, that clearly state that dogs and horses are not allowed on the Refuge (except dogs when hunting).
- Develop and implement a docent program on the Refuge by 2006, in coordination with other agencies, to educate Refuge users during the sensitive breeding season on the ecology of western snowy plovers and the sensitivity of their habitat and nests to disturbance.
- Design and install interpretive signs at the entrance to and along the coastal dune trail by 2007 that explain to visitors the ecology of the western snowy plover and the plover's sensitivity to disturbance. Coordinate with other agencies to design interpretive signs with a message that is consistent with interpretive signs for snowy plovers at other sites in the Monterey Bay area.
- By 2005, install symbolic fencing along beach trail around plover nests likely to be disturbed by the public; if trespass into closed areas continues, install symbolic fencing along the edge of foredune habitat to delineate sensitive areas and restrict human access.
- Increase enforcement of the closed dune habitat by increasing the presence of Service staff and law enforcement officers on the Refuge to at least one day per week each (two person-days per week) during the plover breeding season.

- Negotiate a long-term lease with the State Lands Commission to manage the beach, foredunes, and tidelands immediately west of the current boundary.
- Continue to implement the Monterey Predator Management Program on the Refuge to control predation on western snowy plovers by mammals. This program uses humane and target species-specific methods to control problem mammalian predators, primarily red foxes, feral cats, and skunks. Nonlethal methods (e.g., box-type traps, soft-catch padded leghold traps, hazing, bow nets, lures) will be used whenever possible. Lethal methods, including shooting and euthanasia, will be used when necessary. The Service will continue to coordinate this effort with other agencies such as the California Departments of Parks and Recreation and Fish and Game, and the U.S. Department of Agriculture Wildlife Services.
- Revise the Goals in the Refuge's Predator Management Plan to the following: "Maintain a 5-year productivity of at least 1.0 fledged chick per male and 40 breeding adults to reflect best available scientific information on requirements for achieving a self-sustaining population."
- Implement the Avian Predator Management Plan to provide for removal and relocation of individual American kestrels, northern harriers, loggerhead shrikes, crows, ravens and other problem avian predators that threaten nesting western snowy plovers on the Refuge and adjacent lands.

Objective 2.3: The Refuge will protect and will encourage protection of as much of the coastal sand dune ecosystem in the Monterey Bay area as possible.

- Establish partnerships with other landowners of coastal dune habitat to manage this habitat for conservation (e.g., controlling invasive plants on coastal dunes) through cooperative agreements, conservation easements, or financial incentives such as funding through the Partners for Wildlife program. The Service could also provide technical assistance, volunteer labor, financial assistance, or supplies to landowner partners.
- Explore expansion of the current Refuge boundary by initiating the Service's planning process for expanding refuges, which culminates with a Land Protection Plan, Conceptual Management Plan, and NEPA document.

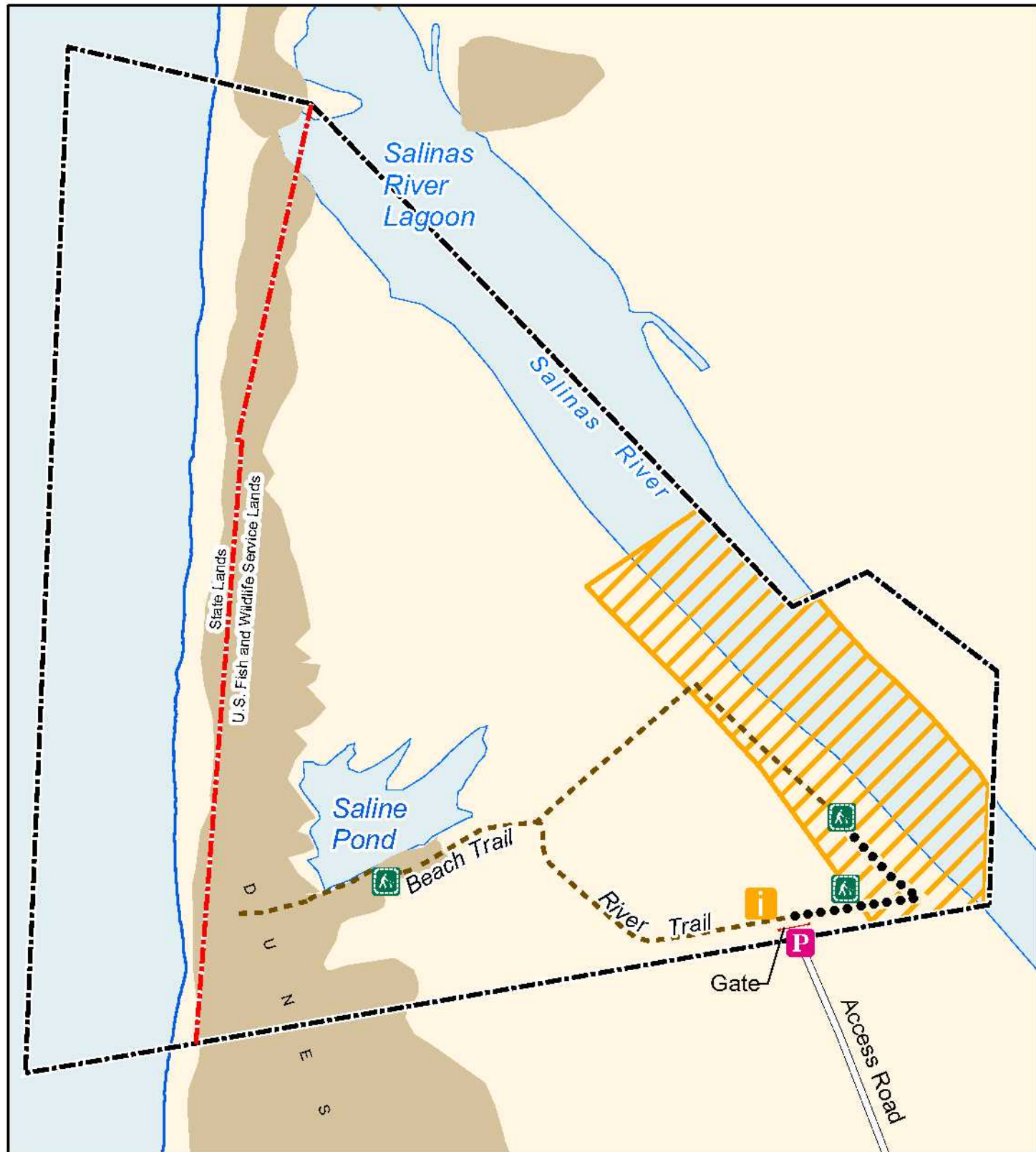
Goal 3.0. Provide opportunities for safe, unique, wildlife-dependent recreation when compatible with the purpose and goals of the Refuge

Objective 3.1: The Refuge will provide limited opportunities for hunting and access to fishing that are compatible with Refuge goals for protecting special-status species (Figure 3).

- Reduce the hunting area on the Refuge from approximately 45 acres to approximately 38 acres to reduce disturbance to pelicans roosting on the Refuge's island in the Salinas River. Clearly delineate the hunt area with signs.
- Annually monitor hunting use of the Refuge beginning in 2004. The information gathered will be used to review and possibly revise Refuge hunting regulations to enhance the quality and safety of the Refuge's hunting program.
- Continue to provide access to opportunities for surf fishing between the high tide and surf zones.

Objective 3.2: The Refuge will provide opportunities for wildlife observation and photography that will enable visitors to experience and enjoy the wildlife of the Refuge and develop an appreciation for wildlife species and their unique habitats.

Figure 3. Public Use Plan



CA/NV Refuge Planning Office - Nov 2002

0 250 500 1,000
Feet

- Approved Refuge Boundary
- State / FWS Lands Boundary
- ▨ Hunt Area (seasonal)
- ⓘ Orientation Kiosk
- Ⓟ Parking Lot
- ♿ Wheelchair Accessible Trail
- Ⓜ Interpretive Signs
- Existing Trails

- By 2005, design and install an orientation kiosk at the Refuge entrance that includes three signs: a sign providing a trail map, trail information, and trail regulations; a sign that describes the National Wildlife Refuge System and allowed uses on the Refuge; and interchangeable signs for hunting and snowy plover nesting seasons.
- By 2007, construct and maintain a 1,500-foot trail accessible to persons with disabilities from the parking lot of the Refuge to the Salinas River. This trail will improve access to the Salinas River and minimize the impacts of public use through these sensitive habitats.
- By 2007, improve the parking lot with a gravel or other unpaved surface to provide visitors with better all-season parking at the Refuge.
- Maintain trails on the Refuge and clearly delineate trail portion along the Salinas River.
- Coordinate with the California Coastal Commission and the Service's



Entrance signs at Salinas River Refuge - Jones and Stokes Photo

Endangered Species Division on the prospect of routing the proposed pedestrian California Coastal Trail through the Refuge. Siting, design, and use of the trail will need to consider potential effects to sensitive resources and will need to be compatible with the Refuge's purpose.

Objective 3.3: The Refuge will expand opportunities for interpretation and environmental education that will foster visitors' appreciation, understanding, and stewardship of the Refuge's habitats and protected species.

- By 2007, design and install interpretive signs along existing trails to explain the ecology of native habitats on the Refuge and the species within them.

- Maintain and enhance existing environmental education partnerships with the California State University and develop new partnerships with other local agencies, schools, universities, and organizations.
- Develop environmental education and interpretive materials including a Refuge brochure, fact sheets on specific species and habitats, and a guide for educators on endangered species issues.
- Conduct a sitewide inventory of potential archaeological and historic resources on the Refuge; incorporate information about these resources into interpretive and educational material (Strategies 3.3.1 and 3.3.3).

Objective 3.4: The Refuge will take measures to ensure the safety of resources, property, and visitors.

- Increase law enforcement patrols.
- Develop cooperative agreements with State and local agencies to support increased law enforcement patrols.

Plan Implementation

Funding and Personnel

To implement the proposed action and to achieve the objectives and goals of this CCP, the Service will need additional funding and staff. Table 11 describes the budget proposals and staffing needs for the Refuge for each project proposed in this CCP. Projects include: upgrading existing facilities (e.g., covering the parking lot with a gravel surface), constructing new facilities or amenities (orientation kiosk and interpretive signs), monitoring

species and habitat, and management actions such as grassland mowing, prescribed burning, and avian predator management. Fully implementing the projects proposed in this CCP will require that the Refuge increase its current annual budget by 156 percent to approximately \$320,000. If the proposed action is implemented, full staffing for both the Refuge and the nearby Ellicott Slough NWR will include the following:

- Full-time Refuge Manager
- Full-time Refuge Biologist
- Full-time Biological Science Technician
- Full-time Park Ranger
- Part-time Maintenance Worker

In addition, an intern may be hired to help conduct habitat and species inventories and monitoring and to coordinate the new docent program.

Partnership Opportunities

A number of landowners, State agencies, and educational and scientific organizations conduct research, monitoring, and management activities on or near the Refuge. These partners play an important role in helping the Service achieve its mission and the Refuge's goals. The Service will continue to rely on these and other partners in the future to help implement this CCP and to provide input for future CCP updates. This CCP identifies many projects that will provide opportunities for existing or new partners. There is great potential for more public participation and assistance in the management and interpretation of the Refuge given its proximity to important population centers such as Monterey, Salinas, and Santa Cruz. The Service welcomes and encourages more public participation in the Refuge.

Adaptive Management

This CCP provides for adaptive management of the Refuge. Adaptive management is a flexible approach to long-term management of biotic resources that is directed by the results of ongoing monitoring activities and new data. Management techniques, objectives, and strategies are regularly evaluated in light of monitoring results, new scientific understanding, and other new information. These periodic evaluations are used over time to adapt both management objectives and techniques to better achieve the Refuge's goals.

Monitoring is an essential component of adaptive management in general, and of this CCP; specific monitoring strategies have been integrated into the goals and objectives described in this CCP whenever possible. All habitat management activities will be monitored to assess whether the desired effect on wildlife and habitat components has been achieved. In order to conduct an effective monitoring program, it is important to establish the baseline, or starting condition. It will also be important to begin studies to monitor the response of wildlife to increased public use of the Refuge in the form of observation and environmental education.

Plan Amendment and Revision

CCPs are meant to evolve with each individual refuge unit, and the Improvement Act specifically requires that CCPs be formally revised and updated at least every 15 years. The formal revision process would follow the same steps as the CCP creation process. In the meantime, however, the Service will be reviewing and updating this CCP periodically (at least as often as every five years) based on the results of the adaptive management program. This CCP will also be informally reviewed by Refuge staff while preparing annual work plans and updating the Refuge database. It may also be reviewed during routine inspections or programmatic evaluations. Results of any or all of these reviews may indicate a need to modify the plan. The goals described in this CCP will not change until they are re-evaluated

as part of the formal CCP revision process. However, the objectives and strategies may be revised to better address changing circumstances or to take advantage of increased knowledge of the resources on the Refuge. If changes are required, the level of public involvement and associated NEPA documentation would be determined by the Refuge Manager.