

Appendix A. Citations

Citations

- Beck, W. A. and Y. D. Haase. 1974. *Historical atlas of California*. University of Oklahoma Press. Norman, Oklahoma.
- Big Sur Land Trust. 1992. The Monterey Bay State Seashore: a study for the preservation of the Monterey Bay dunes. October. Carmel, CA.
- Breschini, G. S., T. Haversat, and K. Seavey. 1996. Identification and evaluation of World War II foundations at the proposed Moss Landing Marine Laboratory, Moss Landing, Monterey County, California.
- Breschini, G. S., T. Haversat, and R. P. Hampson. 1983. A cultural resources overview of the coast and coast-valley study areas. Salinas, California. Prepared for U.S. Bureau of Land Management.
- Buising, A. V. and J. P. Walker. 1995. Preliminary palinspastic paleogeographic reconstructions for the greater San Francisco Bay area, 15 Ma–5 Ma. Pages 141–159 in Sanginés, E. M., D. W. Andersen, and A. V. Buising, eds., 1995. *Recent geologic studies in the San Francisco Bay area*. (Volume 26.) Pacific Section SEPM. Fullerton, California.
- Burger, J. 1986. The effect of human activity on shorebirds in two coastal bays in northeastern United States. *Environ. Conserv.* 13(2):123–130.
- Burgmann, R., R. Arrowsmith, T. Dumitru, and R. McLaughlin. 1994. Rise and fall of the southern Santa Cruz Mountains, California, from fission-tracks, geomorphology, and geodesy. *Journal of Geophysical Research* 99:20,181–20,202.
- California Department of Conservation. 1992. RMC Lonestar Lapis Sand Plant reclamation plan. Final environmental impact report. (State Clearinghouse #89030165.) State Mining and Geology Board. Sacramento, CA. (Also available from the City of Marina Planning Department, Marina, CA).
- California Native Plant Society. 1992. Plant list from field survey, dated 2/17/92. On file at San Francisco Bay National Wildlife Refuge Complex Headquarters, Fremont, CA.
- California Native Plant Society. 2001. Plant list from field survey, June. On file at San Francisco Bay National Wildlife Refuge Complex, Fremont, CA.
- California Natural Diversity Data Base. 2000. California Department of Fish and Game, Natural Heritage Division. Sacramento, California.
- California Regional Water Quality Control Board. 1998. Case closure summary, Salinas River National Wildlife Refuge. Letter report to the U.S. Fish and Wildlife Service. Central Coast Region, San Luis Obispo, California.
- California State Parks, Monterey, California. May 10, 2000. Facsimile and telephone conversation – Office Technician Maureen Hicks.
- Dietz, S. A., W. Hildebrandt, and T. Jones. 1988. *Archaeological investigations at Elkhorn Slough: CA-MNT-229, a middle period site on the central California coast*. (Papers in Northern California Anthropology.) Northern California Anthropological Group. Berkeley, California.
- Dondero, S. B. 1984. Preliminary report on archaeological testing, CA-MNT-229, Elkhorn Slough, Monterey County, California. California Department of Transportation. Sacramento, California.

- Ellsworth, W. L., 1990, Earthquake history, 1769–1989. Pages 153–187 in R. E. Wallace, (ed.), *The San Andreas fault system*. (Professional Paper 1515.) U.S. Geological Survey. Menlo Park, California.
- Federal Emergency Management Agency. 1991. Flood insurance rate map, unincorporated Monterey County – Community Panel 60195 0045. Washington, DC.
- Federal Geographic Data Committee. 1997. National vegetation classification standard. (FGDC-STD-005.) June. Vegetation Subcommittee. Available at <http://www.fgdc.gov/standards/documents/standards/vegetation/tables19-41.pdf>.
- Fink, A. 1978. *Monterey County: the dramatic story of its past*. Fresno Valley Publishers. Fresno, California.
- Greenlee, J. M., and J. H. Langenheim. 1990. Historic fire regimes and their relation to vegetation patterns in the Monterey Bay Area of California. *American Midland Naturalist*, 124:239–253.
- Hart, J. D. 1978. *A companion to California*. Oxford University Press. New York, New York.
- Hart, E.W., and W. A. Bryant. 1997 (rev., supplements 1 and 2 added 1999). Fault-rupture hazard zones in California, Alquist-Priolo Earthquake Fault Zoning Act with index to earthquake fault zones maps. (Special Publication 42.) California Division of Mines and Geology. Sacramento, California.
- Hershey, A. E., G. J. Niemi, A. R. Lima, and R. R. Regal. 1998. Effects of *Bacillus thuringiensis israelensis* (Bti) and methoprene on macroinvertebrates in Minnesota wetlands. *Ecological Applications* 8(1):41–60.
- Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. California Department of Fish and Game. Sacramento, California.
- Hoover, M. B., et al. 1990. (Revised by Douglas E. Kyle.) *Historic spots in California*. Stanford University Press. Stanford, California.
- Jacques, D. L., and D. W. Anderson. 1988. Brown pelican use of the Moss Landing Wildlife Management Area: roosting behavior, habitat use, and interactions with humans. (Nongame Bird and Mammal Section Report.) California Department of Fish and Game.
- Jennings, C. W., and R. G. Strand. 1959. Geologic map of California – Santa Cruz sheet. Scale 1:250,000. California Division of Mines and Geology. Sacramento, California.
- John Gilchrist & Associates, The Habitat Restoration Group, Philip Williams & Associates, Wetlands Research Associates, and the Monterey County Water Resources Agency. 1997. Salinas River Lagoon management and enhancement plan. Prepared for the Salinas River Lagoon Task Force and the Monterey County Water Resources Agency. Monterey, California.
- Jones, T. L., and K. Hylkema. 1988. Two proposed projectile point types for the Monterey Bay Area: the Año Nuevo longstem and the Rossi stemmed. *Journal of California and Great Basin Anthropology*. No. 3. Berkeley, California.
- Jones, T. L., and D. A. Jones. 1992. Elkhorn Slough revisited: reassessing the chronology of CA-MNT-229. *Journal of California and Great Basin Anthropology* 14(2):159–179.
- Kroeber, A. L. 1925. *Handbook of the Indians of California*. (Bulletin 78). Bureau of American Ethnology. Washington, DC.
- Levy, R. 1978. Costanoans. Pages 485–495 in R. L. Heizer (ed.), *Handbook of North American Indians, Volume 8*. Smithsonian Institution. Washington, DC.

- Margolin, M. 1978. *The Ohlone way*. Heyday Books. Berkeley, California.
- Marten, G. G., W. Che, and E. S. Bordes. 1993. Compatibility of cyclopoid copepods with mosquito insecticides. *Jour. Am. Mosquito Control Assoc.* 9(2):150–154.
- Mattinson, J. M., and E. W. James. 1985. Salinian block U-Pb age and isotopic variations: implications for origin and emplacement of the Salinian terrane. Pages 215–226 in Howell, D. G. (ed.), *Tectonostratigraphic terranes of the circum-Pacific region*. (Earth Science Series, No. 1.) Circum-Pacific Council for Energy and Mineral Resources. Houston, Texas.
- Milliken, R. 1988. Ethnographic context. Chapter 4 in Dietz, S. A., W. Hildebrandt, and T. Jones. 1988. *Archaeological investigations at Elkhorn Slough: CA-MNT-229, a middle period site on the central California coast*. (Papers in Northern California Anthropology). Northern California Anthropological Group. Berkeley, California.
- Milliken, R., J. Nelson, W. Hildebrandt, and P. Mikkelsen. 1999. The Moss Landing Hill site, technical report on archaeological Studies at CA-MNT-234. Manuscript submitted to California State University. Seal Beach, California.
- Monterey County Agricultural Commissioner's Office. 1999. Agricultural crop report 1998. Salinas, California.
- Monterey Bay Unified Air Pollution Control District. April 19, 2000. E-mail correspondence – Air Quality Specialist Janet Brennan.
- Moratto, M. J. 1984. *California archaeology*. Academic Press. San Diego, California.
- Pfister, C., B. A. Harrington, and M. Lavine. 1992. The impact of human disturbance on shorebirds at a migration staging area. *Biol. Conserv.* 60(2): 115–126.
- Pickart, A. J., and J. O. Sawyer. 1998. Ecology and Restoration of Northern California Coastal Dunes. California Native Plant Society, Sacramento, CA.
- Point Reyes Bird Observatory. July 2000. Personal communication - Director of Coastal and Estuarine Research Gary Page.
- Roberson, D. and C. Tenney, eds. 1993. Atlas of the Breeding Birds of Monterey County, California. Monterey Peninsula Audubon Society, Monterey, CA.
- Salinas River National Wildlife Refuge. July 2000. Personal communication – Refuge Biologist Ivette Loredó.
- Salinas River National Wildlife Refuge. April 12, 2000. Telephone conversation – Refuge Manager Chris Barr.
- Sawyer, J. O., and T. Keeler-Wolf. 1995. A manual of California vegetation. California Native Plant Society. Sacramento, CA.
- Sedlock, R. L. Tectonic framework, origin, and evolution of the San Francisco Bay region. Pages 1–17 in Sanginés, E. M., D. W. Andersen, and A. V. Buising, eds., 1995. *Recent geologic studies in the San Francisco Bay area*. (Volume 26.) Pacific Section SEPM. Fullerton, California.
- Shuford, W. D., G. W. Page, J. G. Evans, and L. E. Stenzel. 1989. Seasonal abundance of waterbirds at Point Reyes: a coastal California perspective. *Western Birds* 20:137–265.
- Soil Conservation Service. 1978. Soil survey of Monterey County, California. U. S. Department of Agriculture. Washington, DC.

- State of California, Department of Transportation. 1999. 1998 traffic volumes on California state highways. Sacramento, California.
- State of California, Employment Development Department. 2000. Salinas MSA labor market information 1999–2000. Sacramento, California.
- Swernoff, M. 1981. A reconnaissance cultural resources survey of Fort Ord, California. Prepared under the direction of the U.S. Army Corps of Engineers, Sacramento District. Professional Analysts. Eugene, Oregon.
- U.S. Army Corps of Engineers. 1992. Flora and fauna baseline study of Fort Ord, California. Prepared with technical assistance from Jones & Stokes. Sacramento, California.
- U.S. Bureau of the Census. 1992. 1990 census of population and housing. Washington, DC.
- U.S. Department of Defense. 1997. Real property contaminated with ammunition, explosives or chemical agents. Chapter 12 in *Ammunition and Explosive Safety Standards*. (Standard 6055.9-STD.) Office of the Undersecretary of Defense for Acquisition and Technology. Washington, DC.
- U.S. Fish and Wildlife Service. 1983. California brown pelican recovery plan. U.S. Fish and Wildlife Service, Region 1. Portland, Oregon.
- U.S. Fish and Wildlife Service. 1984. Smith's blue butterfly recovery plan. U.S. Fish and Wildlife Service, Region 1. Portland, Oregon.
- U.S. Fish and Wildlife Service. 1993. Endangered and threatened wildlife and plants; determination of threatened status for the Pacific coast populations of the western snowy plover. U.S. Fish and Wildlife Service, Region 1, Sacramento Field Office. Sacramento, California.
- U.S. Fish and Wildlife Service. 1998. Seven coastal plants and the Myrtle's silverspot butterfly recovery plan. U.S. Fish and Wildlife Service, Region 1, Ventura and Sacramento Field Offices. Portland, Oregon.
- U.S. Fish and Wildlife Service. 2000. Refuge planning policy pursuant to the National Wildlife Refuge System Administration Act as Amended by the National Wildlife Refuge System Improvement Act of 1997. Final Notice. Federal Register 65:33892–33919.
- U.S. Fish and Wildlife Service, Ecological Services Office, Sacramento, California. July 2000. Personal communication – Wildlife Biologist Diane Elam.
- U.S. Fish and Wildlife Service. 2001. Western Snowy Plover (*Charadrius alexandrinus nivosus*) Pacific coast population draft recovery plan. U.S. Fish and Wildlife Service, Region 1. Portland, Oregon.
- U.S. Fish and Wildlife Service. July 2001. Personal communication – Roger Wong, Fire Management Officer.
- U.S. Fish and Wildlife Service. In preparation. Draft recovery plan for the western snowy plover. U. S. Fish and Wildlife Service, Ecological Services Office. Sacramento, California.
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds. 1990. *California Wildlife, Volume III: Mammals*. California Department of Fish and Game. Sacramento, CA.

Appendix B. Glossary of Terms

Glossary of Terms

<i>Adaptive Management</i>	The rigorous application of management, research, and monitoring to gain information and experience necessary to assess and modify management activities. A process that uses feedback from refuge research and monitoring and evaluation of management actions to support or modify objectives and strategies at all planning levels.
<i>Alternatives</i>	Different sets of objectives and strategies or means of achieving refuge purposes and goals, helping fulfill the Refuge System mission, and resolving issues.
<i>Biological Diversity</i>	The variety of life, including the variety of living organisms, the genetic differences among them, and the communities in which they occur.
<i>Biological Integrity</i>	Biotic composition, structure, and function at the genetic, organism, and community levels consistent with natural conditions, including the natural biological processes that shape genomes, organisms, and communities.
<i>CFR</i>	Code of Federal Regulations.
<i>Compatible Use</i>	A wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the Refuge System or the purposes of the refuge unit (Service Manual 603 FW 3.6).
<i>Comprehensive Conservation Plan (CCP)</i>	A document that: (1) describes the desired future conditions of a refuge or planning unit and provides long-range guidance and management direction to achieve the purposes of the refuge; (2) helps fulfill the mission of the Refuge System; (3) maintains and, where appropriate, restores the ecological integrity of each refuge and the Refuge System; (4) helps achieve the goals of the National Wilderness Preservation System; and (5) meets other mandates.
<i>Concern</i>	See Issue.
<i>Coordination Area</i>	A wildlife management area made available to a State, by “(A) cooperative agreement between the United States Fish and Wildlife Service and the State fish and game agency pursuant to Section 4 of the Fish and Wildlife Coordination Act (16 U.S.C. 664); or (B) long-term leases or agreements pursuant to the Bankhead-Jones Farm Tenant Act (50 Stat. 525; 7 U.S.C. 1010 et seq.).” States manage Coordination Areas, but they are part of the Refuge System. CCPs are not required for Coordination Areas.
<i>Cultural Resource Overview</i>	A comprehensive document prepared for a field office that discusses, among other things, an area’s prehistory and cultural history, the nature and extent of known cultural resources in the area, relevant previous research, management objectives, and resource management conflicts or issues, and provides a general statement on how program objectives should be met and conflicts resolved. An overview should reference or incorporate information from a field offices background or literature search as described in Section VIII of the Cultural Resource Management Handbook (Service Manual 614 FW 1.7).

<i>Cultural Resource Inventory</i>	A professionally conducted study designed to locate and evaluate evidence of cultural resources present within a defined geographic area. There are various levels of cultural resources inventories, including background literature search, comprehensive field examination to identify all exposed physical manifestations of cultural resources, and sample inventory to project site distribution and density over a larger area. Evaluation of identified cultural resources to determine eligibility for the National Register follows the criteria found in 36 CFR 60.4 (Service Manual 614 FW 1.7).
<i>Designated Wilderness Area</i>	An area designated by the United States Congress for management as part of the National Wilderness Preservation System (Service Manual 610 FW 1.5).
<i>Ecological Integrity</i>	The integration of biological integrity, natural biological diversity, and environmental health; replication of natural ecological conditions.
<i>Ecosystem</i>	A biological community together with its environment, functioning as a unit. For administrative purposes, we have designated 53 ecosystems covering the United States and its possessions. These ecosystems generally correspond with watershed boundaries, and their sizes and ecological complexity vary.
<i>Ecosystem Approach</i>	An approach to conservation and restoration that focuses on protecting or restoring the natural function, structure, and species composition of an ecosystem, recognizing that all components are interrelated.
<i>Environmental Health</i>	Abiotic composition, structure, and function of the environment consistent with natural conditions, including the natural abiotic processes that shape the environment.
<i>Environmental Impact Statement (EIS)</i>	A detailed written statement, required by section 102(2)(C) of the National Environmental Policy Act, that analyzes the environmental impacts of a proposed action, including unavoidable adverse effects of the project, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources (40 CFR 1508.11).
<i>Environmental Assessment (EA)</i>	A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose of and need for an action and the reasonable alternatives to the action, and analyzes the action's potential impacts in sufficient detail to determine whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 1508.9).
<i>Finding of No Significant Impact (FONSI)</i>	A document prepared in compliance with the National Environmental Policy Act and supported by an environmental assessment that briefly explains why a Federal action will have no significant effect on the natural or human environment (40 CFR 1508.13).
<i>Goal</i>	Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units.

<i>Issue</i>	Any unsettled matter that requires a management decision, such as an initiative, opportunity, resource management problem, threat to the resources of the unit, conflict between uses, public concern, or the presence of an undesirable resource condition.
<i>Management Alternative</i>	See Alternative.
<i>Management Concern</i>	See Issue.
<i>Management Opportunity</i>	See Issue.
<i>Mission Statement</i>	Succinct statement of the unit’s purpose and reason for being (Region 7 Planning Staff).
<i>National Wildlife Refuge (refuge)</i>	A designated area of land or water, or an interest in land or water, within the Refuge System (excluding Coordination Areas). Find a complete listing of all units of the Refuge System in the current Annual Report of Lands Under Control of the U.S. Fish and Wildlife Service.
<i>National Wildlife Refuge System Mission (mission)</i>	“The mission of the System 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.”
<i>National Environmental Policy Act of 1969 (NEPA).</i>	Requires all agencies, including the Service, to examine the environmental impacts of their actions and to incorporate environmental information and public participation into the planning and implementation of all actions. Federal agencies must integrate NEPA compliance with other planning requirements, and prepare appropriate NEPA documents to facilitate better environmental decision making (40 CFR 1500).
<i>National Wildlife Refuge System, Refuge System, or System</i>	Various categories of lands, waters, and interests therein that are administered by the Secretary of the Interior for the protection, conservation, and where appropriate, restoration of fish and wildlife, including species that are threatened with extinction; includes wildlife ranges, game ranges, and wildlife management or waterfowl production areas.
<i>No Action Alternative</i>	An alternative under which existing management would be continued.
<i>Non-Priority Public Uses</i>	Any use other than a compatible wildlife-dependent recreational use.
<i>Notice of Intent (NOI)</i>	A notice that an environmental impact statement will be prepared and considered (40 CFR 1508.22). Published in the Federal Register.
<i>Objective</i>	A concise statement 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. Objectives derive from goals and provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies. Objectives should be attainable, time-specific, and measurable.
<i>Opportunities</i>	Potential solutions to issues.

<i>Planning Area</i>	The area upon which a planning effort will focus. A planning area may include lands outside existing planning unit boundaries currently under study for future inclusion in the Refuge System and/or partnership planning efforts. It also may include watersheds or ecosystems that are outside our jurisdiction but affect the planning unit. At a minimum, the planning area includes all lands within the authorized boundary of a refuge.
<i>Planning Team</i>	Planning teams are interdisciplinary in membership and function. Teams generally consist of a Planning Team Leader, the Refuge Manager and staff biologists, a state natural resource agency representative, and other appropriate program specialists (e.g., social scientist, ecologist, recreation specialist). We also will ask other Federal and Tribal natural resource agencies to provide team members, as appropriate. The planning team prepares the CCP and appropriate NEPA documentation.
<i>Planning Unit</i>	A single refuge, an ecologically or administratively related refuge complex, or a distinct unit of a refuge. The planning unit also may include lands currently outside refuge boundaries.
<i>Preferred Alternative</i>	The Service’s selected alternative at the draft CCP stage.
<i>Prescribed Fire</i>	The application of fire to wildland fuels to achieve identified land use objectives (Service Manual 621 FW 1.7). May be ignited naturally or intentionally.
<i>Priority Public Uses</i>	Compatible wildlife-dependent recreational uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation) are the priority general public uses of the System and shall receive priority consideration in refuge planning and management.
<i>Proposed Action</i>	The Service’s proposed action for Comprehensive Conservation Plans is to prepare the CCP and implement the preferred alternative it outlines.
<i>Public Involvement</i>	The process by which interested and affected individuals, organizations, agencies, and governmental entities participate in the planning and decision-making process.
<i>Public Involvement Plan</i>	Broad long-term guidance for involving the public in the comprehensive planning process.
<i>Public</i>	Individuals, organizations, and groups; officials of Federal, State, and local government agencies; Native American tribes; and foreign nations. It may include anyone outside the core planning team. It includes those who may or may not have indicated an interest in Service issues and those who do or do not realize that Service decisions may affect them.
<i>Purposes of the Refuge</i>	“The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge subunit.” For refuges that encompass wilderness designated by Congress, the purposes of the Wilderness Act are additional purposes of the refuge.
<i>Refuge Operating Needs System (RONS)</i>	The Refuge Operating Needs System is a national database that lists the unfunded operational needs of each refuge. We include projects required to implement approved plans and meet goals, objectives, and legal mandates.

<i>Refuge Purposes</i>	The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, a refuge unit, or refuge subunit (Service Manual 602 FW 1.5).
<i>Refuge Goal</i>	See Goal.
<i>Step-Down Management Plan</i>	A plan that provides specific guidance on management subjects (e.g., habitat, public use, fire, safety) or groups of related subjects. It describes strategies and implementation schedules for meeting CCP goals and objectives.
<i>Stakeholders</i>	The people who have a direct interest or involvement in something (usually open space or urban lands or a plan for the management of such lands). Stakeholders in a CCP usually include Service staff and members of the local community.
<i>Strategy</i>	A specific action, tool, technique, or combination of actions, tools, and techniques used to meet unit objectives.
<i>Tiering</i>	The practice of covering general matters in broader (“programmatic”) environmental impact statements with subsequent narrower (“focused”) statements addressing specific issues; focused documents incorporate by reference the general discussions in the broader document (40 CFR 1508.28).
<i>Trust</i>	Describes a resource that is committed to the stewardship of a legally responsible agency (trustee agency) to be cared for or preserved in the public interest. E.g., <i>trust species</i> .
<i>Undertaking</i>	A project or plan initiated or overseen by a Federal agency; roughly equivalent to the NEPA usage of <i>action</i> .
<i>Unit Objective</i>	See Objective.
<i>U.S. Fish and Wildlife Service Mission</i>	Our mission is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.
<i>Vision Statement</i>	A concise statement of the desired future condition of the planning unit, based primarily upon the Refuge System mission, specific refuge purposes, and other relevant mandates (Service Manual 602 FW 1.5).
<i>Wilderness</i>	See Designated Wilderness.
<i>Wilderness Review</i>	The process we use to determine whether we should recommend Refuge System lands and waters to Congress for wilderness designation. The wilderness review process consists of three phases: inventory, study, and recommendation. The inventory is a broad look at the refuge to identify lands and waters that meet the minimum criteria for wilderness. The study evaluates all values (ecological, recreational, cultural), resources (e.g., wildlife, water, vegetation, minerals, soils), and uses (management and public) within the Wilderness Study Area. The findings of the study determine whether we will recommend the area for designation as wilderness.

<i>Wildfire</i>	A free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands (Service Manual 621 FW 1.7).
<i>Wildland Fire</i>	Every wildland fire is either a wildfire or a prescribed fire (Service Manual 621 FW 1.3).
<i>Wildlife-Dependent Recreational Use</i>	<p>“A use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation.” These are the six priority public uses of the Refuge System as established in the National Wildlife Refuge System Administration Act, as amended.</p> <p>Wildlife-dependent recreational uses, other than the six priority public uses, are those that depend on the presence of wildlife. We consider these other uses in the preparation of refuge CCPs; however, the six priority public uses will always take precedence.</p>
<i>Vision Statement</i>	A concise statement of what the planning unit should be, or what we hope to do, based primarily upon the Refuge System mission, specific refuge purposes, and other mandates. We will tie the vision statement for the refuge to the mission of the Refuge System, the purpose(s) of the refuge, the maintenance or restoration of the ecological integrity of each refuge and the Refuge System, and other mandates.

*Appendix C. Refuge Plant List and Special-
Status Species on the Refuge*

Refuge Plant List and Special-Status Species on the Refuge

Table C-1. Refuge Plant List.

This list of plant species was generated by California Native Plant Society during a partial survey of the Refuge in 1992, with a few later additions by Refuge staff. It is not intended to be a definitive list.

ABRONIA LATIFOLIA - YELLOW SAND VERBENA	CORETHROGYNE LEUCOPHYLLA - BRANCHING BEACH
ABRONIA UMBELLATA - PINK SAND VERBINA/BEACH	ASTER
VERBENA	CORNUS SERICEA - CREEKSIDE DOGWOOD
ACER NEGUNDO - BOX ELDER	COTULA CORONOPHOLIA - BRASS BUTTONS
ACHILLEA MILLEFOLIUM VAR. ARENICOLA - (=A. BOREALIS	CRASSULA ERECTA - (=TILLAEA E.) SAND PIGMYWEED
SSP. A.) COAST YARROW/SAND MILFOIL	CRYPTANTHA LEIOCARPA - COAST CRYPTANTHA
AGOSERIS APARGIOIDES VAR. EASTWOODAE - AGOSERIS	CUSCUTA SALINA - ALKALI DODDER
ALNUS RHOMBIFOLIA - ALDER	CUSCUTA SP. - DODDER
AMBROSIA CHAMISSONIS - (=FRANSERIA C./F. C. SSP.	DESCHAMPSIA CAESPITOSA - HAIR GRASS
BIPINNATISECTA) BEACH BUR	DISTICHLIS SPICATA - (=D. S. V. STOLONIFERA) SALT GRASS
AMMOPHILA ARENARIA - BEACH GRASS	DUDLEYA CAESPITOSA - SEA LETTUCE
AMSINCKIA SPECTABILIS - FIDDLENECK/SEASIDE AMSINCKIA	DUDLEYA FARINOSA - LIVE FOREVER/BLUFF LETTUCE
ANAGALLIS ARVENSIS - SCARLET PIMPERNEL	ELYMUS GLAUCUS - BLUE WILD RYE
ARMERIA MARITIMA SSP. CALIFORNICA - THRIFT	ELYMUS MOLLIS - DUNE RYE GRASS
ARTEMISIA CALIFORNICA - CALIFORNIA SAGEBRUSH	ELYMUS PACIFICUS - GOULD'S RYE GRASS
ARTEMISIA DOUGLASIANA - MUGWORT	EPILOBIUM CILIATHUM SSP. GLANDULOSUM - (=E.
ARTEMISIA PYCNOCEPHALA - BEACH SAGEWORT	ADENOCALON V. OCCIDENTALE) NORTHERN WILLOW
ASTER SUBSPICATUS - DOUGLAS' ASTER	HERB
ATRIPLEX CALIFORNICA - SALT BUSH	EPILOBIUM CILIATUM SSP. WATSONII - (=E. W./E. W. V.
ATRIPLEX LENTIFORMIS - QUAIL BRUSH	FRANCISCANUM COAST COTTONWEED ERICAMERIA
ATRIPLEX LEUCOPHYLLA - WHITELEAF SALT BUSH	ERICOIDES - (=HAPLOPAPPUS E. & SSP. BLAKEI)
ATRIPLEX PATULA SSP. HASTATA - ORACHE/FAT HEN	MOCK HEATHER
BACCHARIS DOUGLASII - DOUGLAS' BACCHARIS	ERIOGONUM LATIFOLIUM - BEACH BUCKWHEAT
BACCHARIS GLUTINOSA - (=B. VIMINEA) WATER-WALLY/MULE	ERIOGONUM PARVIFOLIUM - (=E. P. SSP. LUCIDUM) DUNE
FAT/SEEP-WILLOW	BUCKWHEAT
BACCHARIS PILULARIS VAR. CONSANGUINEA - COYOTE	ERIOPHYLLUM STAECHADIFOLIUM - (=E. S. VAR.
BRUSH	ARTEMISIIFOLIUM) LIZARD TAIL/GOLDEN YARROW
BRASSICA RAPA SSP. OLIFERA - (=B. CAMPESTRIS) FIELD	ERODIUM CICUTARIUM - RED-STEMMED FILAREE
MUSTARD	ERYSIMUM AMMOPHILUM - DUNE WALLFLOWER
BROMUS CARINATUS - BROME	ESCHSCHOLZIA CALIFORNICA VAR. MARITIMA -
CAKILE MARITIMA - SEA ROCKET	CALIFORNIA/BEACH POPPY
CALYSTEGIA SOLDANELLA - BEACH MORNING-GLORY	FRANKENIA GRANDIFOLIA - ALKALI HEATH
CAMISSONIA CHEIRANTHIFOLIA - BEACH PRIMROSE	GALIAM SP. - BEDSTRAW
CARDIONEMA RAMOSISSIMUM - SANDMAT	GILIA TENUIFLORA - SLENDER-FLOWERED GILIA
CAREX OBNUPTA - SEDGE	GNAPHALIUM CALIFORNICUM - CALIFORNIA EVERLASTING
CARPOBOTUS AEQUILATERUS - (=MESEMBRYANTHEMUM	GNAPHALIUM CHILENSE - COTTON-BATTING PLANT
CHILENSIS) SEA FIG	GNAPHALIUM PALUSTRE - EVERLASTING
CASTILLEJA LATIFOLIA - INDIAN PAINT BRUSH/SEASIDE	GRINDELIA LATIFOLIA - COAST GUM PLANT
PAINTED CUP	HELIOTROPIUM CURASSAVICUM VAR. OCULATUM - SEASIDE
CENTAUREA MELITENSIS - TOCALOTE	HELIOTROPE
CHENOPODIUM ALBUM - LAMB'S QUARTERS	HORDEUM BRACHYANTHERUM - BARLEY
CHENOPODIUM AMBROSIOIDES - (=C. A. VAR.	JAUMEA CARNOSA - FLESHY MARSH-HERB/FLESHY JAUMEA
SUFFRUTICOSUM) MEXICAN TEA	JUNCUS BUFONIOS - TOAD RUSH
CHENOPODIUM CALIFORNICUM - GOOSEFOOT/SOAP PLANT	JUNCUS LESEURII - SALT RUSH
CHLOROGALUM POMERIDIANUM VAR. DIVARICATUM - SOAP	LATHYRUS LITTORALIS - BEACH PEA
ROOT/AMOLE	LINARIA TEXANA - (=L. CANADENSIS VAR. TEXANA)
CHORIZANTHE CUSPIDATA VAR. MARGINATA - SAN	TOADFLAX
FRANCISCO SPINE-FLOWER	LOTUS HEERMANNII VAR. ERIOPHORUS - WOOLLY LOTUS
CHORIZANTHE PUNGENS - MONTEREY SPINE-FLOWER	LOTUS SCOPARIUS - DEERWEED
CIRSIUM VULGARE - BULL THISTLE	LUPINUS ALBIFRONS - SILVER LUPINE
CLAYTONIA PERFOLIATA - (=MONTIA P./C. P. VAR.	LUPINUS CHAMISSONIS - BLUE BUSH LUPINE
NUBIGENA) MINERS LETTUCE	MALVA NICAENSIS - BULL MALLOW
CORETHROGYNE CALIFORNICA - BEACH ASTER	MALVA PARVIFLORA - CHEESEWEED
MARAH FABACEUS - MANROOT/WILD CUCUMBER	
MEDICAGO POLYMORPHA - (=M. HISPIDA/V.CONFINIS/V.	
BREVISPIA) BUR-CLOVER	
MELILOTUS ALBA - WHITE SWEET-CLOVER	

MELILOTUS INDICA - SWEET-CLOVER
OENANTHE SARMENTOSA - AMERICAN WATER-LOVAGE
OROBANCHE CALIFORNICA - (=O. GRAYANA VAR. NELSONII &
VIOLACEA) CALIFORNIA BROOMRAPE
ORTHOCARPUS FAUCIBARBATUS VAR. ALBIDUS - SMOOTH
ORTHOCARPUS
PARAPHOLIS INCURVA - SICKLE GRASS
PHACELIA DISTANS - WILD HELIOTROPE
PHACELIA RAMOSISSIMA - (=P. R. VAR. MONTEREYENSIS)
BRANCHING PHACELIA
PHALARIS AQUATICA - HARDING GRASS
PHRAGMITES AUSTRALIS - (=P. COMMUNIS) COMMON REED
PLAGIOBOTHRYIS SP. - POPCORN FLOWER
PLANTAGO CORONOPUS - CUT-LEAVED PLANTAIN
PLATANUS RACEMOSA - SYCAMORE
POA DOUGLASII - DOUGLAS' BLUE GRASS
POLYGONUM AMPHIBIUM - (=P. COCCINEUM) SWAMP
KNOTWEED
POLYGONUM AVICULARE - KNOTWEED
POLYGONUM PARONYCHIA - BEACH KNOTWEED
POLYPOGON MONSPELIENSIS - RABBITS-FOOT GRASS
POPULUS FREMONTII - COTTONWOOD
POTETILLA EGEDEI - (=P. E. VAR. GRANDIS) PACIFIC
SILVERWEED
PSORALEA ORBICULARIS - ROUNDEAF PSORALEA
ROSA CALIFORNICA - CALIFORNIA WILD ROSE
RUBUS URSINUS - (=R. VITIFOLIUS) PACIFIC BLACKBERRY
RUMEX CONGLOMERATUS - GREEN OR CLUSTERED DOCK
RUMEX CRASSUS - DOCK
RUMEX CRISPUS - CURLY DOCK
RUMEX MARITIMUS VAR. PERSICARIOIDES - (=R. P.) PERSIAN
DOCK
RUMEX OCCIDENTALIS VAR. FENESTRATUS - (=R. F.) MARSH
DOCK
SALIX HINDSIANA - SAND BAR WILLOW
SALIX LASIOLEPIS - ARROYO WILLOW
SARCOCORNIA PACIFICA - (=SALICORNIA P.) PICKLEWEED/
SAMPHIRE
SCIRPUS SP. - TULE
SIDA HEDERACEA - (=S. LEPROSA VAR. H.) ALKALI MALLOW
SILENE SP. - CATCHFLY
SOLIDAGO OCCIDENTALIS - (=EUTHAMIA O.) WESTERN
GOLDENROD
SONCHUS OLERACEUS - COMMON SOW THISTLE
SORGHUM HALEPENSE - JOHNSON GRASS
SPERGULARIA BOCCONII - BOCCONE'S SAND SPURRY
SPERGULARIA RUBRA - PURPLE SAND SPURRY
STACHYS CHAMISSONIS - HEDGE NETTLE
STACHYS SP. - HEDGE NETTLE
STELLARIA LITTORALIS - CHICKWEED
TETRAGONIA TETRAGONIOIDES - (=T. EXPANSA) NEW
ZEALAND SPINACH
TOXICODENDRON DIVERSILOBUM - (=RHUS D.) POISON OAK
TYPHA LATIFOLA - BROAD-LEAVED CAT-TAIL/SOFT FLAG
VERONICA ANAGALLIS-AQUATICA - WATER SPEEDWELL
VULPIA OCTOFLORA - (=FESTUCA O.) SIX WEEKS FESCUE
XANTHIUM STRUMARIUM VAR. CANADENSE - COCKLEBUR

Table C-2. Special-status species on the Refuge.

Common and Scientific Name	Legal Status ^a	
	Federal/State/CNPS	Occurrence at Salinas River NWR
Plants		
Sandmat manzanita <i>Arctostaphylos pumila</i>	SC/-1B	Not reported to occur at the Refuge but suitable habitat present.
Monterey spineflower <i>Chorizanthe pungens</i> var. <i>pungens</i>	T/-1B	Occurs on the Refuge; suitable habitat abundant on dunes and species also occurs nearby.
Robust spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	E/-1B	No populations known to occur at the Refuge; occurs in dunes immediately north and south of Refuge.
Seaside bird's-beak <i>Cordylanthus rigidus</i> ssp. <i>littoralis</i>	SC/E/1B	Not reported to occur at the Refuge; suitable habitat present.
Eastwood's goldenbush <i>Ericameria fasciculata</i>	SC/-1B	Not reported to occur at the Refuge; suitable habitat present.
Coast wallflower <i>Erysimum ammophilum</i>	SC/-1B	Not reported to occur at the Refuge; suitable habitat present.
Menzies' wallflower <i>Erysimum menziesii</i> ssp. <i>menziesii</i>	E/E/1B	Probably occurred historically at the Refuge; no populations currently known from the site.
Yadon's wallflower <i>Erysimum menziesii</i> ssp. <i>yadonii</i>	E/E/1B	A population of this species was located on the Refuge in the 1970s, but was likely extirpated in 1980 by natural disturbance of the central foredune community.
Monterey gilia <i>Gilia tenuiflora</i> ssp. <i>arenaria</i>	E/T/1B	Occurs on the Refuge and at Salinas River State Beach north of the Refuge.
Tidestrom's lupine <i>Lupinus tidestromii</i>	E/E/1B	Not reported to occur at the Refuge; suitable habitat present.
Wildlife		
Globose dune beetle <i>Coelus globosus</i>	SC/-	Not reported to occur at the Refuge; suitable habitat present.
California brackish water snail <i>Tryonia imitator</i>	SC/-	No known occurrences at the Refuge; several occurrences have been reported in sloughs in the vicinity of the Refuge.
Smith's blue butterfly <i>Euphilotes</i> (= <i>Shijimaeoides</i>) <i>enoptes smithi</i>	E/-	Occurs at the Refuge.
Southwestern pond turtle <i>Clemmys marmorata pallida</i>	SC/SSC, FP	No known occurrences at the Refuge; occurrences have been reported in the vicinity.
Black California legless lizard <i>Anniella pulchra nigra</i>	SC/SSC, FP	Occurs at the Refuge in the central foredune and central dune scrub communities.
Steelhead <i>Oncorhynchus mykiss</i>	T/-	Collected in Salinas River Lagoon in 1963 and 1991. Small numbers likely occur at the Refuge.
Common loon <i>Gavia immer</i>	-/SSC	Often forages in the Salinas River Lagoon during winter migration.
American white pelican <i>Pelecanus erythrorhynchos</i>	-/SSC	A small flock often forages and roosts in the Salinas River Lagoon from July through March.
California brown pelican <i>Pelecanus occidentalis</i>	E/E	Occurs year-round at the Refuge; most common between April and October.
Double-crested cormorant <i>Phalacrocorax auritus</i>	-/SSC	Roosts and forages around the Salinas River Lagoon.
White-faced ibis <i>Plegadis chihi</i>	SC/SSC	Has been observed at the Refuge during fall and winter migrations.
Osprey <i>Pandion haliaetus</i>	-/SSC	Often forages at the Refuge during fall and spring migrations.
White-tailed kite <i>Elanus leucurus</i>	-/FP	Often forages at the Refuge during winter; known to nest in the vicinity.

Table C-2. Special-status species on the Refuge.

<i>Common and Scientific Name</i>	<i>Legal Status^a</i> <i>Federal/State/CNPS</i>	<i>Occurrence at Salinas River NWR</i>
Bald eagle <i>Haliaeetus leucocephalus</i>	T/E	May forage occasionally at the Salinas River Lagoon during fall, winter, and spring.
Northern harrier <i>Circus cyaneus</i>	-/SSC	Commonly forages at the Refuge; may nest onsite.
Sharp-shinned hawk <i>Accipiter striatus</i>	-/SSC	Uncommon winter visitor to the area; forages at the Refuge.
Cooper's hawk <i>Accipiter cooperii</i>	-/SSC	Uncommon winter visitor to the area; forages at the Refuge.
Golden eagle <i>Aquila chrysaetos</i>	PR/SSC, FP	May forage occasionally at the Refuge.
Prairie falcon <i>Falco mexicanus</i>	-/SSC	Uncommon winter visitor to the area; forages at the Refuge.
Merlin <i>Falco columbarius</i>	-/SSC	Uncommon winter visitor to the area; forages at the Refuge.
American peregrine falcon <i>Falco peregrinus anatum</i>	-/E	Uncommon winter visitor to the area; forages at the Refuge.
California clapper rail <i>Rallus longirostris obsoletus</i>	E/E	Reported once from the Refuge; no suitable nesting habitat is found onsite.
Greater sandhill crane <i>Grus canadensis tabida</i>	-/T	Very rare spring and fall migrant at the Refuge and in the vicinity.
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	T/SSC (coastal)	Year-round resident at the Refuge. The beach provides one of the most important breeding areas for this species in the Monterey Bay area.
Mountain plover <i>Charadrius montanus</i>	C/SSC	Rare winter visitor to the Refuge.
Long-billed curlew <i>Numenius americanus</i>	-/SSC	Common in the Salinas River Lagoon and in coastal brackish marsh and northern coastal salt marsh communities at the Refuge.
California gull <i>Larus californicus</i>	-/SSC	Very common visitor to the Refuge.
California least tern <i>Sterna antillarum (=albifrons) browni</i>	E/E	Historically nested onsite; now an occasional spring migrant.
Caspian tern (nesting colony) <i>Sterna caspia</i>	-/-	Commonly forages and rests at the Refuge during the spring, summer, and fall.
Elegant tern <i>Sterna elegans</i>	SC/SSC	A large local population roosts and forages at the Refuge.
Forster's tern (nesting colony) <i>Sterna forsteri</i>	-/-	Commonly roosts and forages at the Salinas River Lagoon and on the beach at the Refuge during spring, summer, and fall.
Black skimmer (nesting colony) <i>Rynchops niger</i>	-/SSC	Occasionally forages in the Salinas River Lagoon.
Short-eared owl <i>Asio flammeus</i>	-/SSC	Suitable nesting and foraging habitat occurs in tall grassland habitat at the Refuge.
Western burrowing owl <i>Athene cunicularia hypugea</i>	SC/SSC	Occasionally forages at the Refuge during fall and winter.
Willow flycatcher <i>Empidonax traillii</i>	SC/E	Rare winter and spring migrant in central coast arroyo willow riparian forest near the Refuge.
Black swift <i>Cypseloides niger</i>	-/SSC	Rare spring and fall migrant through the Refuge.
California yellow warbler <i>Dendroica petechia brewsteri</i>	-/SSC	May nest in central coast arroyo willow riparian forest near the Refuge.
Purple martin <i>Progne subis</i>	-/SSC	Rare spring and late-summer migrant through the Refuge.

Table C-2. Special-status species on the Refuge.

<i>Common and Scientific Name</i>	<i>Legal Status^a</i>	
	<i>Federal/State/CNPS</i>	<i>Occurrence at Salinas River NWR</i>
Bank swallow <i>Riparia riparia</i>	-/T	Rare spring and summer migrant through the Refuge.
Yellow-breasted chat <i>Icteria virens</i>	-/SSC	Rare spring and fall migrant in riparian scrub at the Refuge.
Tricolored blackbird <i>Agelaius tricolor</i>	SC/SSC	Occasionally forages at the Refuge.
Monterey ornate shrew <i>Sorex ornatus salarius</i>	SC/-	Suitable habitat occurs in the coastal brackish marsh and northern coastal salt marsh habitats at the Refuge.
Salinas harvest mouse <i>Reithrodontomys megalotis distichlis</i>	-/-	Reported from the mouth of the Salinas River in 1939, but has not been documented on the Refuge since then. Suitable habitat exists in the Refuge's coastal brackish marsh habitat.

^aStatus explanations:

Federal

- E = listed as endangered under the Federal Endangered Species Act.
- T = listed as threatened under the Federal Endangered Species Act.
- PE = proposed for listing as endangered under the Federal Endangered Species Act.
- PT = proposed for listing as threatened under the Federal Endangered Species Act.
- C = species for which the Service has sufficient information on file regarding biological vulnerability and threat(s) to support issuance of a proposed rule to list.
- SC = species of concern (species for which existing information may warrant listing but for which substantial biological information to support a proposed rule to list is lacking).
- = no listing.

State

- E = listed as endangered under the California Endangered Species Act.
- T = listed as threatened under the California Endangered Species Act.
- R = listed as rare under the California Native Plant Protection Act. (This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.)
- C = species is a candidate for listing under the California Endangered Species Act.
- SSC = California State species of special concern.
- FP = species is fully protected in California under California Fish and Game Code Section 3511 (birds), 4700 (mammals), or 5050 (reptiles and amphibians).
- = no listing.

California Native Plant Society

- 1A = List 1A (species presumed extinct in California).
- 1B = List 1B (species rare, threatened, or endangered in California and elsewhere).
- 2 = List 2 (species rare, threatened, or endangered in California but more common elsewhere).
- 3 = List 3 (species about which more information is needed to determine their status).
- 4 = List 4 (species of limited distribution).
- = no listing.
- * = known populations believed extirpated from County where they were reported.
- ? = location of population within County uncertain.

*Appendix D. Relationship between Vegetation
Types Used in this CCP and National
Vegetation Classification System*

Matrix Showing Relationship between Vegetation Types Used in this CCP and National Vegetation Classification System

*National Vegetation Classification System
(Federal Geographic Data Committee 1997)*

<i>CCP Vegetation Type (Holland 1986)</i>	<i>Alliance</i>	<i>Formation</i>	<i>Class – Subclass – Group</i>
Northern coastal salt marsh	<i>Salicornia (bigelovii, virginica)</i> tidal herbaceous alliance	Tidal temperate perennial forb vegetation	V.B.2. Herbaceous – Perennial forb – Temperate or subpolar perennial forb
Coast brackish marsh	n/a	Tidal temperate or subpolar grassland	V.A.5. Herbaceous – Perennial graminoid vegetation – Temperate or subpolar grassland
Central coast riparian scrub	<i>Salix lasiolepis</i> temporarily flooded shrubland alliance	Temporarily flooded cold-deciduous shrubland	III.B.2. Shrubland – Deciduous shrubland – Cold deciduous shrubland
Central foredunes	n/a	Dunes with sparse herbaceous vegetation	VII.C.1. Sparse vegetation – Unconsolidated material sparse vegetation – Sparsely vegetated sand dunes
Central dune scrub	<i>Lupinus arboreus</i> shrubland alliance	Temperate broad-leaved evergreen shrubland	III.A.2. Shrubland – Evergreen shrubland – Temperate broad-leaved evergreen shrubland
Coyote brush scrub	<i>Baccharis pilularis</i> shrubland alliance	Microphyllous evergreen shrubland	III.A.4. Shrubland – Evergreen shrubland – Microphyllous evergreen shrubland

*Appendix E. Planning Team Members and
Persons Responsible for Preparing this
Document*

List of Planning Team Members and Persons Responsible for Preparing this Document

U.S. Fish and Wildlife Service

Christopher Barr*	Refuge Manager, Guadalupe-Nipomo Dunes NWR (Former Refuge Manager, Salinas River NWR)
Don DeLong*	Former Team Leader, CA/NV Refuge Planning Office
Mark Pelz*	Refuge Planner, GIS Analyst, CA/NV Refuge Planning Office
Ivette Loredó*	Refuge Manager, Salinas River NWR
Matt Gay*	Former Chief of Public Use, San Francisco Bay NWR Complex
Sandy Spakoff	Chief of Public Use, San Francisco Bay NWR Complex
Margaret Kolar*	Program Manager, San Francisco Bay NWR Complex
Marc Webber*	Former Assistant Program Manager, San Francisco Bay NWR Complex
Diane Kodama	Refuge Biologist, Salinas River NWR
Leslie Lew	Landscape Architect, CA/NV Refuge Planning Office
Loretta McCorkle	Technical Editor, CA/NV Refuge Planning Office
Joelle Buffa	Wildlife Biologist, San Francisco Bay NWR Complex
Charles Houghten	Chief, Refuge Planning Division, Region 1
Rachel Hurt	Wildlife Biologist, San Francisco Bay NWR Complex

Jones & Stokes

Daniel Airola	Principal-in-Charge
David Zippin, Ph.D.*	Project Manager
Selene Jacobs*	Project Coordinator
Trevor Burwell, Ph.D.	Biological Resources
Keith Casey	Biological Resources
Jennifer Housley	Planning Updates, Mailing List
Debby Jew	Mailing List
Simon Page	Hydrology, Soils
Ray Weiss	Socioeconomics
Bill Norton	Cultural Resources
Wendy Young	NEPA Compliance
Shannon George	NEPA Compliance
Tom Engels, Ph.D.	NEPA Compliance
Anna Buising, Ph.D.	Managing Technical Writer/Editor
Christy Anderson	Graphic Artist
Tim Messick	Graphic Artist
Jody Job	Communications Specialist

* Member of CCP Planning Team

Appendix F. Wilderness Review

Wilderness Review

A wilderness review is the process used by the Service to determine whether or not to recommend lands or waters in the National Wildlife Refuge System to Congress for designation as wilderness. The Service is required to conduct a wilderness review for each refuge as part of the CCP process. Lands or waters that meet the minimum criteria for wilderness are identified in a CCP and further evaluated to determine whether they merit recommendation for inclusion in the Wilderness System.

According to Section 13 of the Service's Director's Order No. 125 (12 July 2000), in order for a refuge to be considered for wilderness designation, all or part of the refuge must:

- Be affected primarily by the forces of nature, with the human imprint substantially unnoticeable;
- Have outstanding opportunities for solitude or a primitive and unconfined type of recreation;
- Have at least 5,000 contiguous acres (2,000 ha) or be sufficient in size to make practicable its preservation and use in an unimpaired condition, or be capable of restoration to wilderness character through appropriate management, at the time of review; and
- Be a roadless island.

The Salinas River National Wildlife Refuge (Refuge) comprises 366 acres, which is much smaller than the area required for designation as wilderness. Moreover, the Refuge contains much evidence of past human use, including roads, an abandoned bomb shelter, and an early successional plant community that began to develop following the cessation of agriculture on the site. For these reasons, the Refuge does not meet the criteria for wilderness designation.

Appendix G. Compatibility Determinations

Compatibility Determination

Use: Waterfowl Hunting

Refuge Name: Salinas River National Wildlife Refuge

Establishing and Acquisition Authority(ies):

Migratory Bird Treaty Act of 1918, as amended (16 U.S. 703–712)

Refuge Purpose(s): “Particular value in carrying out the national migratory bird management program (USC Sec. 6676).”

National Wildlife Refuge System Mission: The mission of the National Wildlife Refuge System 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.”

Description of Use(s): The Refuge proposes to continue to provide limited opportunities for hunting that are compatible with the Refuge purpose. Hunting of waterfowl, including Canada geese (*Branta canadensis*), mallards (*Anas platyrhynchos*), American coots (*Fulica americana*), and common moorhens (*Gallinula chloropus*), would be permitted in the designated hunting area along the south bank of the Salinas River. The Refuge would remain closed to all other forms of hunting and target shooting.

The Refuge proposes to allow waterfowl hunting on approximately 38 acres of the Refuge (see Figure 5 of the CCP) or approximately 10% of the entire Refuge. The hunting area is delineated by signs; only pedestrian access is permitted. Hunting dogs are allowed off leash and under voice control for the purpose of retrieving waterfowl from the river. All firearms must remain unloaded until hunters are within the designated hunt area.

The size of the existing hunting area currently limits hunting use to approximately 15 hunters per day or 250 hunter visits annually (see CCP Chapters 4 and 5); a maximum of 16 hunters per day was recorded on opening day in October 1999. Hunting use is heaviest on the weekends and on Wednesdays. The Association of Monterey Bay Area Governments predicts that Monterey County’s population will increase by 27% between 2000 and 2015 (www.ambag.org, accessed 5/24/01). Overall use of the Refuge will likely increase proportionally, but hunting use is expected to increase less rapidly than nonconsumptive uses, and may decrease because of the proposed decrease in the size of the hunting area.

Availability of Resources: Adequate funding and staff exist to manage the waterfowl hunting program at the Salinas River National Wildlife Refuge.

Anticipated Impacts of the Use(s):

Endangered and Threatened Species: Human activity, including hunting, can have adverse impacts on rare species that utilize the Refuge for nesting, roosting, or foraging.

The California brown pelican (*Pelecanus occidentalis californicus*) utilizes the lagoon at the mouth of the Salinas River, islands near the river mouth, and portions of the beach strand as roosting sites, particularly from April through December. Disturbance to roosting pelicans can occur in the northern 20% of the existing hunting area, where hunters are in close proximity to the mouth of the river and the northernmost, largest island. Disturbance from hunting dogs and from firearm discharge in close proximity to the roosting area can cause the birds to flush, resulting stress on roosting birds. Reoccurring disturbance could ultimately cause the birds to abandon this roost site.

The Refuge’s dune habitats are known to support several special-status species, including: two federally listed plants, the Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*) and the Monterey spineflower (*Chorizanthe pungens* var. *pungens*); Smith’s blue butterfly (*Euphilotes enoptes smithi*) (federally listed as endangered); and the western snowy plover (*Charadrius alexandrinus nivosus*) (federally listed as threatened). Dune habitats on the Refuge are closed to the public, and hunters do not need to walk through dune or beach habitat to access the hunt area. The most direct route to the hunt area is along a trail through the grassland habitat on the Refuge (see Figures 2 and 3 in the CCP). Therefore, negative impacts on these species are not expected.

Upland and Riparian Habitats: The Refuge is actively involved in the restoration of the riparian and upland habitats on the Refuge near the hunting area. Human activity (hunters accessing the hunt area) has the potential to adversely affect the restoration of these habitats.

Migratory Birds: Human activity may disturb non-target migratory birds in upland, riparian, and aquatic habitats on the Refuge. Hunters may accidentally take non-target migratory birds as a result of misidentification. Select numbers of waterfowl belonging to target species will be taken by hunters each season, but this is not expected to result in a significant adverse effect on their populations because of the small number of hunters expected to use the Refuge.

Other Biological Resources: Litter discarded by hunters can entangle wildlife or be ingested, resulting in injury or death.

Public Review and Comment: Public review and comment will be conducted concurrent with the public review and comment period for the CCP.

Determination (check one below):

Use is Not Compatible

Use is Compatible With Following Stipulations

Stipulations Necessary to Ensure Compatibility: The area open to waterfowl hunting will be reduced to eliminate disturbance to brown pelicans roosting along the Salinas River lagoon. The hunt area along the northern 800 linear feet of the Salinas River (see Figures 5 and 6 in the CCP) will be eliminated. This is the area closest to the rivermouth.

Hunters will be permitted to have no more than 25 shells in their possession while on the Refuge. This will discourage hunters from taking long shots, reducing disturbance and decreasing the possibility of target misidentification. Hunters will also be required to use approved non-toxic shot while on the Refuge.

As discussed in *Description of Use(s)* above, hunting use is expected to increase less rapidly than nonconsumptive uses, and may decrease because of the proposed decrease in the size of the hunting area. Annual monitoring of hunter use and impacts will be initiated. The information gathered will be used to review and possibly revise hunting regulations to enhance the quality and safety of the Refuge's hunting program.

The Service will maintain a hiking trail through the grassland to the hunt area and will install and maintain signs marking the hunt area boundary. In addition, by 2005, interpretive signs and an orientation kiosk will be installed on the Refuge to inform visitors about the Refuge's habitats and wildlife and ways of avoiding adverse impacts, including staying on trails. The hiking trails and interpretive signs will minimize disturbance to grassland and riparian habitats by providing easy access to the hunt area and by interpreting the importance and sensitivity of Refuge habitats and restoration efforts. Additional interpretive materials will be installed in the parking lot kiosk to interpret Refuge regulations and the laws governing take of migratory waterfowl and to reduce likelihood of take of non-target species.

The Refuge will maintain an active law enforcement presence, by using Refuge officers and through a cooperative agreement with California Department of Fish and Game, to ensure public compliance with hunting regulations. The Refuge will increase law enforcement patrols, especially during the opening weeks of the season, to document hunter use and ensure compliance with Refuge regulations.

Justification: The Refuge is one of two sites in the local area open for public waterfowl hunting during the season (typically October–January) and offers the only local waterfowl hunting area that can be accessed on foot; 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. Other public hunting areas such as the San Luis NWR near the community of Los Banos are located 80 miles or more away. The Refuge is thus a key resource for local waterfowl hunters.

Hunting is identified as a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge Improvement Act of 1997. As an expressed priority use of the Refuge system, this use takes precedence over other potential public uses in Refuge planning and management. The Service strives to provide priority public uses when compatible with the purpose of the Refuge. Approximately 80 acres of Refuge land along the Salinas River is

conducive to hunting; hunting would be permitted in an area of approximately 38 acres (2,800 linear feet of riverbank). With the reduction of the hunting area and management conducted in accordance with the stipulations herein, waterfowl hunting will be compatible with the Refuge purpose.

Mandatory Reevaluation Date (provide month and year):

Sept. 2016 Mandatory 15-Year Reevaluation Date (for priority public uses)

_____ Mandatory 10-Year Reevaluation Date (for all uses other than priority public uses)

NEPA Compliance for Refuge Use Decision (check one below):

Conducted with Comprehensive Conservation Plan

_____ Categorical Exclusion without Environmental Action Statement

_____ Categorical Exclusion and Environmental Action Statement

 X Environmental Assessment and Finding of No Significant Impact

_____ Environmental Impact Statement and Record of Decision

Refuge Determination

Prepared by: _____
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: _____
(Signature) (Date)

Concurrence

Refuge Supervisor: _____
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: _____
(Signature) (Date)

California/Nevada
Operations Manager
(for CA and NV): _____
(Signature) (Date)

Compatibility Determination

Use: Surf Fishing

Refuge Name: Salinas River National Wildlife Refuge

Establishing and Acquisition Authority:

Migratory Bird Treaty Act of 1918, as amended (16 U.S. 703–712)

Refuge Purpose(s): “Particular value in carrying out the national migratory bird management program” (USC Sec. 6676)

National Wildlife Refuge System Mission: The mission of the National Wildlife Refuge System 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.”

Description of Use(s): The Refuge is open to the public for access to surf fishing every day. The State Lands Commission has reserved all lands below mean high water for public access; thus the Service does not own these tidal lands and does not have the authority to regulate surf fishing or to close the beach to the public. However, the Refuge does provide access to surf fishing opportunities that are adjacent to our boundary. Because the Refuge boundary is the mean high water line, visitors who surf fish along the Refuge boundary also likely use Refuge lands while fishing (for example, to set up lines, place their gear, or rest). Access to the surf zone through the Refuge is by foot only along the beach trail. Fishing is not allowed in other parts of the Refuge, such as the Salinas River and the saline pond.

Species of ocean fish caught in waters off the Refuge include surfperch (*Amphistichis* spp.) and striped bass (*Morone saxatilis*). Surf fishing is a year-round use on the Refuge, with an estimated maximum of 6–10 individuals utilizing the Refuge for fishing per day. Peak periods include weekends and times when striped bass are foraging close to shore.

Availability of Resources: Adequate funding and staff exist to manage for surf fishing access via the Salinas River National Wildlife Refuge.

Anticipated Impacts of the Use(s):

Endangered and Threatened Species: Human activity can have adverse impacts on rare shore-nesting birds, especially during nesting and feeding activities. The western snowy plover (*Charadrius alexandrinus nivosus*) (federally listed as threatened) is of primary concern to the Refuge. The Service strives to provide optimum breeding conditions for the western snowy plover. However, in recent years, the number of breeding snowy plovers on the Refuge, and throughout the species’ range, has decreased significantly as a result of adverse weather

conditions on their wintering grounds and heavy predation by native and nonnative wildlife. Although current levels of public use are low, human activity in the dunes and beaches during the snowy plover breeding season has the potential to adversely affect plover reproductive success. Western snowy plovers utilize the entire beach profile, from the foredune through the coastal strand into the intertidal zone (between mean low tide and mean high tide lines) for breeding and foraging. Pedestrians entering the foredune and coastal strand habitats during the breeding season have the potential to trample well-camouflaged western snowy plover eggs and/or chicks or to disturb adults, keeping them away from the nest for extended periods of time.

Other federally listed species at the Refuge include: Smith's blue butterfly (*Euphilotes enoptes smithi*) and the Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*) (federally listed as endangered); and the Monterey spineflower (*Chorizanthe pungens* var. *pungens*) (federally listed as threatened). Visitors walking over the dunes have the potential to damage endangered and threatened dune plants and to introduce invasive species through inadvertent transfer of seeds or other propagules. They may also disturb Smith's blue butterfly or its host plants.

The potential for illegal collection of rare plants, animals, and insects at the Refuge is an additional concern.

Coastal Dunes and Wetlands: The potential for visitors to trample and destroy native dune and wetland vegetation is of concern.

Upland and Riparian Habitats: The Refuge is actively involved in the restoration of the riparian and upland habitats on the Refuge. Off-trail human activity in these habitats can slow restoration efforts.

Migratory Birds: Human activity may disturb migratory birds utilizing the Refuge's habitats for foraging or nesting. Human activities near the wetland habitats could disturb foraging and nesting migratory birds, including black-necked stilts (*Himantopus mexicanus*), American avocets (*Recurvirostra americana*), and black skimmers (*Rynchops niger*) known to nest along the banks of the saline pond.

Other Biological Resources: Litter discarded by people engaged in fishing activities can entangle wildlife or be ingested, resulting in injury or death.

Public Review and Comment: Public review and comment will be conducted concurrent with the public review and comment period for the CCP.

Determination (check one below):

Use is Not Compatible

Use is Compatible With Following Stipulations

Stipulations Necessary to Ensure Compatibility: In order to continue to allow public access to the Refuge, the following measures will be taken to ensure compatibility of surf fishing activities.

Western snowy plover breeding activities on the Refuge and throughout the Monterey Bay area have been closely monitored by Point Reyes Bird Observatory (PRBO) since 1984. The Refuge will continue to partner with PRBO to monitor and document western snowy plover use of the Refuge and document causes of mortality. Other threatened and endangered species and Refuge resources will also be monitored by Refuge staff.

Clearer "Closed Area" signs will be installed at the boundary of the sensitive dune habitat by 2002.

In coordination with other agencies, the Refuge will develop and implement a docent program on the Refuge by 2004, to educate members of the public who use the Refuge during the snowy plover breeding season on the ecology of the plover and the sensitivity of the species' habitat and nests to disturbance. The docent program will also collect data on public use and disturbance to nesting shorebirds.

By 2005, interpretive signs and an orientation kiosk will be installed on the Refuge to inform visitors about the Refuge's habitats and wildlife and ways of avoiding adverse impacts, including staying on trails. The kiosk at the entrance will clearly state that dogs and horses are not allowed on the Refuge (except hunting dogs during the waterfowl season), and will include three signs:

- (1) a sign providing a trail map, trail information, and regulations,
- (2) a sign that describes the National Wildlife Refuge System, and
- (3) an interchangeable sign for hunting season and snowy plover nesting season.

The trail from the parking lot to the beach will be well marked. Symbolic fencing will be installed to guide public access out through the dunes at the end of the beach trail. This will minimize trespass through closed areas and reduce disturbance to nesting birds and endangered plants within the dune habitat. If trespass continues to be a problem in the foredunes, symbolic fencing will also be installed along the foredune-beach boundary.

The Refuge will maintain an active law enforcement presence, by using Refuge officers and through a cooperative agreement with California Department of Fish and Game and California Department of Parks and Recreation, to ensure public compliance with all Refuge rules and regulations. Refuge law enforcement and other Refuge staff presence will be increased to ensure compliance with Refuge regulations.

Access to the Refuge will be allowed only between sunrise and sunset, unless a permit for alternative hours is acquired from the Refuge Manager in advance. Although the Refuge manager has the authority to close certain areas to public access, the State Lands Commission has reserved all lands below mean high water for public access. Thus, complete closure of the beach profile by the Service is not possible. However, public access to the Refuge will be restricted to

areas where access will put minimal stress on endangered and threatened animal and plant populations. Visitors will be directed to remain a safe distance from snowy plover nesting areas with signs and barriers, and by Refuge personnel and trained volunteers. Visitors will be directed away from areas where native plant restoration projects are under way, to prevent damage to fragile plants by trampling or by the introduction of nonnative plant species.

Justification: The Refuge’s visitor use is relatively low; an estimated average of 6–10 visitors per day use the Refuge for access to surf fishing. Total visitor use of surrounding State Parks lands averages 250,000 visitors per year, compared to the estimated annual use of 4,000–6,000 visitors per year on the Refuge. The Refuge does not anticipate a substantial increase in visitor use, for the following reasons: no public use facilities, such as plumbed restrooms or picnic tables, are available, nor will they be constructed; inland access to the Refuge is via an unpaved road; and beach access is along a hiking trail that is approximately 1 mile long. In addition, many nearby State Beaches will continue to be available that have easier access, offer many public-use facilities, and support a wider variety of uses. At present, the Refuge primarily attracts visitors looking for a quality wildlife-oriented experience, and this is not expected to change in the future.

The Refuge Improvement Act identifies fishing as a priority public use for National Wildlife Refuges. As an expressed priority use of the Refuge system, this use takes precedence over other potential public uses in Refuge planning and management. The Service strives to provide priority public uses when compatible with the purpose and goals of the Refuge. The Refuge provides access to the surf zone between sunrise and sunset, while surrounding State Parks open at 8:00 a.m. and close at 6:00 p.m. The Refuge therefore provides fishing opportunities at times when the local fishing population prefers to be out, in the early morning hours and at sunset. The beach adjacent to the Refuge is a popular fishing spot for many local residents.

Surf fishing is allowed on State Parks immediately north and a few miles south of the Refuge boundary. Some of the public access the Refuge from the north, along the beach. The ability to limit use of the tidal zone is regulated by the State Lands Commission. Should the Refuge close access through the Refuge for surf fishing the public would still be able to access the tidal zone adjacent to the Refuge by walking along the beach from neighboring properties. However, concern about protecting rare native plants and animals and the overall integrity of the dune system requires that public use be monitored to avoid significant adverse impacts. With management conducted in accordance with the stipulations herein, access to surf fishing will be compatible with the Refuge purpose and goals.

Mandatory Reevaluation Date (provide month and year):

Sept. 2016 Mandatory 15-Year Reevaluation Date (for priority public uses)

_____ Mandatory 10-Year Reevaluation Date (for all uses other than priority public uses)

NEPA Compliance for Refuge Use Decision (check one below):

Conducted with the Comprehensive Conservation Plan

Categorical Exclusion without Environmental Action Statement

Categorical Exclusion and Environmental Action Statement

Environmental Assessment and Finding of No Significant Impact

Environmental Impact Statement and Record of Decision

Refuge Determination

Prepared by: _____
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: _____
(Signature) (Date)

Concurrence

Refuge Supervisor: _____
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: _____
(Signature) (Date)

California/Nevada
Operations Manager
(for CA and NV): _____
(Signature) (Date)

Compatibility Determination

Use: Wildlife Observation & Photography

Refuge Name: Salinas River National Wildlife Refuge

Establishing and Acquisition Authority:

Migratory Bird Treaty Act of 1918, as amended (16 U.S. 703–712)

Refuge Purpose(s): “Particular value in carrying out the national migratory bird management program” (USC Sec. 6676)

National Wildlife Refuge System Mission: The mission of the National Wildlife Refuge System 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.”

Description of Use(s):

Wildlife Observation: The Refuge is open to the public for wildlife observation every day. Access is by foot only. There are currently no orientation kiosks or interpretive signs. Areas closed to public access are delineated by signs, and include the dunes and saline pond. The beach access trail on the Refuge begins in grassland habitat, skirts the shore of the saline pond and salt marsh habitat, and traverses the dunes, providing quality wildlife observation opportunities in all of these habitats. A trail also exists through the grasslands to the riparian habitat on the south bank of the Salinas River.

Wildlife Photography: Photography, including other image-capturing activities such as videography, has occurred on the Refuge. There are no developed photography blinds or platforms on the Refuge. However, ample opportunities exist for photography on the Refuge.

Availability of Resources:

Adequate funding and staff exist to manage for wildlife observation and photography at the Salinas River National Wildlife Refuge. Improved signage and interpretation will require additional funding.

Anticipated Impacts of the Use(s):

Endangered and Threatened Species: Human activity can have adverse impacts on rare shore-nesting birds, especially during nesting and feeding activities. The western snowy plover (*Charadrius alexandrinus nivosus*) (federally listed as threatened) is of primary concern to the Refuge. The Service strives to provide optimum breeding conditions for the western snowy

plover. However, in recent years, the number of breeding snowy plovers on the Refuge, and throughout the species' range, has decreased significantly as a result of adverse weather conditions on their wintering grounds and heavy predation by native and nonnative wildlife. Although current levels of public use are low, human activity in the dunes and beaches during the snowy plover breeding season has the potential to adversely affect plover reproductive success. Western snowy plovers utilize the entire beach profile, from the foredune through the coastal strand into the intertidal zone (between mean low tide and mean high tide lines) for breeding and foraging. Pedestrians entering the foredune and coastal strand habitats during the breeding season have the potential to trample well-camouflaged western snowy plover eggs and/or chicks or to disturb adults, keeping them away from the nest for extended periods of time.

Other federally listed species at the Refuge include: Smith's blue butterfly (*Euphilotes enoptes smithi*) and the Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*) (federally listed as endangered); and the Monterey spineflower (*Chorizanthe pungens* var. *pungens*) (federally listed as threatened). Visitors walking over the dunes have the potential to damage endangered and threatened dune plants and to introduce invasive species through inadvertent transfer of seeds or other propagules. They may also disturb Smith's blue butterfly or its host plants.

The potential for illegal collection of rare plants, animals, and insects at the Refuge is an additional concern.

Coastal Dunes and Wetlands: The potential for visitors to trample and destroy native dune and wetland vegetation is of concern.

Upland and Riparian Habitats: The Refuge is actively involved in the restoration of the riparian and upland habitats on the Refuge. Off-trail human activity in these habitats can slow restoration efforts.

Migratory Birds: Human activity may disturb migratory birds utilizing the Refuge's habitats for feeding or nesting activities. Human activities near the wetland habitats could disturb feeding and nesting migratory birds, including black-necked stilts (*Himantopus mexicanus*), American avocets (*Recurvirostra americana*), and black skimmers (*Rynchops niger*) known to nest along the banks of the saline pond.

Other Biological Resources: Litter discarded by people engaged in wildlife observation or photography can entangle wildlife or be ingested, resulting in injury or death.

Public Review and Comment: Public review and comment will be conducted concurrent with the public review and comment period for the CCP.

Determination (check one below):

Use is Not Compatible

Use is Compatible With Following Stipulations

Stipulations Necessary to Ensure Compatibility: In order to continue to allow public access to the Refuge, the following measures will be taken to ensure compatibility for wildlife observation and photography.

Western snowy plover breeding activities on the Refuge and throughout the Monterey Bay area have been closely monitored by Point Reyes Bird Observatory (PRBO) since 1984. The Refuge will continue to partner with PRBO to monitor and document western snowy plover use of the Refuge and document causes of mortality. Other threatened and endangered species and Refuge resources will also be monitored by Refuge staff.

Clearer "Closed Area" signs will be installed at the boundary of the sensitive dune habitat by 2002.

In coordination with other agencies, the Refuge will develop and implement a docent program on the Refuge by 2004, to educate members of the public who use the Refuge during the snowy plover breeding season on the ecology of the plover and the sensitivity of the species' habitat and nests to disturbance. The docent program will also collect data on public use and disturbance to nesting shorebirds.

By 2005, interpretive signs and an orientation kiosk will be installed on the Refuge to inform visitors about the Refuge's habitats and wildlife and ways of avoiding adverse impacts, including staying on trails. The kiosk at the entrance will clearly state that dogs and horses are not allowed on the Refuge (except hunting dogs during the waterfowl season), and will include three signs:

- (1) a sign providing a trail map, trail information, and regulations,
- (2) a sign that describes the National Wildlife Refuge System, and
- (3) a interchangeable sign for hunting season and snowy plover nesting season.

The trail from the parking lot to the beach will be well marked. Symbolic fencing will be installed to guide public access out through the dunes at the end of the beach trail. This will minimize trespass through closed areas and reduce disturbance to nesting birds and endangered plants within the dune habitat. If trespass continues to be a problem in the foredunes, symbolic fencing will also be installed along the foredune-beach boundary.

The Refuge will maintain an active law enforcement presence, by using Refuge officers and through a cooperative agreement with California Department of Fish and Game and California Department of Parks and Recreation, to ensure public compliance with all Refuge rules and regulations. Refuge law enforcement and other Refuge staff presence will be increased to ensure compliance with Refuge regulations.

Access to the Refuge will be allowed only between sunrise and sunset, unless a permit for alternative hours is acquired from the Refuge Manager in advance. Because the State Lands Commission controls lands below the mean high tide line, complete closure of the beach profile by the Service is not possible. However, public access to the Refuge will be restricted to areas where access will put minimal stress on endangered and threatened animal and plant populations.

Visitors will be directed to remain a safe distance from snowy plover nesting areas with signs and barriers, and by Refuge personnel and trained volunteers. Visitors will be directed away from areas where native plant restoration projects are under way, to prevent damage to fragile plants by trampling or by the introduction of nonnative plant species.

Justification: The Refuge’s visitor use is relatively low; an estimated average of 4–6 visitors per day use the Refuge for wildlife observation and photography. Total visitor use of surrounding State Parks lands averages 250,000 visitors per year compared to the estimated annual use of 4,000–6,000 visitors per year on the Refuge. The Refuge does not anticipate a substantial increase in visitor use, for the following reasons: no public use facilities, such as plumbed restrooms or picnic tables, are available nor will they be constructed; inland access to the Refuge is via an unpaved road; and beach access is along a hiking trail that is approximately 1 mile long. In addition, many nearby State Beaches will continue to be available that have easier access, offer many public-use facilities, and support a wider variety of uses. At present, the Refuge primarily attracts visitors looking for a quality wildlife-oriented experience, and this is not expected to change in the future.

The Refuge Improvement Act identifies wildlife observation and wildlife photography as priority public uses for National Wildlife Refuges. As expressed priority uses of the Refuge system, these uses take precedence over other potential public uses in Refuge planning and management. The Service strives to provide priority public uses when compatible with the purpose and goals of the Refuge.

Wildlife observation and photography allow the visiting public to experience, enjoy, and learn about native wildlife species in their natural habitats. There are few coastal public lands available in the Monterey Bay area where the public can view and enjoy wildlife in a relatively undisturbed setting. Many of the State Beaches are relatively crowded and allow dogs, horses, and various types of non-wildlife oriented recreation. These uses detract from the relatively “natural” environment that the Refuge visitor is typically looking for. However, concern about protecting rare native plants and animals and the overall integrity of the dune system requires that public use be monitored to avoid significant adverse impacts. With management conducted in accordance with the stipulations herein, wildlife observation and photography will be compatible with the Refuge purpose and goals.

Mandatory Reevaluation Date (provide month and year):

Sept. 2016 Mandatory 15-Year Reevaluation Date (for priority public uses)

_____ Mandatory 10-Year Reevaluation Date (for all uses other than priority public uses)

NEPA Compliance for Refuge Use Decision (check one below):

Conducted with the Comprehensive Conservation Plan

Categorical Exclusion without Environmental Action Statement

Categorical Exclusion and Environmental Action Statement

Environmental Assessment and Finding of No Significant Impact

Environmental Impact Statement and Record of Decision

Refuge Determination

Prepared by: _____ (Signature) _____ (Date)

Refuge Manager/
Project Leader
Approval: _____ (Signature) _____ (Date)

Concurrence

Refuge Supervisor: _____ (Signature) _____ (Date)

Regional Chief,
National Wildlife
Refuge System: _____ (Signature) _____ (Date)

California/Nevada
Operations Manager
(for CA and NV): _____ (Signature) _____ (Date)

Compatibility Determination

Use: Environmental Education and Interpretation

Refuge Name: Salinas River National Wildlife Refuge

Establishing and Acquisition Authority: Migratory Bird Treaty Act of 1918, as amended (16 U.S. 703–712)

Refuge Purpose(s): “Particular value in carrying out the national migratory bird management program” (USC Sec. 6676)

National Wildlife Refuge System Mission: The mission of the National Wildlife Refuge System 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.”

Description of Use(s): The Salinas River NWR has the opportunity to interpret coastal resources and increase public awareness of the importance of protecting wildlife habitat and endangered species. The Refuge supports regionally important populations of special-status species, including western snowy plover (*Charadrius alexandrinus nivosus*) and Monterey spineflower (*Chorizanthe pungens* var. *pungens*) (both federally listed as threatened), and Smith’s blue butterfly and sand gilia (*Gilia tenuiflora* ssp. *arenaria*) (both federally listed as endangered). Environmental education and interpretation at the Refuge will focus on endangered species and habitat management. In addition, the Refuge will educate the public about the National Wildlife Refuge System and the Service mission.

The Refuge is currently open to the public for environmental education and interpretation opportunities on foot. However, no interpretive or educational displays or materials exist at the Refuge. Some educational institutions or non-profit groups (such as local Audubon chapters) may currently utilize the Refuge for education; however, the Refuge does not have estimates of this type of use.

The Refuge proposes to enhance existing environmental education partnerships and develop new partnerships with local schools, universities, and organizations. The Refuge will develop environmental education and interpretive materials, including: a general Refuge brochure; fact sheets on particular species and habitats; and a guide for educators on endangered species issues. These materials and programs will serve to interpret the valuable coastal resources of the Refuge and surrounding region, as well as the purpose and goals of the Refuge and the National Wildlife Refuge System.

In coordination with other agencies, the Refuge will develop and implement a docent program on the Refuge by 2004, to educate members of the public who use the Refuge during the snowy plover breeding season on the ecology of the plover and the sensitivity of the species’ habitat and

nests to disturbance. Docents will also have information on management activities and resource issues.

By 2005, an orientation kiosk at the Refuge entrance and interpretive signs along the hiking trails will be installed. The orientation kiosk at the entrance will include three signs:

- (1) a sign providing a trail map, trail information, and regulations,
- (2) a sign that describes the National Wildlife Refuge System, and
- (3) an interchangeable sign for hunting season and snowy plover nesting season.

The kiosk and interpretive signs will provide visitors with information on the various habitat types on the Refuge (coastal dunes, coastal grassland, riparian, salt marsh); the species that can be found in these habitats, including threatened and endangered species; and ways of avoiding adverse effects on these resources.

Availability of Resources: Upon receiving the increased funding and staff proposed in the CCP, the Refuge will be able to provide interpretation and education opportunities at the Salinas River National Wildlife Refuge, as well as educational materials.

Anticipated Impacts of the Use(s):

Endangered and Threatened Species: Human activity can have adverse impacts on rare shore-nesting birds, especially during nesting and feeding activities. The western snowy plover (*Charadrius alexandrinus nivosus*) (federally listed as threatened) is of primary concern to the Refuge. The Service strives to provide optimum breeding conditions for the western snowy plover. However, in recent years, the number of breeding snowy plovers on the Refuge, and throughout the species' range, has decreased significantly as a result of adverse weather conditions on their wintering grounds and heavy predation by native and nonnative wildlife. Although current levels of public use are low, human activity in the dunes and beaches during the snowy plover breeding season has the potential to adversely affect plover reproductive success. Western snowy plovers utilize the entire beach profile, from the foredune through the coastal strand into the intertidal zone (between mean low tide and mean high tide lines) for breeding and foraging. Pedestrians entering the foredune and coastal strand habitats during the breeding season have the potential to trample well-camouflaged western snowy plover eggs and/or chicks or to disturb adults, keeping them away from the nest for extended periods of time.

Other federally listed species at the Refuge include: Smith's blue butterfly (*Euphilotes enoptes smithi*) and the Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*) (federally listed as endangered); and the Monterey spineflower (*Chorizanthe pungens* var. *pungens*) (federally listed as threatened). Visitors walking over the dunes have the potential to damage endangered and threatened dune plants and to introduce invasive species through inadvertent transfer of seeds or other propagules. They may also disturb Smith's blue butterfly or its host plants.

The potential for illegal collection of rare plants, animals, and insects at the Refuge is an additional concern.

Coastal Dunes and Wetlands: The potential for visitors to trample and destroy native dune and wetland vegetation is of concern.

Upland and Riparian Habitats: The Refuge is actively involved in the restoration of the riparian and upland habitats on the Refuge. Off-trail human activity in these habitats can slow restoration efforts.

Migratory Birds: Human activity may disturb migratory birds utilizing the Refuge's habitats for feeding or nesting activities. Human activities near the wetland habitats could disturb feeding and nesting migratory birds, including black-necked stilts (*Himantopus mexicanus*), American avocets (*Recurvirostra americana*), and black skimmers (*Rynchops niger*) known to nest along the banks of the saline pond.

Other Biological Resources: Litter discarded by visitors attending environmental education activities can entangle wildlife or be ingested, resulting in injury or death.

Public Review and Comment: Public review and comment will be conducted concurrent with the public review and comment period for the CCP.

Determination (check one below):

Use is Not Compatible

Use is Compatible With Following Stipulations

Stipulations Necessary to Ensure Compatibility: In order to allow public access to the Refuge, the following measures will be taken to ensure compatibility for environmental education and interpretation.

Educators or groups who wish to visit the Refuge will receive interpretive materials from the Refuge staff. These materials will emphasize endangered species management and will include a general Refuge brochure, a fact sheet on particular species and habitats, and an endangered species guide.

Western snowy plover breeding activities on the Refuge and throughout the Monterey Bay area have been closely monitored by Point Reyes Bird Observatory (PRBO) since 1984. The Refuge will continue to partner with PRBO to monitor and document western snowy plover use of the Refuge and document causes of mortality. Other threatened and endangered species and Refuge resources will also be monitored by Refuge staff.

Clearer "Closed Area" signs will be installed at the boundary of the sensitive dune habitat by 2002.

In coordination with other agencies, the Refuge will develop and implement a docent program on the Refuge by 2004, to educate members of the public who use the Refuge during the snowy

plover breeding season on the ecology of the plover and the sensitivity of the species' habitat and nests to disturbance. The docent program will also collect data on public use and disturbance to nesting shorebirds.

By 2005, interpretive signs and an orientation kiosk will be installed on the Refuge to inform visitors about the Refuge's habitats and wildlife and ways of avoiding adverse impacts, including staying on trails.

The trail from the parking lot to the beach will be well marked. Symbolic fencing will be installed to guide public access out through the dunes at the end of the beach trail. This will minimize trespass through closed areas and reduce disturbance to nesting birds and endangered plants and butterflies within the dune habitat.

The Refuge will maintain an active law enforcement presence, by using Refuge officers and through a cooperative agreement with California Department of Fish and Game and California Department of Parks and Recreation, to ensure public compliance with all Refuge rules and regulations. Refuge law enforcement and other Refuge staff presence will be increased to ensure compliance with Refuge regulations.

Access to the Refuge will be allowed only between sunrise and sunset unless a permit for alternative hours is acquired from the Refuge Manager in advance. The Refuge manager will have the authority to close certain areas to interpretive programs, or to cancel activities as he or she deems necessary to fulfill Refuge purposes. Public access will be restricted to areas where access will put minimal stress on endangered and threatened animal and plant populations. Visitors will be directed to remain a safe distance from snowy plover nesting areas with signs and barriers, and by Refuge personnel and trained volunteers. Visitors will be directed away from areas where native plant restoration projects are under way, to prevent damage to fragile plants by being crushed underfoot or by the introduction of nonnative plant species.

Concerns about protecting rare native plants and animals, and the overall integrity of the dune ecosystem, require that public use be monitored, and that Refuge staff be closely involved in the development of environmental educational programs.

Justification: The goals of the National Wildlife Refuge System include providing an understanding and appreciation of fish and wildlife ecology and the human role in the environment, and providing Refuge visitors with high-quality, safe, wholesome, and enjoyable recreational experiences oriented toward wildlife, to the extent these activities are compatible with the purposes for which a refuge was established. In addition, the Refuge Improvement Act identifies environmental education and interpretation as priority public uses for National Wildlife Refuges. As expressed priority uses of the Refuge system, these uses take precedence over other potential public uses in Refuge planning and management. The Service strives to provide priority public uses when compatible with the purpose and goals of the Refuge.

Environmental education and interpretive programs provide opportunities for the visiting public to learn about and experience native plants, fish, and wildlife in their natural habitat. The Refuge

can also educate the public about its role within the agency and the National Wildlife Refuge System, developing better community awareness, volunteer involvement, and advocacy. The Refuge also has the opportunity to provide meaningful educational information on habitat restoration and on endangered species and their management.

Mandatory Reevaluation Date (provide month and year):

Sept. 2016 Mandatory 15-year Reevaluation Date (for priority public uses)

_____ Mandatory 10-Year Reevaluation Date (for all uses other than priority public uses)

NEPA Compliance for Refuge Use Decision (check one below):

Conducted with Comprehensive Conservation Plan

_____ Categorical Exclusion without Environmental Action Statement

_____ Categorical Exclusion and Environmental Action Statement

 X Environmental Assessment and Finding of No Significant Impact

_____ Environmental Impact Statement and Record of Decision

Refuge Determination

Prepared by: _____
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: _____
(Signature) (Date)

Concurrence

Refuge Supervisor: _____
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: _____
(Signature) (Date)

California/Nevada
Operations Manager
(for CA and NV): _____
(Signature) (Date)

Compatibility Determination

Use: Research

Refuge Name: Salinas River National Wildlife Refuge

Establishing and Acquisition Authority: Migratory Bird Treaty Act of 1918, as amended (16 U.S. 703–712)

Refuge Purpose(s): “Particular value in carrying out the national migratory bird management program” (USC Sec. 6676)

National Wildlife Refuge System Mission: The mission of the National Wildlife Refuge System 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.”

Description of Use(s): The Refuge receives periodic requests to conduct scientific research. In the future, the Refuge proposes to give priority to studies that contribute to the enhancement, protection, use, preservation, and management of native Refuge wildlife populations and their habitats. Research applicants would be required to submit a proposal summarizing:

- (1) objectives of the study;
- (2) justification for the study;
- (3) detailed study methodology and schedule;
- (4) potential impacts on Refuge wildlife and/or habitats, including short- and long-term disturbance, injury, and mortality;
- (5) personnel required;
- (6) costs to Refuge, if any; and
- (7) end products (i.e. reports, publications).

Research proposals would be reviewed by Refuge staff or others, as appropriate. Evaluation criteria would include, but would not be limited to, the following.

- (1) Research that will contribute to Refuge management will have higher priority than other requests.

- (2) Research that will conflict with other ongoing research, monitoring, or management programs will not be approved.
- (3) Research projects that can be carried out elsewhere (off-Refuge) will be less likely to be approved.
- (4) Research that causes undue disturbance or is intrusive will likely not be approved. The degree and type of disturbance will be carefully weighed when evaluating a research request, because many shorebird species are very sensitive to disturbance, and habitats, particularly the dunes that support several endangered plants and Smith's blue butterfly (*Euphilotes enoptes smithi*), are prone to destruction by foot traffic.
- (5) Evaluation of research requests will determine whether any effort has been made to minimize disturbance through study design (for example, by considering adjustments in the location, timing, or scope of the study, the number of participants, study methods, the number of study sites, etc.).
- (6) If it would be impossible for the Refuge to monitor researcher activities because of staffing or logistical constraints, requests for research may be denied, depending on the circumstances.
- (7) The duration of the project will be considered and agreed upon before approval. Open-ended projects will not be approved. All projects will be reviewed annually.

Availability of Resources: Adequate funding and staff exist to manage for research at the Salinas River National Wildlife Refuge.

Anticipated Impacts of the Use(s):

Endangered and Threatened Species: Human activity can have adverse impacts on rare shore-nesting birds, especially during nesting and feeding activities. The western snowy plover (*Charadrius alexandrinus nivosus*) (federally listed as threatened) is of primary concern to the Refuge. The Service strives to provide optimum breeding conditions for the western snowy plover. However, in recent years, the number of breeding snowy plovers on the Refuge, and throughout the species' range, has decreased significantly as a result of adverse weather conditions on their wintering grounds and heavy predation by native and nonnative wildlife. Although current levels of public use are low, human activity in the dunes and beaches during the snowy plover breeding season has the potential to adversely affect plover reproductive success. Western snowy plovers utilize the entire beach profile, from the foredune through the coastal strand into the intertidal zone (between mean low tide and mean high tide lines) for breeding and foraging. Pedestrians entering the foredune and coastal strand habitats during the breeding season have the potential to trample well-camouflaged western snowy plover eggs and/or chicks or to disturb adults, keeping them away from the nest for extended periods of time.

Other federally listed species at the Refuge include: Smith's blue butterfly (*Euphilotes enoptes smithi*) and the Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*) (federally listed as endangered);

and the Monterey spineflower (*Chorizanthe pungens* var. *pungens*) (federally listed as threatened). Visitors walking over the dunes have the potential to damage endangered and threatened dune plants and to introduce invasive species through inadvertent transfer of seeds or other propagules. They may also disturb Smith's blue butterfly or its host plants.

Coastal Dunes and Wetlands: The potential for visitors to trample and destroy native dune and wetland vegetation is of concern.

Upland and Riparian Habitats: The Refuge is actively involved in the restoration of the riparian and upland habitats on the Refuge. Off-trail human activity in these habitats can slow restoration efforts.

Migratory Birds: Human activity may disturb migratory birds utilizing the Refuge's habitats for feeding or nesting activities. Human activities near the wetland habitats could disturb feeding and nesting migratory birds, including black-necked stilts (*Himantopus mexicanus*), American avocets (*Recurvirostra americana*), and black skimmers (*Rynchops niger*) known to nest along the banks of the saline pond.

Minimal impact on Refuge wildlife and habitats is expected with research studies. Some level of disturbance is expected with all research activities, because most researchers will be entering areas that are normally closed to the public and may be collecting samples or handling plants or wildlife. Special Use Permit conditions will include special conditions to ensure that impact on wildlife and habitats reduced as much as possible.

Public Review and Comment: Public review and comment will be conducted concurrent with the public review and comment period for the CCP.

Determination (check one below):

Use is Not Compatible

Use is Compatible With Following Stipulations

Stipulations Necessary to Ensure Compatibility: Concerns about protecting rare native plants and animals and the overall integrity of the dune ecosystem require that Refuge staff closely review proposed research projects and that research activities be monitored. In order to allow research on the Refuge, the following measures will be taken to ensure compatibility.

Western snowy plover breeding activities on the Refuge and throughout the Monterey Bay area have been closely monitored by Point Reyes Bird Observatory (PRBO) since 1984. The Refuge will continue to partner with PRBO to monitor and document western snowy plover use of the Refuge and document causes of mortality and disturbance. Other threatened and endangered species and Refuge resources will also be monitored by Refuge staff, and the locations of extremely sensitive wildlife habitat areas will be considered when evaluating requests for research.

If proposed research methods would adversely affect, or would have the potential to adversely affect, Refuge resources (habitat or wildlife), the researcher will be required to demonstrate the need for the research and to identify potential impacts in advance of their occurrence. The researcher will also be required to develop mitigation measures to minimize potential impacts; mitigation measures will be listed as conditions on the Special Use Permit. Refuge staff may accompany researchers at any time to assess potential impacts, and may determine that previously approved research and Special Use Permits should be terminated because of impacts. All Refuge rules and regulations must be followed unless otherwise excepted by Refuge management.

Justification: Research projects will contribute to the enhancement, protection, use, preservation, and management of native Refuge wildlife populations and their habitats; this program as described is determined to be compatible. In view of the impacts research activities may have on the Service's ability to achieve Refuge purposes, sufficient restrictions will be placed on the researcher to ensure that disturbance is kept to a minimum.

Mandatory Reevaluation Date (provide month and year):

_____ Mandatory 15-Year Reevaluation Date (for priority public uses)

May 2011 Mandatory 10-Year Reevaluation Date (for all uses other than priority public uses)

NEPA Compliance for Refuge Use Decision (check one below):

Conducted with Comprehensive Conservation Plan

_____ Categorical Exclusion without Environmental Action Statement

_____ Categorical Exclusion and Environmental Action Statement

X Environmental Assessment and Finding of No Significant Impact

_____ Environmental Impact Statement and Record of Decision

Refuge Determination

Prepared by: _____ (Signature) _____ (Date)

Refuge Manager/
Project Leader
Approval: _____ (Signature) _____ (Date)

Concurrence

Refuge Supervisor: _____ (Signature) _____ (Date)

Regional Chief,
National Wildlife
Refuge System: _____ (Signature) _____ (Date)

California/Nevada
Operations Manager
(for CA and NV): _____ (Signature) _____ (Date)

Compatibility Determination

Use: Mosquito Control

Refuge Name: Salinas River National Wildlife Refuge

Establishing and Acquisition Authority:

Migratory Bird Treaty Act of 1918, as amended (16 U.S. 703–712)

Refuge Purpose(s): “Particular value in carrying out the national migratory bird management program” (USC Sec. 6676)

National Wildlife Refuge System Mission: The mission of the National Wildlife Refuge System 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.”

Description of Use(s): Three mosquito species are typically found at the Refuge (*Ochlerotatus washinoi*, *Culiseta inornata*, and *Culex tarsalis*); the Northern Salinas Valley Mosquito Abatement District (NSVMAD) has been conducting mosquito control at the Refuge for many years. NSVMAD uses a stepped approach for mosquito control at the Refuge. The first two steps utilize biorationals (Bti and methoprene). However, depending on conditions (weather, water temperature, etc.) application of biocontrols is not always effective. As a last resort, Golden Bear 1111 oil, a petroleum distillate, is applied. Material selection is based on efficacy, instar, water temperature, and species of mosquito. Each of these three materials is described in more detail below.

Bacillus thuringiensis israelensis - Bti is primarily used to control the early stages of immature mosquitoes. Factors that influence the success of control using Bti are temperature, pH, salinity, density of vegetative cover, organic content of the water and larval stage and density. Bti can be used for late stage immature mosquitoes, but shows decreased effectiveness, especially with the marsh mosquitoes. Bti has no effect on the pupal or adult stage. This larvicide is very specific, affecting only mosquitoes, blackflies and a few species of midges. This larvicide is used in liquid and granular formulations.

Altosid (Methoprene) - Altosid, an insect growth regulator, is used to control late stage mosquito larvae. Factors that affect successful application of Altosid are organic content of the water, aquatic microorganism density, density of vegetative cover and mosquito larval density. UV light does break down Altosid, limiting its effective life in the water to three to five days. Larvae treated with Altosid are unable to emerge from their pupal cases. This larvicide is also very specific, affecting only mosquitoes, fleas and a few species of midges. This larvicide is used in liquid, briquet and pellet formulations.

Golden Bear 1111 - When pupae are found, Golden Bear 1111 is used, as it is the only effective control agent available to prevent adult mosquito emergence. The District

minimizes the use of this larvicide as much as possible because of its effects to non-target air breathing invertebrates. GB-1111 (Golden Bear Oil) is used extensively as a larvicide by California Mosquito Abatement Districts (MAD) and it has been recommended by MAD for use on National Wildlife Refuges as a component of an integrated pest control formula for mosquito suppression. GB-1111 is a petroleum distillate that is used as a last-resort larvicide when the larvae pupate before mosquito abatement personnel can treat the site with other materials. There are few published studies of the non-target effects of GB-1111 and the product label warns that "GB-1111 is toxic to fish and other aquatic organisms." Since the avian embryo is contained in a virtually closed system, it is subjected to a situation environmentally similar to a fish in a small pond, with only limited recourse to protect itself from exposure to xenobiotics including petroleum compounds, pesticides, and industrial effluents. Certain chemicals that have been toxic to fish have also proven to be quite toxic to bird embryos. Albers and Heinz (1983) previously reported on a petroleum derived mosquito larvicide, FLIT-MLO (a straight-chain or branched alkane product), that was toxic to mallard embryos when applied externally to eggs at three times the maximum recommended application rate. GB-1111 is a cycloalkane product, hence toxicity of the hydrocarbons should be greater than those of FLIT-MLO.

Treatment is conducted almost exclusively by aerial application, but on rare occasions, when the treatment area is small, spraying is done by hand. Aerial applications are made using a helicopter flown at an altitude of 5–10 feet at an airspeed of 55 mph. Swath width is 66 feet, so several passes are made. Treatment duration is approximately 15–20 minutes.

Mosquito control applications can be expected to occur any time between November and June, depending on environmental conditions. Mosquito control typically occurs from December through April in the saline pond and salt marsh habitat on the Refuge. This area is flooded during winter rains and winter high tides, resulting in a potential mosquito breeding site with an area of approximately 100 acres.

Mosquito populations are related to precipitation amounts. In years when rainfall is below normal, mosquito populations are low and control is reduced or nonexistent. Conversely, when rainfall is above normal, mosquito populations are larger and mosquito control is increased. For example, between 1988 and 1991, rainfall was below normal and no mosquito control was conducted at the Refuge. In the last six years, however, mosquito control applications occurred 2–4 times per year.

Availability of Resources: Adequate funding and staff exist to manage for mosquito control at the Salinas River National Wildlife Refuge.

Anticipated Impacts of the Use(s):

Endangered and Threatened Species: Human activity can have adverse impacts on rare shore-nesting birds, especially during nesting and feeding activities. The western snowy plover (*Charadrius alexandrinus nivosus*) (federally listed as threatened) is of primary

concern to the Refuge. The Service strives to provide optimum breeding conditions for the western snowy plover. However, in recent years, the number of breeding snowy plovers on the Refuge, and throughout the species' range, has decreased significantly as a result of adverse weather conditions on their wintering grounds and heavy predation by native and nonnative wildlife. Although current levels of public use are low, human activity in the dunes and beaches during the snowy plover breeding season has the potential to adversely affect plover reproductive success. Western snowy plovers utilize the entire beach profile, from the foredune through the coastal strand into the intertidal zone (between mean low tide and mean high tide lines) for breeding and foraging. In addition, Point Reyes Bird Observatory has documented adult snowy plovers bringing chicks to the saline pond area to brood, as this area provides excellent cover and a good food source. The most commonly used brooding site in the area is also located on the Refuge, at the mouth of the Salinas River. The California brown pelican (*Pelecanus occidentalis californicus*) also utilizes the lagoon at the mouth of the Salinas River, as well as islands near the rivermouth, and portions of the beach strand as roosting sites, particularly from April through December.

Other federally listed species at the Refuge include: Smith's blue butterfly (*Euphilotes enoptes smithi*) and the Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*) (federally listed as endangered); and the Monterey spineflower (*Chorizanthe pungens* var. *pungens*) (federally listed as threatened). Mosquito Control personnel do not need to enter dune areas, so impacts on these species are not expected.

Wetlands and Migratory Birds: The saline pond and salt marsh habitats support a variety of migratory birds including waterfowl, shorebirds, raptors, terns, gulls, and wading birds. The lagoon at the mouth of the Salinas River supports pelicans and waterfowl.

Shorebirds utilize the saline pond and rivermouth throughout the year. Peak shorebird numbers occur during the spring (April–May) and fall (September–October) migration periods when hundreds of shorebirds are present at the saline pond and on the mudflats adjacent to the river. A variety of wintering shorebirds utilize the pond area, including western sandpipers (*Calidris mauri*), American avocets (*Recurvirostra americana*), black-necked stilts (*Himantopus mexicanus*), dowitchers (*Limnodromus* spp.), sanderlings (*Calidris alba*), dunlin (*C. alpina*), and plovers. In addition several species are known to nest in the pond area including the American avocet, black-necked stilt, and black skimmers (*Rynchops niger*).

The pond and rivermouth provide important habitat for migrating, wintering, and breeding waterfowl. Daily winter waterfowl populations in the pond range from 50 to 500, depending on available water. In addition, the Refuge pond is heavily used by dabbling ducks during spring migration as a stopover foraging and roosting site. The rivermouth supports a large wintering population (500–2,000) of diving ducks.

Helicopter application is utilized because it is more effective than other methods and

prevents surface disturbance to sensitive marsh habitat. However, helicopter application results in direct short-term disturbance of birds utilizing the saline pond, the salt marsh, and a portion of the Salinas River. Disturbance during the breeding season may result in decreased breeding success. Shorebirds tend to leave the area entirely during applications, potentially resulting in separation of chicks from adults if applications are made after mid-March, when shorebirds are nesting. Helicopter applications during the nesting season may also result in eggs being blown from nests by rotor wash. Pelicans, terns, and gulls roosting on the rivermouth flush when disturbed and then attempt to return to the roost. However, repeated passes by the helicopter continue to disturb the birds. This results in a majority of the pelicans leaving the Refuge. Herons and egrets will flush from the pond and rivermouth areas when disturbed, moving upstream to undisturbed areas. Waterfowl species react differently to the disturbance. Dabblers such as pintails (*Anas acuta*) and mallards (*Anas platyrhynchos*) flush and leave the area. Diving ducks such as ruddy ducks (*Oxyura jamaicensis*), buffleheads (*Bucephala albeola*), and scaups (*Aythya* spp.) will dive or move to avoid the disturbance but generally do not leave the Refuge.

In addition, there may be secondary impacts on birds utilizing the treated pond. Birds feed on a wide variety of insects. In particular, waterfowl and shorebirds utilize aquatic insects as a source of protein during spring migration. Mosquito control methods can kill other invertebrate species in addition to mosquitoes. As a result, the food source available in the pond is reduced for birds and other native wildlife.

Public Review and Comment: Public review and comment will be conducted concurrent with the public review and comment period for the CCP.

Determination (check one below):

- Use is Not Compatible
- Use is Compatible With Following Stipulations

Stipulations Necessary to Ensure Compatibility: In order to allow mosquito abatement on the Refuge, the following measures will be taken to ensure compatibility.

Public nuisance mosquito control will be authorized annually by Special Use Permit. Permit conditions will stipulate that all control work will be carried out in conformance with preapproved Pesticide Use Proposals and Section 7 Endangered Species consultations.

Permittee will need to notify the Refuge five days prior to spraying so that Refuge staff can collect bird use data and survey the pond area for nesting birds. Spraying will not be allowed during the shorebird nesting season (March 15–August 31) if avocets or stilts are known to be incubating or if snowy plovers with chicks are utilizing the pond. Typically, mosquito control efforts occur from December through April, early enough to avoid the snowy plover nesting season. Snowy plovers primarily use the area around the saline pond to rear chicks. However, there has been one treatment in the past five years where

spraying has occurred after April (in mid-June). Therefore, the Refuge will monitor the proposed spray area and will not allow spraying where snowy plovers occur due to potential disturbance from the helicopter. Bti and methoprene are not toxic to plants, lepidopterans, or birds. Even small amounts of drift should not adversely effect these plants or animals. Mosquito abatement practices cause temporary disturbances to wildlife. If the applicator follows the stipulations outlined in the Special Use Permit, mosquito abatement will not harm listed species.

Western snowy plover breeding activities on the Refuge and throughout the Monterey Bay area will continue to be monitored by Point Reyes Bird Observatory (PRBO). PRBO will monitor and document western snowy plover use of the Refuge and document causes of mortality and disturbance.

Other threatened and endangered species and Refuge resources will also be monitored by Refuge staff. Terms and conditions of the Special Use Permit will be subject to annual modification if disturbance is considered to interfere with or detract from the fulfillment of the purpose of the Refuge. For example, if bird surveys determine that an unacceptable level of flushing or disturbance occurs during helicopter treatment, only hand application will be allowed.

Golden Bear will be used as a last resort if Bti and methoprene are proven ineffective.

Justification: Fish and Wildlife Service policy provides for the control of pest species, provided that:

- (1) the pest organism represents a threat to human health and well-being or private property, the acceptable level of damage by the pest has been exceeded, or State or local governments have designated that pest as noxious;
- (2) the pest organism is detrimental to primary objectives;
- (3) the planned control program will not conflict with attainment of Refuge objectives or the purposes for which the Refuge is managed; and
- (4) The Service is currently developing new national policy regarding mosquito control on refuges. This compatibility determination will be reviewed once the new policy is finalized.

Mosquito abatement practices cause significant but temporary disturbances to wildlife. However, the number of treatment days per year is low, and if the applicator follows the stipulations necessary to ensure compatibility, mosquito abatement practices are determined to be compatible. Should further biological monitoring of this activity document a substantial prolonged reduction of bird use, or direct destruction of shorebird nests, this determination will be reanalyzed on the basis of the new data. At that time, mosquito control may be authorized by Special Use Permit only during emergency

situations based on a demonstrated public health concern, based on the presence of human disease-bearing viruses in mosquitos in the vicinity of the Refuge.

Mandatory Reevaluation Date (provide month and year):

_____ Mandatory 15-Year Reevaluation Date (for priority public uses)

May 2011 Mandatory 10-Year Reevaluation Date (for all uses other than priority public uses)

NEPA Compliance for Refuge Use Decision (check one below):

Conducted with Comprehensive Conservation Plan

_____ Categorical Exclusion without Environmental Action Statement

_____ Categorical Exclusion and Environmental Action Statement

X Environmental Assessment and Finding of No Significant Impact

_____ Environmental Impact Statement and Record of Decision

Refuge Determination

Prepared by: _____
(Signature) (Date)

Refuge Manager/
Project Leader
Approval: _____
(Signature) (Date)

Concurrence

Refuge Supervisor: _____
(Signature) (Date)

Regional Chief,
National Wildlife
Refuge System: _____
(Signature) (Date)

California/Nevada
Operations Manager
(for CA and NV): _____
(Signature) (Date)

*Appendix H. Salinas River NWR
Avian Predator Management Plan*

APPENDIX H. SALINAS RIVER NATIONAL WILDLIFE REFUGE AVIAN PREDATOR MANAGEMENT PLAN

I. OVERVIEW

In conjunction with its existing mammalian predator management program and other wildlife and habitat management programs, the U.S. Fish and Wildlife Service proposes to implement an avian predator management program at the Salinas River National Wildlife Refuge (hereafter, Refuge). The goal of the program is to increase the production of the Refuge's population of western snowy plovers (*Charadrius alexandrinus nivosus*, federally listed as threatened) by selectively removing problem avian predators that pose a threat to western snowy plover adults, chicks, or eggs. Removal will be accomplished by live trapping and translocation. Likely target predators include northern harriers (*Circus cyaneus*), American kestrels (*Falco sparverius*), and loggerhead shrikes (*Lanius ludovicianus*).

II. PURPOSE

The avian predator management program is intended to accomplish the following.

- Maintain a 5-year average population of 35–40 breeding western snowy plover adults on the Refuge.
- Maintain a 5-year average productivity of at least 1.0 fledged chick per male.
- Reduce the number of problem avian predators in localized areas. *Problem predators* are defined as individuals that belong to species known to prey on western snowy plovers and are exhibiting hunting behavior in western snowy plover nesting areas.

The program was developed to support the Refuge's management objective of recovering and maintaining a stable snowy plover population; the numerical targets reflect the best available data on the numbers of individuals necessary for a self-sustaining western snowy plover population. The avian predator management program was designed to operate in concert with existing management efforts, including the Monterey Integrated Predator Management Program.

III. BACKGROUND AND DESCRIPTION OF PROBLEM

The Pacific coast population of the western snowy plover (hereafter, snowy plover) breeds primarily on coastal beaches over a range that extends from southern Washington to southern Baja California. In 1993, the species was listed as threatened under the federal Endangered Species Act throughout this range. Threats to the snowy plover include increasing habitat loss, predation, and human disturbance of nesting grounds.

Significant loss of breeding habitat in southern California has made the state's remaining breeding areas crucial to maintaining a stable snowy plover population. The Monterey Bay region of California's central coast is particularly important, and the Refuge currently supports one of the state's most productive breeding populations of snowy plovers.

IV. EXISTING PREDATOR MANAGEMENT EFFORTS IN THE MONTEREY BAY AREA

The Point Reyes Bird Observatory (PRBO) has monitored the breeding success of snowy plovers throughout the Monterey Bay area since 1984. PRBO bands chicks and conducts a monitoring program that results in yearly estimates of

- breeding population size,
- number of nesting attempts,
- nesting success rate, and
- fledging success rate.

These studies make it possible to assess the status of the population, quantify impacts such as predation, and evaluate the success of various management programs. Information gathered by PRBO has been instrumental in the development of cooperative snowy plover management strategies involving various land management agencies in the Monterey Bay area, including the U.S. Fish and Wildlife Service (hereafter, Service), the California Department of Parks and Recreation¹ (CDPR), and the California Department of Fish and Game² (CDFG).

The Monterey Integrated Predator Management Program was initiated in 1993 by the Service, CDPR, and CDFG, in response to low snowy plover reproductive success rates. It integrates a variety of techniques, including:

- removal of mammalian predators, primarily non-native red foxes (*Vulpes vulpes*), feral cats (*Felis catus*), and skunks (*Mephitis mephitis*);
- installation of nest enclosures and symbolic fencing (cable and post structures used to keep humans out of nesting areas);
- temporary closure of sensitive beach areas; and
- posting of informational signs.

The program has been very successful in increasing snowy plover hatch and fledge rates.

¹California Department of Parks and Recreation has management responsibility for the area's State Beaches.

²California Department of Fish and Game manages the Moss Landing Wildlife Area.

Snowy plover hatch rates were high in 1999 and 2000; the 2000 hatch rate of 86% was the highest recorded since monitoring began in 1984. In addition, it was possible to use fewer exclosures around snowy plover nests in the Monterey Bay area in 2000 than in the previous eight years, possibly because of the Mammalian Predator Control Program's success. It is desirable to minimize the use of nest exclosures because avian predators learn to recognize them and use them as perches from which to prey on snowy plover chicks and adults; both fledge rates and adult loss have been shown to increase when nests are exclosed.

Although recent hatch rates have been high and mammalian predation of snowy plovers appears to have decreased, PRBO has observed an increase in avian predation of snowy plover chicks in the Monterey Bay area, resulting in decreased fledge rates. In 1998, PRBO staff found 12 plover chick bands in a kestrel nest box adjacent to the Moss Landing Wildlife Area; PRBO has also documented shrike and harrier predation on snowy plover chicks. Several incidents of avian predation on adult snowy plovers have also been recorded. Finally, PRBO has documented a positive correlation between sightings of avian predators and chick loss at study sites.

V. RELEVANCE TO REFUGE PURPOSE AND GOALS

The Refuge was established in 1974 for its "particular value on carrying out the national migratory bird management program," and one of the Refuge's three stated goals is to protect and enhance endangered species populations and their habitats. Snowy plovers have benefited by management of mammalian predators since 1993, but monitoring results suggest that management of selected avian predators is also necessary to protect and maintain the snowy plover breeding population. Thus, the new plan has direct bearing on the Refuge's ability to fulfill its purpose and goals.

VI. COOPERATORS

This plan will be implemented in cooperation with the following agencies and organizations.

- Point Reyes Bird Observatory (PRBO)
- Santa Cruz Predatory Bird Research Group (SCPBRG)
- California Department of Fish and Game (CDFG)
- California Department of Parks and Recreation (CDPR)
- U.S. Department of Agriculture – Wildlife Services (USDA – WS)
- U.S. Fish and Wildlife Service, Ventura Field Office (USFWS)
- U.S. Fish and Wildlife Service, San Francisco Bay NWR Complex (USFWS)

VII. EXPERIMENTAL AVIAN PREDATOR MANAGEMENT STUDY

Because of decreased snowy plover fledge rates and continued adult loss believed to be primarily the result of avian predation, the Service and the Santa Cruz Predatory Bird Research Group, in cooperation with CDFG, CDPR, and PRBO, implemented a small-scale 2-year experimental avian predator relocation study at the Refuge and the Moss Landing Wildlife Area in 1999. The purpose of the study was to document the effects of avian predators on snowy plovers and to assess the efficacy of translocating avian predators.

The pilot year of the study (1999) provided initial data on the effects of avian predators on snowy plover reproductive success. A pair of northern harriers was removed from the Moss Landing Wildlife Area early in the 1999 breeding season, and plover fledging success during the first portion of the breeding season was 72%. However, a second pair of harriers nesting on private property approximately 3 miles away was not trapped, and fledge rates of plovers at the Wildlife Area decreased to 32% after heavy visitation by the second pair of harriers. A pair of harriers is also believed to have contributed significantly to the reproductive failure of snowy plovers at the Refuge in 1999. Though hatch rates were high, not a single chick fledged at the Refuge in 1999. During the period when the harrier pair were seen hunting at the Refuge, significant snowy plover chick loss was documented. The harrier pair could not be trapped in time to prevent chick losses.

The second year of the study (2000) saw improved protocols and increased funding, contributing to quicker and more efficient predator translocation and an overall increase in effectiveness. In addition, during the second study year, Zmudowski State Beach was included in the experiment based on evidence that shrikes were contributing to the low snowy plover fledge rates documented at this site (14% in 1999). Fledge rates were high at all three Monterey Bay area study sites in 2000. At the Refuge, where three harriers were translocated, the fledge rate increased from a 1997–1999 average of 14% to a value of 28% in 2000. At Zmudowski State Beach, where three shrikes were translocated, the fledge rate increased from a 1997–1999 average of 29% to a value of 57% in 2000, the highest fledge rate recorded there since 1984. At the Moss Landing Wildlife Area, where five harriers were translocated, the 2000 fledge rate was 42%. This is similar to the 1997–1999 average of 49%. Fledge rates at the Wildlife Area probably would have been higher, but two harriers arrived in the area in July. Because it was late in the season, cooperators initially felt that trapping was unnecessary. However, at least one of the late-arriving harriers was documented preying on snowy plover chicks, and fledge rates decreased. Both late-arriving harriers were eventually trapped and relocated.

The experimental study also provided information on the effectiveness of translocation. Two harriers were equipped with radio transmitters in 1999 and were periodically checked for several months after their release. They survived and stayed in the general area of release. In addition, all translocated birds were banded in both study years, so it was possible to determine that no birds returned to the capture area within the same season and that only one of the three birds translocated in 1999 returned the following year. This harrier was recaptured near the Moss

Landing Wildlife Area in 2000, in the same area where it had been trapped in 1999. It was fitted with a radio transmitter and translocated again in 2000; as of September 2000, it had not returned to the capture area.

Based on analysis of the results of the 2-year experimental study, the Service and its cooperators concluded that avian predation is adversely affecting snowy plover reproductive success at the three study sites, and that trapping and translocation of problem avian predators is an effective strategy for reducing predation-related mortality and increasing fledge rates.

VIII. MANAGEMENT PLAN

Avian predator management may occur year-round but will be concentrated immediately prior to and during the snowy plover breeding season (March–September). Management strategies included in this plan will be implemented within the Refuge, or, with the consent of the appropriate agency or landowner, on adjacent public or private properties.

Under the avian predator management plan, the Refuge and its cooperators will continue to monitor snowy plovers to determine hatch and fledge rates as well as adult survivorship and population size. In addition, avian predators on the Refuge and adjacent lands will be monitored; information recorded will include species observed and their behavior and habits. If an individual predator is evaluated as posing a threat to snowy plovers at the Refuge, it will be trapped, banded, and relocated. The determination that relocation is necessary will be made by Refuge staff in consultation with PRBO biologists and monitors; CDFG and CDPR staff will be responsible for monitoring and managing avian predators on their respective lands, in cooperation with PRBO.

Trapped birds will be removed from the wild and held in a licensed and permitted rehabilitation/holding facility until they can be relocated and released in the wild. All translocated birds will be released in an area with suitable habitat at a distance from which they would not be expected to return (generally, more than 150 miles away). Release distances may be adjusted in the future based on documented return rates of translocated birds. All releases will be carried out with the permission of the landowner or land management agency.

Only licensed and authorized agencies or individuals will implement predator management actions; all activities will be conducted in a humane manner, under the direction of the Refuge manager and in close coordination with PRBO. Management actions will be carried out by the Santa Cruz Predatory Bird Research Group or USDA Wildlife Services personnel. Refuge personnel and their cooperators may assist with capture efforts.

Non-lethal techniques will be used whenever possible. A combination of live-trapping techniques will be used, including bal-chatri traps, dho gaza nets, bow nets, net launchers with bait, and lures. Knowledge of the avian predator's habits will determine which trapping technique to employ.

Hazing or lethal control will only be used on extremely rare occasions when it is demonstrably necessary, for example, when repeated trapping attempts have failed and there is an immediate threat to snowy plover chicks. The decision to lethally remove an avian predator will be determined on a case-by-case basis, and will be based on the degree of threat, the breeding phase of the snowy plovers, and professional judgment of the situation and knowledge regarding the species involved. Lethal methods may include euthanasia and shooting, and will be implemented as humanely and selectively as possible. Shooting will be conducted only by government personnel trained and certified in firearm safety. In order to avoid human safety hazards, shooting will take place only when members of the public are not in the area.

Selective control of problem mammalian predators will continue as described in the Salinas River National Wildlife Refuge Predator Management Plan and Final Environmental Assessment (U.S. Fish and Wildlife Service 1993).

The Refuge and its cooperators will continue to explore avian predator management alternatives that will protect the snowy plover while minimizing disturbance to avian predators. There is particular interest in developing management techniques that would permit problem predators to remain on the Refuge but would prevent them from hunting in snowy plover nesting areas. For example, cooperators have expressed interest in conducting research and trials aimed at developing new types of barriers that would use sound or vibration to deter predator entry to plover breeding/nesting habitat.

IX. ALTERNATIVES CONSIDERED

In addition to the management strategy described above, the Refuge and its cooperators considered several alternatives for avian predator management, including:

- 1) no action,
- 2) hazing,
- 3) lethal control, and
- 4) use of physical barriers.

Cooperators agreed that the proposed management plan represents the most effective, most humane, and least disruptive alternative. If no action is taken, snowy plover fledge rates are expected to be too low to sustain the Refuge population; ultimately, snowy plovers may stop breeding on the Refuge, or the Refuge may act as a population “sink.” Hazing was determined to be too disruptive to non-target wildlife. Lethal control, while efficient and effective, was rejected because of its impact on the individual avian predators; cooperators judged it to be insufficiently humane. Finally, physical barriers (such as exclosures around snowy plover nests) have been used for a number of years at the Refuge and elsewhere throughout the snowy plover breeding range. While they are effective at reducing mammalian predation on eggs, they are ineffective against avian predators. Once chicks leave the exclosure, they are vulnerable to avian predation. In addition, adult snowy plovers in exclosed nests have been shown to be more vulnerable to loss than adults in unexclosed nests; as discussed in *Existing Predator Management Efforts in the*

Monterey Bay Area above, avian predators are believed to learn to recognize exclosures and exploit the opportunity they offer.

X. JUSTIFICATION

The predator management program will result in small, localized reductions in populations of some native avian predator species around the Refuge. In most years, an estimated 2–6 birds will be affected, and impacts on individual birds will be minimized by the use of humane and selective techniques. Nonlethal methods will be used almost exclusively. Avian predators will be trapped and released into suitable habitat elsewhere. Populations of avian predators using grassland and riparian habitats will not be affected. The program proposes to remove only avian predators using the beach or salt pan areas, where snowy plovers nest.

Without effective predator management, large losses of chicks and adults of the western snowy plover will continue to threaten the recovery of this listed species. With predator management, including avian predator management, the Refuge snowy plover population is expected, at a minimum, to sustain its current size of approximately 35 breeding adults, and ideally, to increase to 40 breeding adults. Snowy plover reproductive success is expected to increase to 1.0 fledglings per male per year.

*Appendix I. Salinas River NWR Fire
Management Plan*

**SALINAS RIVER NATIONAL WILDLIFE REFUGE
WILDLAND FIRE MANAGEMENT PLAN**



2001

AUGUST 2001

WILDLAND FIRE MANAGEMENT PLAN

SALINAS RIVER NATIONAL WILDLIFE REFUGE

Prepared:

Roger Wong
Fire Management Officer
San Luis NWR Complex

Date

Margaret Kolar
Project Leader
San Francisco Bay NWR Complex

Date

Concurred:

Pam Ensley
Regional Fire Management Coordinator
Pacific Region, US Fish and Wildlife Service

Date

Approved:

Steve Thompson
Acting Manager
California/ Nevada Operation Manager
Pacific Region, US Fish and Wildlife Service

Date

TABLE OF CONTENTS

LIST of FIGURES [iv](#)

EXECUTIVE SUMMARY [v](#)

INTRODUCTION [1](#)

COMPLIANCE WITH USFWS POLICY [2](#)

FIRE MANAGEMENT OBJECTIVES [4](#)

DESCRIPTION OF REFUGE [5](#)

 Cultural Resources [5](#)

 Fish and Wildlife [5](#)

 Vegetation [9](#)

 Structures and Facilities [10](#)

WILDLAND FIRE MANAGEMENT SITUATION [12](#)

 Historic Role of Fire [12](#)

 Pre-settlement Fires [12](#)

 Post-settlement Fire History [12](#)

 Prescribed Fire History [12](#)

 Responsibilities [12](#)

 Agency Administrator/ Project Leader (PL) [13](#)

 Deputy Project Leader (DPL) [13](#)

 Refuge Manager (RM) [13](#)

 Biologist [13](#)

 Zone Fire Management Officer (FMO) [13](#)

 Prescribed Fire Specialist (PFS) [14](#)

 Fire Management/Suppression Personnel [14](#)

 Incident Commander [15](#)

 Interagency Operations [15](#)

 Protection of Sensitive Resources [16](#)

WILDLAND FIRE ACTIVITIES [19](#)

 Fire Management Strategies [19](#)

 Preparedness [20](#)

 Historical weather analysis [20](#)

 Fire Prevention [21](#)

 Staffing Priority Levels [21](#)

 Training [21](#)

 Supplies and Equipment [22](#)

Detection	22
Communications	22
Pre-Attack Plan	22
Fire Management Units	23
Vegetation Type	23
Fuel Types and Fire Behavior	23
Suppression Tactics	23
Suppression Conditions	24
Wildland Fire Situation Analysis	24
Aircraft Operations	24
Rehabilitation and Restoration	25
Required Reporting	25
Fire Investigation	25
PRESCRIBED FIRE ACTIVITIES	27
Prescribed Burn Program Objectives	27
Fire Management Strategies	27
Prescribed Fire Planning	28
Annual Activities	28
Prescribed Burn Plan	28
Strategies and Personnel	29
Monitoring and Evaluation	31
Required Reports	31
Prescribed Burn Critique	32
AIR QUALITY / SMOKE MANAGEMENT GUIDELINES	33
FIRE RESEARCH	33
PUBLIC SAFETY	34
PUBLIC INFORMATION AND EDUCATION	35
FIRE CRITIQUES AND ANNUAL PLAN REVIEW	36
Fire Critiques	36
Annual Fire Summary Report	36
Annual Fire Management Plan Review	36
CONSULTATION AND COORDINATION	37
Appendices	38
Appendix A: References Cited	38
Appendix B: Definitions	39
Appendix C: Special Status Species on the Refuge	42

Appendix D: Fire Dispatch Plan/ Contact List	43
Appendix E: Delegation of Authority	45
Appendix F: Notification List for Prescribed Burning	47
Appendix G: Cultural Resource Compliance	48
Appendix H: Sample WFSAs	50
Appendix I: Sample Burn Plan	55

LIST OF FIGURES

Figure 1: Vegetation	6
Figure 2: Heavy equipment use areas	17

EXECUTIVE SUMMARY

When approved, this document will become the Salinas River National Wildlife Refuge fire management plan. Major components include:

- updated policy for prescribed fires at Salinas River National Wildlife Refuge
- reference to and inclusion within the Refuge's 2001 Comprehensive Conservation Plan
- format changes under the direction of Fire Management Handbook (Release Date 6/1/00).
- establishes a Prescribed Fire Program for management of sensitive habitat and reduction of hazardous fuels.

This plan is written to provide guidelines for appropriate suppression and prescribed fire programs at Salinas River National Wildlife Refuge. Prescribed fires may be used to reduce hazard fuels, restore the natural processes and vitality of ecosystems, improve wildlife habitat, remove or reduce non-native species, and/or conduct research.

INTRODUCTION

Salinas River National Wildlife Refuge (Refuge) is a valuable natural resource supporting a diversity of habitats and a great variety of aquatic and terrestrial biological resources. The Refuge provides important habitat to many endangered and threatened species as well as species that are candidates for federal listing and reside at the Refuge. Historically, many factors have contributed to the decline of endangered, threatened and rare species present in the Refuge, which include historic loss of habitat, human disturbance, exotic vegetation encroachment, and increased predation. However, the history of fire at the Refuge is not documented or well known.

The primary purpose for which the 366-acre Refuge was established in 1973 was for its "particular value in carrying out the national migratory bird management program." It was acquired by the Service through a transfer of surplus military land from the U.S. Army and the U.S. Coast Guard. From 1974 through 1991 the area was operated as a Wildlife Management Area under a cooperative agreement with the California Department of Fish and Game. By the mid-1980's, the growing importance of the Refuge to sensitive species prompted the need for more active management and protection of its resources. In 1991, the Fish and Wildlife Service began managing the area as a National Wildlife Refuge under the National Wildlife Refuge System Administration Act and the Refuge Recreation Act of 1962. Management emphasis is on threatened and endangered species and sensitive migratory birds.

The Fire Management Plan (FMP) for the Refuge is written as an operational guide for managing the Refuge's wildland fire and prescribed fire programs. It defines levels of protection needed to ensure safety, protect facilities and resources, and restore and perpetuate natural processes, given current understanding of the complex relationships in natural ecosystems. It is written to comply with a service-wide requirement that refuges with burnable vegetation develop a fire management plan (620 DM 1).

The FMP will be used to help achieve resource management objectives of managing unplanned fire and using prescribed fire to control non-native vegetation and restore native upland grassland habitat. The Department of the Interior policy requires that all refuges with vegetation that can sustain fire must have a Fire Management Plan that details fire management policies, the use of prescribed fire for attaining resource management objectives, and fire program operational procedures. This plan is evaluated under NEPA in chapter five of the Draft Comprehensive Conservation Plan/Environmental Assessment.

The FMP outlines procedures for wildland suppression and prescribed fires. The fire plan furthers the mission of the Refuge by providing increased protection for Refuge resources and by establishing the framework for a prescribed fire program designed to enhance and maintain native grassland habitat on the Refuge. Increasing coordination and preparedness to suppress wildland fires will help ensure quick response to fires which have the potential to be devastating to Refuge resources.

There is no dedicated fire staff at Salinas River NWR or San Francisco Bay NWRC. All wildland fires will be suppressed by local cooperating agencies with the oversight of the Project Leader and Zone Fire Management Officer (FMO). All prescribed fires will be coordinated through the Zone FMO.

COMPLIANCE WITH USFWS POLICY

The Refuge was established in 1973 by authority of 16 U.S.C. subsection 667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife, or other purposes, 16 U.S.C. subsection 667b-667d, as amended) for wildlife conservation purposes and, in particular, for “carrying out the national migratory bird management program.”

Values to be considered in the FMP include: protection of Refuge property and historical sites, protection of neighboring private properties, protection of endangered/threatened/and rare species, and enhancement and protection of Refuge habitats. There are currently 40 special status species known or believed to use habitat at the Refuge (Appendix C). Endangered species include the Smith’s blue butterfly (*Euphilotes enoptes smithi*), California brown pelican (*Pelecanus occidentalis*), American peregrine falcon (*Falco peregrinus anatum*), and the Monterey gilia (*Gilia tenuiflora* ssp. *arenaria*); threatened species include the Western snowy plover (*Charadrius alexandrinus nivosus*) and Monterey spineflower (*Chorizanthe pungens* var. *pungens*).

This Fire Management Plan has been completed in conjunction with the Refuge’s 2001 Comprehensive Conservation Plan (CCP). The following goals for Salinas River NWR were developed by Refuge staff and are outlined in the CCP. These goals further define the purpose and direction of the Refuge.

- Protect and enhance populations of endangered, threatened, and rare species, and promote their recovery by restoring and enhancing their natural habitats.
- Protect, restore, and enhance populations of migratory birds and other native species and their habitats.
- Provide opportunities for safe, unique, wildlife-dependent recreation when compatible with other Refuge goals.

Several operational plans are used by the Refuge to meet these objectives. These include the CCP, recovery plan for the endangered Smith’s blue butterfly, recovery plan for coastal plants which includes the Monterey spineflower and Monterey (sand) gilia, predator management plan, hunt plan, and internal Section 7 endangered species consultations.

The FMP is a detailed program of action to implement fire management policies and objectives, and addresses policy on prescribed burning to control non-native vegetation and restore native grassland habitat. The FMP meets the objectives of the Refuge’s operational plans by supporting strategies which rely upon fire as a management tool and by identifying where and when fire is not wanted.

The Department Manual, DM 910 (USDI 1997) states the following regarding wildland fires:

“Wildfires may result in loss of life, have detrimental impacts upon natural resources, and damage to or destruction of man-made developments. However, the use of fire under carefully defined conditions is to be a valuable tool in wildland management. Therefore, all wildfires within the Department will be classified either as wildfire or as prescribed fires.

Wildfires, whether on lands administered by the Department or adjacent thereto, which threaten life, man-made structures, or are determined to be a threat to the natural resources or the facilities under the Department's jurisdiction, will be considered emergencies and their suppression given priority over normal Departmental programs.

Bureaus will give the highest priority to preventing the disaster fire - the situation in which a wildfire causes damage of such magnitude as to impact management objectives and/or socio-economic conditions of an area. However, no wildfire situation, with the possible exception of threat to human survival, requires the exposure of firefighters to life threatening situations. Within the framework of management objective and plans, overall wildfire damage will be held to the minimum possible giving full consideration to (1) an aggressive fire prevention program; (2) the least expenditure of public funds for effective suppression; (3) the methods of suppression least damaging to resources and the environment; and (4) the integration of cooperative suppression actions by agencies of the Department among themselves or with other qualified suppression organizations.

Prescribed fires...may be used to achieve agency land or resource management objectives as defined in the fire management plans....Prescribed fires will be conducted only when the following conditions are met:

- a. Conducted by qualified personnel under written prescriptions.
- b. Monitored to assure they remain within prescription.

Prescribed fires that exceed the limits of an approved prescribed fire plan will be reclassified as a wildfire. Once classified a wildfire, the fire will be suppressed and will not be returned to prescribed fire status.”

The authority for funding (normal fire year programming) and all emergency fire accounts is found in the following authorities:

Section 102 of the General Provisions of the Department of Interior's annual Appropriations Bill provides the authority under which appropriated monies can be expended or transferred to fund expenditures arising from the emergency prevention and suppression of wildland fire.

P.L. 101-121, Department of the Interior and Related Agencies Appropriation Act of 1990, established the funding mechanism for normal year expenditures of funds for fire management purposes.

31 US Code 665(E)(1)(B) provides the authority to exceed appropriations due to wildland fire management activities involving the safety of human life and protection of property.

Authorities for procurement and administrative activities necessary to support wildland fire suppression missions are contained in the Interagency Fire Business Management Handbook. The Reciprocal Fire Protection Act of May 27, 1955 (42 USC 815a; 69Stat 66) provides Authorities to enter into agreements with other Federal bureaus and agencies; with state, county, and municipal governments; and with private companies, groups, corporations, and individuals regarding fire activities. Authority for interagency agreements is found in “Interagency Agreement between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, US Fish and Wildlife Service of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture” (1996).

FIRE MANAGEMENT OBJECTIVES

General Fire Management Objectives for this Refuge are:

1. Protect life and resources/property.
2. Use prescribed fire as a tool to accomplish Refuge habitat management objectives.

Specific Refuge Fire Management Objectives include:

1. Safely suppress all wildland fires using strategies and tactics appropriate to safety considerations and values at risk.
2. Minimize the impact and cost of fire suppression actions.
3. Prevent human-caused wildland fires.
4. Educate the public regarding the role of fire within the Refuge.
5. Use prescribed fire to reduce abundance and limit the spread of non-native plant species and enhance habitats for other species.

DESCRIPTION OF REFUGE

Salinas River NWR is located 11 miles northeast of the City of Monterey at the confluence of the Salinas River and Monterey Bay. The entire Refuge is located within Monterey County. The area is composed of one unit totaling 366 acres (Figure 1). The western boundary ends at the mean high water line of Monterey Bay, with the tidal lands reserved by the State Lands Commission. The northeast boundary lies in the Salinas River channel. The Refuge is bordered to the east and south by private lands, comprised of agricultural fields and coastal sand dunes. The Salinas River and Salinas River State Beach border the Refuge to the north.

The Monterey Bay area has a moderate maritime climate, with warm to hot, dry summers and moist, mild winters. July and August are virtually without rainfall while January and February are usually the wettest months. The amount of rainfall varies not only year to year but also on opposite ends of the Bay. Monterey averages about 15 inches (38 cm) annually while Santa Cruz receives an average of 28 inches (69 cm) (Monterey Bay National Marine Sanctuary Draft EIS, 1990).

CULTURAL RESOURCES

Under Federal ownership, archaeological and historical resources within the Refuge receive protection under Federal laws mandating the management of cultural resources, including, but not limited to, the Archaeological Resources Protection Act; the Archaeological and Historical Preservation Act; the Native American Graves and Repatriation Act, and the National Historic Preservation Act of 1966. To date, there are WWII concrete remnants from the foundation of three buildings of the “old U.S. Coast Guard LORAN structure” and a one room above ground concrete bomb shelter (U.S. Army Corps of Engineers, 1999). The Refuge’s CCP includes an in depth review of the cultural setting, as well as a strategy to conduct a formal Refuge-wide cultural resource survey.

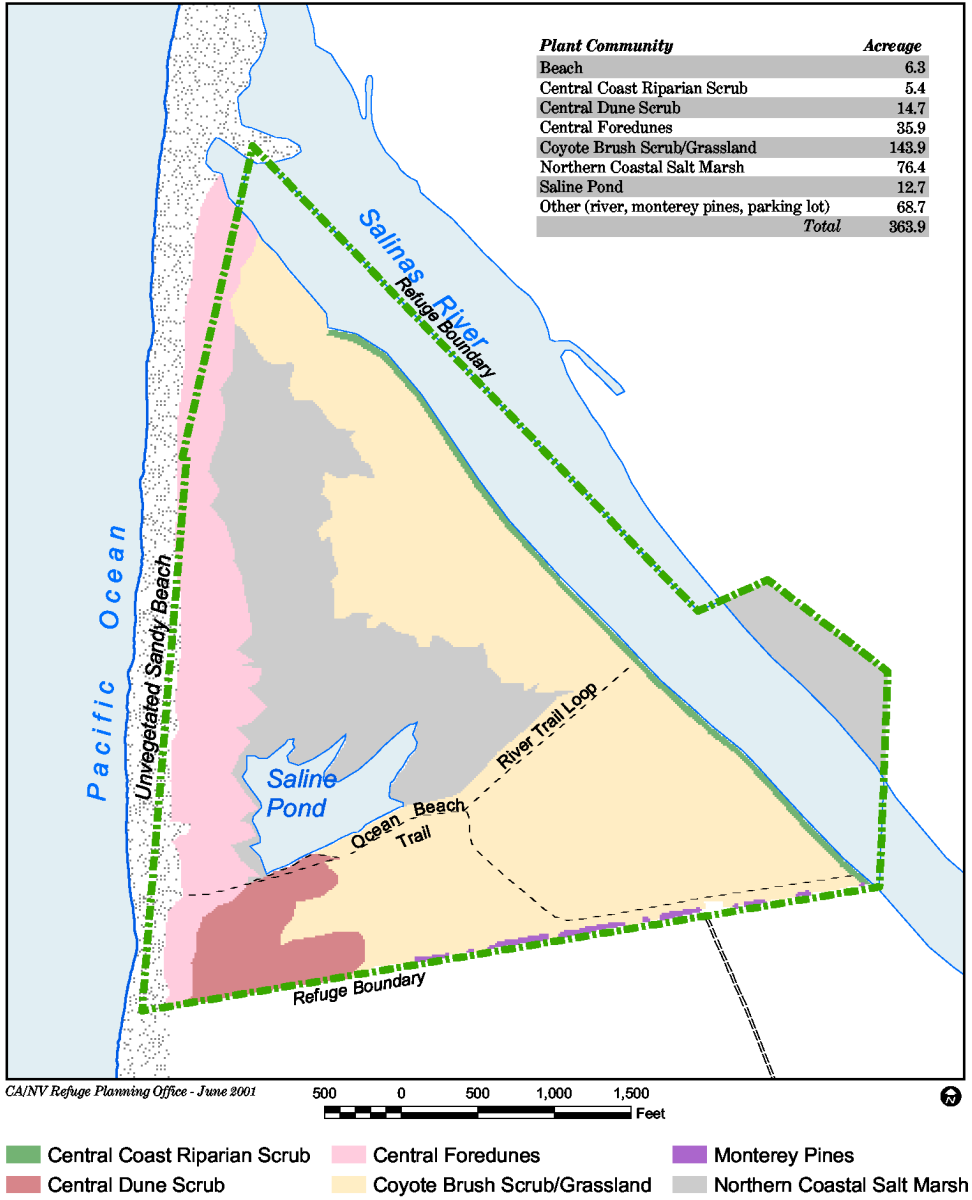
FISH AND WILDLIFE

Despite its small size, the Refuge is an important wildlife area in central coastal California (Habitat Restoration Group 1991). This is due to the lack of available wetland habitat elsewhere on the central coast as well as the unique wildlife, diversity of habitats, and many significant biological resources the Refuge supports. The diverse habitats within the Refuge include: ocean beach, saline pond, riparian, sand dunes (includes foredunes and coastal scrub dunes), salt marsh, grassland, coastal river lagoon, and formerly farmed upland.

Wildlife of dune and beach habitats are able to live in harsh living conditions. They survive with little or no fresh water, limited cover and forage. Three federally listed species are reported to occur in these areas of the Refuge: Smith’s blue butterfly, western snowy plover, and California brown pelican. Other special-status species found in this habitat include globuse dune beetle (*Coelus globosus*), black legless lizard (*Anniella pulcha nigra*), American white pelican (*Pelecanus erythrorhynchos*), merlin (*Falco columbarius*), peregrine falcon, long-billed curlew (*Numenius americanus*), California gull (*Larus californicus*), elegant tern (*Sterna elegans*), and Caspian tern (*Sterna elegans*) (Appendix C). There are also a variety of non-status species present including: western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis melanoleucus*), deer mouse (*Peromyscus maniculatis*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes fulva*), and longtail weasel (*Mustela frenata*).

Figure 1: Vegetation

Figure 1. Vegetation Map



The Salinas River Lagoon contains both fresh and salt water aquatic species. Native freshwater fish include: Sacramento blackfish (*Orthodon microlepidotus*), Sacramento sucker (*Catostomus occidentalis*), Sacramento squawfish (*Ptychocheilus grandis*), California roach (*Lavinia exilicauda*), threespine stickleback (*Gasterosteus aculeatus*) and the federally threatened steelhead/rainbow trout (*Oncorhynchus mykiss*). Introduced freshwater fish include: carp (*Cyprinus carpio*), white bass (*Morone chrysops*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), mosquitofish (*Gambusia affinis*), and threadfin shad (*Dorosoma petenense*). Saltwater fish found year round at the Refuge include: starry flounder (*Platichthys stellatus*) and staghorn sculpin (*Leptocottus armatus*). Some of the saltwater fish that can be found in the Lagoon include: Pacific herring (*Clupia harengus*), topsmelt (*Atherinops affinis*), northern anchovy (*Engralis mordax*), and at least 5 species of surfperch. (Refer to Chapter 4, Salinas River NWR CCP for a more complete list of species).

The upland areas contain grassland, coyote brush scrub, and previously farmed habitats and are used by reptiles, mammals, and birds. Reptiles present here include the western skink (*Eumeces skiltonianus*), racer (*Coluber constrictor*), gopher snake, common king snake (*Lampropeltis getulus*), and western terrestrial garter snake (*Thamnophis elegans*). Typical upland mammals include gray and red fox, longtail weasel, western harvest mouse (*Reithrodontomys megalotis*), black-tailed jackrabbit (*Lepus californicus*), deer mouse, and California ground squirrel (*Spermophilus beecheyi*). Song birds and raptors forage in this habitat. Special status species include: white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), merlin, short-eared owl (*Asio flammeus*), Monterey ornate shrew (*Sorex ornatus salarii*), and Salinas harvest mouse (*Reithrodontomys megalotis*: Appendix C).

Wetland habitat found at the Refuge provide shelter, forage, and cover for a wide variety of herpetofauna, birds, crustaceans, insects, and mammals, including many special status species. The Refuge's federally listed species include the western snowy plover and the California brown pelican. Other special status species include: California brackish water snail (*Tryonia imitator*), Southwestern pond turtle (*Clemmys marmorata pallida*), steelhead, American white pelican, double-breasted cormorant (*Phalacrocorax auritus*), bufflehead (*Bucephala albeola*), osprey, white-tailed kite, n. harrier, sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk, merlin, American peregrine falcon, long-billed curlew, California gull, elegant tern, Caspian tern, Forster's tern (*Sterna forsteri*), short-eared owl, willow flycatcher (*Empidonax traillii*), California yellow warbler (*Dendroica petechia brewsteri*), salt marsh wandering shrew (*Sorex vagrans halicoetes*), Monterey ornate shrew, and Salinas harvest mouse (Appendix C). Some non-status herpetofauna include the western fence lizard, common garter snake (*Thamnophis sirtalis*), sharp-tailed snake (*Contia tenuis*), California slender salamander (*Batrachoseps attenuatus*), and western toad (*Bufo boreas*). The many bird species present are listed below. Some mammals include muskrat (*Ondatra zibethica*), red and gray fox, Virginia opossum (*Didelphis virginiana*), vagrant shrew (*Sorex vagrans*), and coyote (Refer to Salinas River CCP for a more complete list of species).

This unique diversity of habitats supports an enormous variety of wildlife, including many species of migratory birds. The Refuge provides breeding, wintering, foraging, and roosting habitat for shorebirds, waterfowl, raptors, neotropical migrants, terns, gulls, and seabirds.

Shorebirds occur at the Refuge year round. The ocean beach and exposed mud found along the pond, river and island edges, provide excellent feeding and roosting habitat. Numbers peak during the spring and fall migration periods when thousands of shorebirds utilize the Refuge. Large wintering populations

consist of a variety of species including western snowy plover, western sandpipers (*Calidris mauri*), American avocets (*Recurvirostra americana*), black-necked stilts (*Himantopus mexicanus*), dunlin (*C. alpina*), sandpipers (*Calidris* sp.), sanderlings (*C. alba*), dowitchers (*Limnodromus* sp.), and phalaropes (*Phalaropus* sp.).

Three species of shorebirds are known to nest on the Refuge. They include the Federally threatened western snowy plover, American avocet, and black-necked stilt. All three species have been documented nesting on the Refuge islands occurring in the Salinas River. They also nest on saline flats that form as the saline pond evaporates throughout the summer. In addition, the snowy plover nests within the foredune habitat.

The Refuge has been one of the most productive snowy plover breeding areas in central coastal California (SFNWRC 1998) and traditionally has supported a significant proportion of the remaining plover breeding population in Monterey Bay. Breeding plovers were once abundant on beaches in San Diego, Los Angeles, Orange, Ventura, and Santa Barbara counties; however, loss of habitat and increased human disturbance have eliminated the birds from some or all of these counties. This loss of breeding habitat (and plovers) in southern California has made remaining breeding areas, particularly the Monterey Bay area, crucial to maintaining a stable plover population.

Since the mid-1980's, increased human disturbance and predation by non-native red fox (*Vulpes fulva*) have greatly reduced the nesting success of plovers in the Monterey Bay area and at the Refuge (SFNWRC 1998). Major threats to the snowy plover include human disturbance, loss of habitat, exotic vegetation encroachment, and increased predation (SFNWRC 1998). Presently, exotic vegetation control and predator management (avian and mammalian) are being conducted at the Refuge and at other lands throughout the Monterey Bay area to alleviate some of the pressures affecting snowy plovers.

A variety of waterbirds utilize the Refuge for foraging, roosting, and bathing. It provides one of the last freshwater roost sites in central California for as many as 1,400 endangered California brown pelicans. This freshwater roost is especially significant as it may aid the pelicans in ridding their pouches of saltwater lice (SFNWRC 1998). Also, the roost site allows the pelicans to successfully winter, building resources in preparation for the breeding season. Loss of the Moss Landing roost site, due to prolonged disturbance from restoration activities, has likely increased the importance of the Refuge roost site. One of the objectives of the California brown pelican Recovery Plan (USFWS 1983) is to ensure the long-term protection of important roosting locations. Historically, the Federally endangered California least tern (*Sterna antillarum browni*) and Caspian tern nested at the Refuge. Caspian terns nested on the Refuge in 1996 after a failed attempt at Moss Landing Ecological and Estuarine Research Reserve. This breeding attempt on the Refuge was unsuccessful. Some of the eggs were abandoned while others were incubated to hatching. Indications are that the hatched chicks have been predated by avian predators. Prior to this attempt in 1996, the last nesting attempt by Caspian terns occurred in 1986 but that attempt also failed, probably due to human disturbance (SFNWRC 1998). In 1992, five California least terns were seen on the Refuge and may have been nesting in the vicinity. The Refuge also provides roosting and foraging habitat for elegant terns, Forster's terns (*S. Forsteri*), double-crested cormorants, ring-billed gulls (*Larus delawarensis*), California gulls (*L. californicus*), Bonaparte's gulls (*L. philadelphia*), western gulls (*L. occidentalis*), great blue herons (*Ardea herodias*), green-backed herons (*Butorides striatus*), black-crowned night-herons (*Nycticorax nycticorax*), snowy egrets (*Egretta thula*), and great egrets (*Casmerodius albus*).

The Refuge provides important wintering and breeding habitat for waterfowl in the Monterey Bay area. Wintering waterfowl populations vary from 500 to 3,000 on the Refuge depending on water availability. Primary species include, ruddy duck (*Oxyura jamaicensis*), mallard (*Anas platyrhynchos*), green-winged teal (*A. crecca*), American wigeon (*A. americana*), northern shoveler (*A. clypeata*), cinnamon teal (*A. cyanoptera*), gadwall (*A. strepera*), and northern pintail (*A. acuta*), scaup (*Aythya sp.*), bufflehead, common goldeneye (*B. clangula*), scoters (*Melanitta sp.*), and canvasback (*A. valisineria*). Wintering waterfowl utilize the Salinas River as well as the saline pond. This 45-acre pond is unique as there is no other saline pond of this type in central coastal California. It receives heavy use by dabbling ducks during spring migration, with as many as 500 ducks foraging and roosting there. Mallards, cinnamon teal, and gadwall have been documented nesting at the Refuge in recent years. These species nest throughout the Refuge in available upland and wetland habitats. In addition, American coots (*Fulica americana*) are seasonally abundant, with as many as 600 present during winter months. Coots also nest at the Refuge in emergent wetland vegetation along the Salinas River.

Numerous species of raptors are supported by the Refuge. Northern harriers (*Circus cyaneus*), American kestrels (*Falco sparverius*), black-shouldered kites (*Elanus caeruleus*), and short-eared owls (*Asio flammeus*) have been known to nest on the refuge. Federally endangered peregrine falcons, barn owls (*Tyto alba*), red-tailed hawks (*Buteo jamaicensis*), golden eagles (*Aquila chrysaetos*), ospreys (*Pandion haliaetus*), and merlins have also been observed foraging on the Refuge.

VEGETATION

The biological environment of the Salinas River and surrounding areas (including the Refuge) has been altered drastically from pristine conditions. Historical accounts describe the area as supporting shallow lakes, sloughs, vernal pools, marsh vegetation, expanses of grassland, and riparian corridors. The Salinas River was a part of an enormous wetland ecosystem that included Elkhorn Slough and the Pajaro River. This wetland ecosystem was highly productive as wildlife habitat, especially as wintering habitat for a magnificent number and diversity of waterbird. This area also supported California grizzly bear (*Ursus californicus*) and tule elk (*Cervus nannodes*).

Since the time of early European settlement in California, extensive areas have been converted for agricultural purposes. By the early 1900's, much of the land within the lower Salinas Valley had been converted to agricultural production. For example, a series of large finger lakes and associated wetlands had been drained, vernal pools were converted, riparian habitat was removed, and the Salinas and Pajaro rivers were channelized and associated wetlands drained. The mouth of the Salinas River was redirected to its present location. The highly productive Salinas Valley wetland ecosystem that included the Salinas River, Elkhorn Slough and the Pajaro River had been fragmented and greatly reduced in size. As a result of agricultural conversion, the area's wildlife has been severely impacted (SFNWRC1998).

The extensive conversion of wetlands resulted in a significant reduction of birds (particularly waterbirds and neotropical migrants), the elimination of tule elk from the region and the probable loss of many vernal pool species. Over 90 percent of the Salinas Valley wetlands have been lost to agricultural conversion (SFNWRC 1998). A portion of the Refuge once contained an artichoke field. It has now returned to shrub and grassland habitat, through restoration efforts. As such, the Refuge provides extremely important habitat as it is one of just a few places where remnant wetland and riparian habitats remain from the original Salinas Valley wetland ecosystem. This area was spared from being totally converted for agricultural purposes due to its close proximity to the ocean, susceptibility to flooding, and its former military ownership.

There is also a fragile sand dune system on the Refuge that supports a number of sensitive plant species. These dunes include the foredunes and the coastal scrub dunes. The foredunes are just above the high tide line and they have stabilized to some degree, while the dune scrub just beyond the foredunes are more established. Plant species diversity in the foredunes is low. Species commonly found there include yellow and pink sand verbena (*Abronia latifolia* and *A. umbellata*), silky beach pea (*Lathyrus litoralis*), beach primrose (*Casmissonia cheiranthifolia*), sea rocket (*Cakile maritima*), beach morning glory (*Calystegia sordanella*), and beach bur (*Franseria chamissonis* ssp. *bipinnatisecta* and *F. c.* ssp. *chamissonis*) (Appendix).

Dune scrub inhabits the more stabilized areas. The most common species include beach bur, mock heather (*Ericameria ericoides* ssp. *ericoides*), branching phacelia (*Phacelia ramisissima*), blue beach lupine (*Lupinus chamissonis*), coast buckwheat (*Eriogonum latifolium*), and dune buckwheat (*Eriogonum parvifolium*). While neither species of buckwheat is rare or endangered they are hosts to the endangered Smith's blue butterfly. This habitat also supports federally listed plants, Monterey gilia (endangered) and Monterey spineflower (threatened), as well as, sensitive species like the coast wallflower (*Erysimum ammophilum*), Monterey paintbrush, (*Castilleja latifolia* var. *latifolia*), and branching beach aster (*Corethrogne leucophlla*: Appendix C).

Central coast riparian scrub occurs along the Salinas River and on islands within the River. Dominant plant species include willows such as arroyo willow (*Salix lasiolepis*), red willow (*S. laevigata*), sandbar willow (*S. hindsiana*), and yellow willow (*S. lasiandra*). Understory is typically dense and consists of young trees and shrubs, such as coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), Himalayan blackberry (*Rubus ursinus*), and California rose (*Rosa californica*). The Watershed Institute of California State University have been conducting intensive restoration activities in this habitat to reestablish native riparian scrub vegetation and to slow bank erosion. Species planted include willows, box elder (*Acer negundo*), creekside dogwood (*Cornus serica* ssp. *occidentalis*), red alder (*Alnus rubra*), and black cottonwood (*Populus trichocarpa*).

Coyote brush scrub represents a successional community that has developed following the abandonment of agriculture fields that were in operation prior to Service occupation. The dominant species is coyote brush (*Baccharis pilularis*), which forms dense stands in some places. Grassland, with native and nonnative species, is interspersed throughout this habitat. The Watershed Institute has recently restored a large portion of the grassland to native grasses. In 1996, they drill-seeded 80 lbs. of a native grass mix composed of wild rye (*Elymus glaucus*), California barley (*Hordeum brachyantherum*), annual hair grass (*Deschamsia caespitosa*), and California brome (*Bromus carinatus*). These native grasses have been maintained by intensive weed pulling, weed wacking, and mowing.

STRUCTURES AND FACILITIES

The only structure on the Refuge is a World War II era concrete bunker near the parking lot. Because the structure is made entirely of concrete, it is of little concern in a fire situation. No buildings exist offsite in the vicinity of the Refuge. A wooden fence exists on the eastern boundary along the artichoke field. However, a disced line is maintained on the Refuge adjacent to the fence.

Most of the Refuge is closed to the public due to the sensitivity of the habitat. However, there are two trails, the River Trail and the Ocean Beach Trail, open to the public (Figure 1). These trails enable visitors to see a variety of habitats and the wildlife that inhabit them.

The River Trail begins at the parking lot, runs north through upland habitat and leads to the south bank of the Salinas River. It continues northwest along the south bank of the river for approximately 1/4 mile where it loops back to the southwest through upland habitat to the Beach Trail. This trail is open for walking, hiking, wildlife observation, and wildlife photography. It is also used by hunters to gain access to the hunt area.

The Ocean Beach Trail also begins in the parking lot, winds through upland habitat, skirts the saline pond, and cuts through the coastal dunes to end at the ocean beach. This trail is open for hiking, wildlife observation, wildlife photography, and access to the ocean and ocean beach. The upper beach habitat, except on the designated trail, is closed along the foredune boundary to protect the western snowy plover. In addition, the saline pond, salt marsh, and coastal dunes are closed to visitor use due to the extreme sensitivity of these habitats.

Since parts of the Refuge are open to the public, public use may be impacted for a short duration during fire activities. During prescribed fire activities, certain parts of the Refuge (i.e., trails and area to be burned) would be closed to the public to ensure their safety. Wildland fire suppression and the use of prescribed fire could affect neighboring landowners by altering adjacent habitats and/or potentially escaping onto their properties. However, the escape risk is minimal due to the nature of the adjoining properties. Dune areas along the northern and southern boundaries are sparsely vegetated and would not carry fire under most circumstances. Prescribed fires will be conducted in the grassland habitats of the Refuge. This area is separated from the eastern property by a 15' disc line. In addition, the artichoke plants on the adjacent property are succulent and would not tend to burn. Within the Refuge itself, the judicious, conservative use of prescribed fire will greatly increase the efficiency and effectiveness of grassland/upland management.

WILDLAND FIRE MANAGEMENT SITUATION

HISTORIC ROLE OF FIRE

Pre-settlement Fires

Historical information on natural or anthropogenic fire is not readily available. Fire history does not generally apply directly to wetlands or riparian areas due to the nature of the wetlands.

Post-settlement Fire History

There is no record of wildland fires to date. When contacted, the MCFD said they had not responded to a call at the Refuge in the past 10 years (I. Larkin, pers. comm.). The period of high fire danger is from June 1 through October 31, determined by CDF Monterey-San Benito County Unit. Damage from any temporary small fires that might occur include the potential effects on resident or nesting wildlife depending on the time of year. Generally, damaged areas return to their original condition after one or two years.

Prescribed Fire History

The prescribed fire season at the Refuge is from May to June (I. Lored, pers. comm). Fires during this period allow non-native weeds to sprout but prevent them from going to seed. Two small prescribed fires were conducted in the Refuge when the property was managed by CA Department of Fish and Game (B. Elliott, pers. comm.). To date, prescribed fire management has not been used on the Refuge by USFWS personnel.

RESPONSIBILITIES

Salinas River NWR does not have on-site fire management staff or any on-site fire suppression equipment. There is a Service fire crew stationed part-time (late spring to early fall) at San Luis NWRC and a limited number of fire qualified personnel stationed at San Francisco Bay NWRC. Both of these sites are approximately 100 miles from the Refuge. Because the unit is an un-staffed satellite refuge, Refuge personnel presence is limited to periodic surveys. Wildland fires in this area are generally reported by the public and suppressed by firefighters from the Monterey Bay Fire Department before Service staff can respond.

Responsibilities for fire management at Salinas River are shared by: the Salinas River Refuge Manager, Refuge Biologist, SFBNWR Complex Project Leader, and the SLNWR Complex Fire Management Officer (Appendix D). Primary wildland fire management responsibilities are to:

- provide overall management of the Refuge including the fire program.
- ensure collateral duty fire personnel are meeting Service standards.
- conduct prescribed fire activities in support of refuge habitat management programs.
- establish appropriate formal and information fire-related agreements/contracts.
- monitor results of wildland and prescribed fires.
- update fire management and associated plans (dispatch, training, etc.), call-out lists, and mobilization guidelines.
- maintain the Refuge fire cache and fire equipment in a ready state.

Agency Administrator/ Project Leader (PL)

- Is the primary line officer responsible for implementation of all Fire Management activities within the Complex and will ensure compliance with Department, Service and Refuge policies.
- Selects the appropriate management responses to wildland fire.

Deputy Project Leader (DPL)

- Coordinates Complex programs to ensure personnel and equipment are made available and utilized for fire management activities including fire suppression, prescribed burning and fire effects monitoring.
- Ensures that the fire management program has access to Refuge and complex resources when needed.
- Ensures that Refuge Managers and complex Staff consider the fire management program during Refuge related planning and implementation.

Refuge Manager (RM)

- Identifies prescribed burn units and biological objectives to Fire Management Officer (FMO) and Prescribed Fire Specialist (PFS), notifies FMO of prescribed fire project constraints, and ensures that Refuge resources are available to accomplish prescribed fire and fire suppression objectives.
- Acts as the primary Refuge Resource Management Specialist during fire management planning and operations.
- Prepares an annual report detailing fire occurrences and prescribed fire activities undertaken in each calendar year. This report will serve as a post-year's fire management activities review, as well as provide documentation for development of a comprehensive fire history record for the Refuge.
- Is responsible for planning, coordinating, and directing preparedness activities including fire training, physical fitness testing and Interagency Fire Qualification System (IFQS) data entry, fire cache and equipment inventory accountability, maintenance, and operation, cooperation with cooperative agencies.

Biologist

- Coordinates through Refuge Managers and Deputy Project Leader to provide biological input for the fire program with the FMO and PFS.
- Ensures fire effects monitoring is being implemented and drafts wildland fire Rehabilitation Plans for Deputy Project Leader.
- Assists in design and implementation of fire effects monitoring, with FMO and PFS.
- Participates, as requested, in prescribed burning and wildland fire suppression.

Zone Fire Management Officer (FMO)

- Responsible for all fire related planning and implementation for the Refuge.
- Integrates biological Refuge objectives into all fire management planning and implementation.
- Solicits program input from the RM and Biologist.
- Supervises prescribed fire planning.
- Coordinates fire related training.

- Coordinates with cooperators to ensure adequate resources are available for fire operational needs.
- Decides when to request overhead or additional firefighting personnel and equipment.
- Is responsible for implementation of this Plan. This responsibility includes coordination and supervision of all prevention, pre-suppression, detection, wildland fire, prescribed fire, suppression, monitoring, and post-fire activities involving Refuge lands.
- Is responsible for preparation of fire reports following the suppression of wildfires and for operations undertaken while conducting prescribed fires.
- Submits budget requests and monitors FIREBASE funds.
- Maintains records for all personnel involved in suppression and prescribed fire activities, detailing the individual's qualifications and certifications for such activities.
- Updates all fire qualifications for entry into the Fire Management Information System.
- Nominates personnel to receive fire-related training, as appropriate.
- Designates the person to serve as Incident Commander (IC) for initial attack purposes. The FMO may assume the position of IC at his/her discretion or designate other personnel to take over that position at his/her discretion.

Prescribed Fire Specialist (PFS)

- Responsible for the planning and implementation of a program, which collects information for the documentation, analysis, and prediction of fire behavior and effects.
- Develops and recommends, plans, and schedules management ignited fire activities for the Refuge.
- Implements and directs burns.
- Plans and develops a program to collect information on the effects and behavior of prescribed fire.
- Plans and directs studies to monitor and analyze fire behavior parameters, then uses these data to support the development of fire plans.
- Plans and directs surveys for the collection, analysis and documentation of data relating to fire effects on biotic and abiotic resources.
- Organizes and performs studies to develop fire management prescriptions for prescribed burns.
- Is responsible for ensuring a cadre of qualified prescribed fire overhead by recommending personnel for training, through both formal in-house and field training assignments.
- Is responsible for record keeping associated with burn planning, fire occurrence reporting and fire weather.
- Identifies areas of fire management requiring research and works with research scientists in the development of project statements to accomplish this research.

Fire Management/Suppression Personnel

- Consist of all Refuge personnel, whether permanent or seasonal, who meet the minimum standard set by the National Wildfire Coordinating Group (NWCG) for firefighters.
- Are fully equipped with proper personal protective equipment, have taken and passed the minimum classroom training, and meet physical fitness standards required.
- Undertake fire management duties as assigned by the Prescribed Fire Burn Boss on each prescribed fire project.

- Are responsible for their personal protective equipment and physical conditioning, qualifying annually with the work capacity test before May 31.

Incident Commander

Incident Commanders (of any level) use strategies and tactics as directed by the Refuge Manager and WFSA where applicable to implement selected objectives on a particular incident. A specific Limited Delegation of Authority (Appendix E) will be provided to each Incident Commander prior to assuming responsibility for an incident. Major duties of the Incident Commander are given in NWCG Fireline Handbook, including:

- Brief subordinates, direct their actions and provide work tools.
- Ensure that safety standards identified in the Fire Orders, the Watch Out Situations, and agency policies are followed at all times.
- Personally scout and communicate with others to be knowledgeable of fire conditions, fire weather, tactical progress, safety concerns and hazards, condition of personnel, and needs for additional resources.
- Order resources to implement the management objectives for the fire.
- Inform appropriate dispatch of current situation and expected needs.
- Coordinate mobilization and demobilization with dispatch and the Collateral FMO.
- Perform administrative duties; i.e., approving work hours, completing fire reports for command period, maintaining property accountability, providing or obtaining medical treatment, and evaluating performance of subordinates.
- Assure aviation safety is maintained to the highest standards.

Initial Attack Teams

Initial attack teams will consist of experienced, fully-qualified firefighters, those on their first fire, and well-qualified leadership. Teams will be prepared and equipped with hand and power tools as needed and will be dispatched with a day's supply of food and water, so they can continue work for 24 hours without additional support.

Employees participating in any wildland fire activities on Fish and Wildlife Service or cooperator's lands will meet fitness requirements established in PMS 310-1, except where Service-specific fitness requirements apply.

Exceptions to fitness requirements on Initial attack activity are available from the Regional Fire Management Coordinator per guidelines in Chapter 1.5 of the Fire Management Handbook (USFWS 2000a).

INTERAGENCY OPERATIONS

There are no formal cooperative fire agreements in place at this time, however a Memorandum of Understanding is currently being established between the Refuge and the Monterey County Fire Department (MCFD). The MCFD has traditionally responded to wildland fires at the Refuge because of their legal fire protection responsibility to the property surrounding the Refuge. Thus, any wildland fire originating on Refuge lands is considered a threat to their property.

Salinas River NWR will use the Incident Command System (ICS) as a guide for fireline organization. Qualifications for individuals is per DOI Wildland Fire Qualifications and Certification System, part of

NIIMS and the National Wildland Fire Coordination Group (NWCG) Prescribed Fire Qualification Guide. Depending on fire complexity, some positions may be filled by the same person.

The County of Monterey Fire Department has the responsibility for preventing, controlling, and extinguishing fire throughout unincorporated portions of the county. The County responds to fires near the Refuge border because of their protection responsibilities for county property. Any fire starting on Refuge lands would be suppressed by County resources because of their interest in preventing fires from spreading onto their Local Responsibility Area. While no formal agreement is currently in place, the County has expressed a willingness to respond to emergency suppression activities (Appendix F).

Monterey Bay APCD What is this? is responsible for all non-point and point source air degradation within their designated area of responsibility. Burn permits and smoke management concerns from prescribed burning on the Refuge must be coordinated through them. Like all APCD's Monterey Bay has regulatory authority and enforces all District, state and federal laws relating to the emissions of air pollutants (Appendix F).

A listing of key interagency contacts can be found in the Fire Dispatch Plan. The plan is an annual assembly of information required to facilitate a rapid response to a fire report and to coordinate the initial attack. (Appendix D).

There are no formal fire related agreements in place at this time. All agreements at this time are informal.

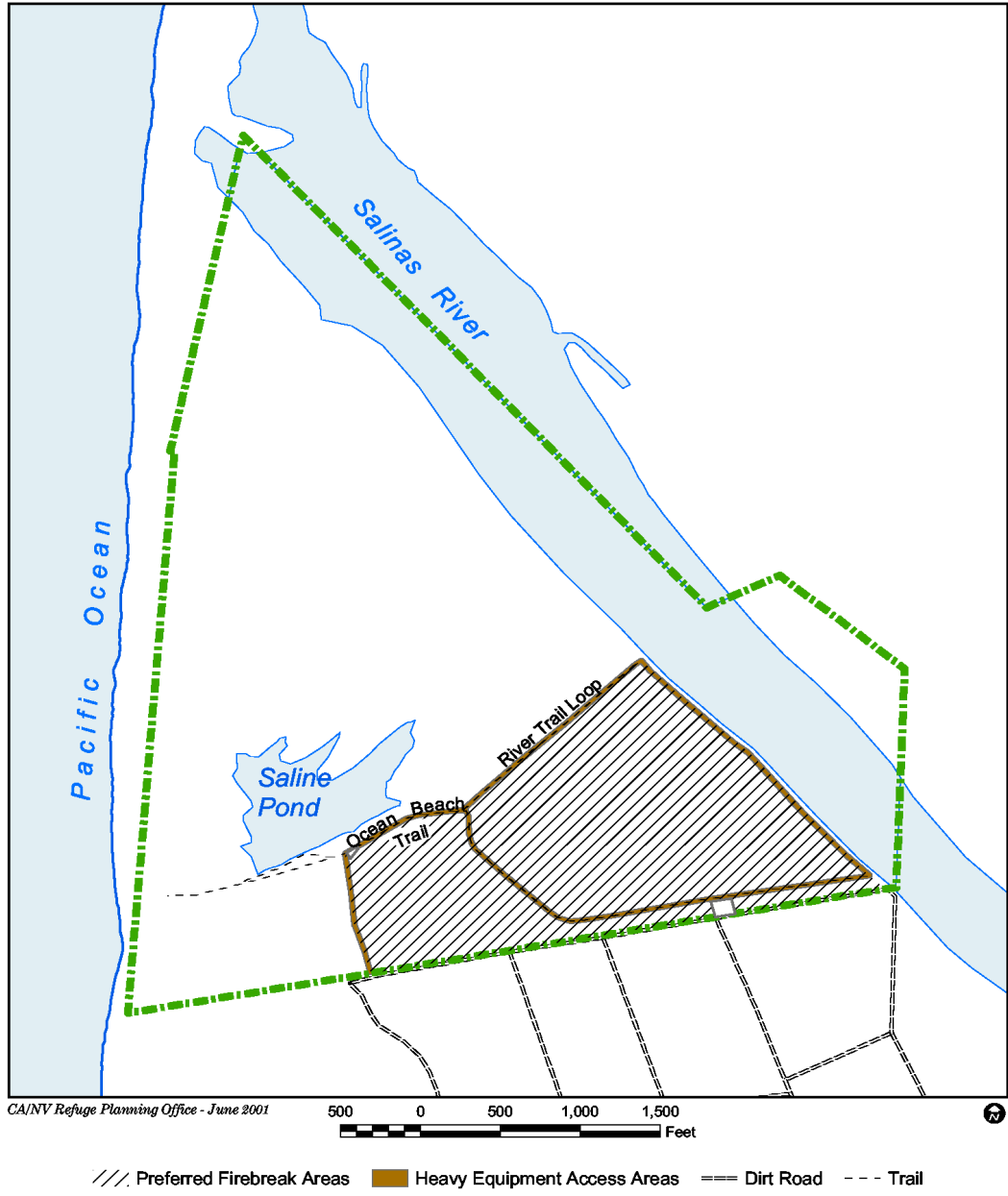
PROTECTION OF SENSITIVE RESOURCES

Aggressive attack of all unplanned ignitions with minimum acreage burned is the goal. Heavy equipment shall not be used due to the sensitivity of the habitat, except in cases where life or fire-fighter safety is threatened or when the Refuge Manager determines necessary. Dozer lines should only be constructed, when necessary, in Coyote Scrub/Grassland Habitat, preferably along highlighted established trail lines, but also allowed within the shaded area on map (Figure 2).

The Regional Archaeologist and/or his/her staff will work with fire staff, project leaders, and incident commanders to ensure that cultural resources are protected from fire and fire management activities. The "Request For Cultural Resource Compliance" form (Appendix G) will be used to inform the Regional Archaeologist of impending activities, thereby meeting the regulations and directions governing the protection of cultural resources as outlined in Departmental Manual Part 519, National Historic Preservation Act (NHPA) of 1966, Code of Federal Regulations (36CFR800), the Archaeological Resources Protection Act of 1979, as amended, and the Archaeological and Historic Preservation Act of 1974. The NHPA Section 106 clearance will be followed for any fire management activity that may affect historic properties (cultural resources eligible to the National Register of Historic Places).

Figure 2: Heavy equipment use areas

Figure 2. Heavy equipment use areas



Impacts to archaeological resources by fire and suppression resources vary. The four basic sources of damage are (1) fire intensity, (2) duration of heat, (3) heat penetration into soil, and (4) suppression actions. Of the four, the most significant threat is from equipment during line construction for prescribed fires or wildfire holding actions.

The following actions will be taken to protect archaeological and cultural resources:

Wildland Fires

- Minimum impact fire suppression tactics will be used to the fullest extent possible.
- Resource Advisors will inform Fire Suppression personnel of any areas with cultural resources.
- The Resource Advisor should contact the Regional Archaeologist and /or his/her staff for more detailed information.
- Foam use will be minimized in areas known to harbor surface artifacts.
- Mechanized equipment should not be used in areas of known cultural significance.
- The location of any sites discovered as the result of fire management activities will be reported to the Regional Archaeologist using the RCRC.

Prescribed Fires

- The Refuge Fire staff will submit a completed RCRC to the Regional Archaeologist and/or his/her staff as soon as the burn area is identified (i.e., as soon as feasible).
- Upon receipt of the RCRC, the Regional Archaeologist and/or his/her staff will be responsible for consulting with the FMO and evaluating the potential for adverse impacts to cultural resources.
- When necessary, the Regional Archaeologist and/or his/her staff will coordinate with the State Historic Preservation Officer (SHPO). The SHPO has 30 days to respond. The Refuge will consider all SHPO recommendations.
- Mechanized equipment should not be used in areas of known cultural significance.
- The location of any sites discovered as the result of fire management activities will be reported to the Regional Archaeologist

WILDLAND FIRE ACTIVITIES

Fire program management describes the operational procedures necessary to implement fire management at Salinas River NWR. Program management includes: fire prevention, preparedness, emergency preparedness, fire detection, communication, step-up staffing plan, pre-attack plan, fire behavior predictions, fire suppression, minimum impact suppression, minimum impact rehabilitation, documentation, and fire investigation.

All fires not classified as prescribed fires are wildland fires and will be appropriately suppressed. Suppression operations will generally be conducted by the Monterey County Fire Department (MCFD).

Records show that fire season is typically from June 1 to October 31. Depending on the specific weather of any particular year, the seasons may be shorter or longer and, therefore, may start earlier or last longer.

FIRE MANAGEMENT STRATEGIES

All unplanned wildland fires will be suppressed in a prompt, safe, aggressive, and cost-effective manner to produce fast, efficient action with minimum damage to resources using appropriate management strategies. Wildland fires will not be used as a resource management tool.

The following strategies will be employed to meet fire management objectives:

- Suppress all unplanned ignitions in a safe and cost-effective manner consistent with resources and values at risk. Minimum impact strategies and tactics will be used when possible, particularly in areas with high densities of endangered species. However, utilization of heavy equipment remains an option for control of high intensity fires and fires threatening critical values such as endangered species and private lands.
- Maintain formal and informal cooperative relationships with local fire agencies to provide immediate response to wildfires.
- Conduct all fire-management programs in a manner consistent with applicable laws, policies and regulations.
- Initiate cost-effective fire monitoring which will tell managers if objectives are being met. Monitoring information will also be used to refine burn prescriptions to better achieve objectives.
- Utilize prescribed fire as a management tool for achieving hazard fuel reductions and resource management objectives. To the extent possible, hazard fuel prescribed fire will be used to accomplish specific objectives established for individual land units. Prescribed fires are fires which are deliberately set to burn under prescribed conditions in order to achieve pre-determined resource management objectives.
- Integrate fire ecology and management themes into future information programs.

Although resource impacts of suppression alternatives must always be considered in selecting a fire management strategy, resource benefits will not be the primary consideration. Appropriate suppression action will be taken to ensure firefighter safety, public safety, and protection of the resources.

Critical protection areas, such as dune and marsh habitat, will receive priority consideration in fire control planning efforts. In all cases, the primary concerns of fire suppression personnel shall be the safety, and if needed, all individuals not involved in the suppression effort may be evacuated.

Suppression strategies should be applied so that the equipment and tools used to meet the desired objectives are those that inflict the least impacts upon the natural and cultural resources. Minimum impact suppression strategies will be employed to protect all resources. Natural and artificial barriers will be used as much as possible for containment. When necessary, fire line construction will be conducted in such a way as to minimize long-term impacts to resources.

Vehicle access to normally closed areas of the Refuge, except dune and beach habitat, will be made using existing roads when possible. When off-road travel is determined to be necessary, vehicle access will be allowed in designated areas of the Refuge with approval of the Project Leader or Delegate (Figure 2).

Heavy equipment such as crawlers, tractors, dozers, or graders will not be used within the Refuge boundaries unless their use is necessary to prevent a fire from destroying privately-owned and/or government buildings and historic resources. Heavy equipment will only be used in designated areas (Figure 2). The use of any heavy equipment requires approval from the Refuge Manager or Delegate.

Sites impacted by fire suppression activities or by the fire will be rehabilitated as necessary, based on an approved course of action for each incident.

PREPAREDNESS

Preparedness is the work accomplished prior to fire occurrence to ensure that the appropriate response, as directed by the Fire Management Plan, can be carried out. Preparedness activities include: budget planning, equipment acquisition, equipment maintenance, dispatch (Initial attack, extended, and expanded), equipment inventory, personnel qualifications, and training. The preparedness objective is to have a well trained and equipped fire management organization to manage all fire situations within the refuge. Preparedness efforts are to be accomplished in the time frames outside the normal fire season dates.

The Fish and Wildlife Service has minimum training requirements for all fire positions. The Service is a member to the National Wildfire Coordinating Group (NWCG) and accepts its standards for interagency operations. There is a required refresher training for all personnel that are involved with wildland fire activities. These requirements are found in the USFWS Fire Management Preparedness and Planning Handbook, Section 1.5; Training, Qualification, and Certification (USFWS 2000b).

The traditional approach to a step-up plan does not work in this situation. Due to the availability of a large number of local fire department resources, it would be a rare situation if Service fire crews were deployed to the Refuge during a step-up situation.

Historical weather analysis

The fire season generally begins with the curing of annual grasses in early June and extends until the first rains in late-October. In general though, fire history does not apply directly to wetlands or riparian areas due to the nature of the wetlands.

Salinas River NWR does not contain a weather station and does not monitor the weather at the Refuge. Monterey County Fire Department does not have any weather station data that reflects the conditions at the Refuge. The closest weather information can be obtained from a hotline provided by the Monterey Peninsula Airport but mentions no specifics for the weather conditions at the Refuge.

Fire Prevention

An active fire prevention program may be conducted in conjunction with other agencies to protect human life and property, and prevent damage to cultural resources or physical facilities.

Firelines are disked by adjacent farm personnel along the eastern one-third of the southern boundary of the Refuge. The Salinas River forms the northeast boundary of the Refuge, and the Pacific Ocean forms the western boundary. The southern boundary abuts agricultural fields of artichokes and other garden-type produce.

A program of internal and external education regarding potential fire danger may be implemented. Visitor contacts, bulletin board materials, and interpretive programs may be utilized to increase visitor and neighbor awareness of fire hazards. Employees need to relate to the public the beneficial effects of prescribed fires as opposed to unwanted human-caused fires, with emphasis on information, essential to understanding the potential severity of human-caused wildland fires and how to prevent them.

During periods of extreme or prolonged fire danger (Red Flag Warnings), emergency restrictions regarding Refuge operations may become necessary. No heavy machinery, ATV's, lawnmowers, etc. will be permitted in the coyote brush scrub/grassland at these times. Such restrictions, when imposed, will usually be consistent with those implemented by cooperators. The Refuge Manager or FMO will recommend when such restrictions are necessary.

Staffing Priority Levels

There is no fire-funded staffing stationed at the Refuge. Fire suppression response is provided by MCFD, therefore MCFD will adjust staffing levels based on current fire danger. Because the Refuge headquarters is located 100 miles from the Refuge, MCFD will be first responders. The Refuge has no facilities located within the boundaries and will not require any closures (except to machinery previously mentioned) during Red Flag Warnings.

Training

Departmental policy requires that all personnel engaged in suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG). Salinas River NWR will conform strictly to the requirements of the wildland fire management qualification and certification system and USFWS guidelines.

Basic wildland fire training refreshers are offered annually for red-carded firefighters and records kept in a centralized database. Additional training is available from surrounding agencies in pump and engine operation, power saws, firefighter safety, fire weather and fire behavior, helicopter safety and prescribed fire objectives and activities. On-the-job training is encouraged and will be conducted at the field level. Whenever appropriate, the use of fire qualification task books will be used to document fire experience of trainees. The FMO will coordinate fire training needs with those of other nearby refuges, cooperating agencies, and the RO.

The Refuge supports the development of individual Incident Command System (ICS) overhead personnel from among qualified and experienced refuge staff for assignment to overhead teams at the local, regional, and national level.

Fire suppression is an arduous duty. On prescribed fires, personnel may be required to shift from implementation/monitoring activities to suppression. Poor physical condition of crew members can endanger safety and lives during critical situations. Therefore, personnel performing fire management duties will maintain a high level of physical fitness. This requires successful completion of a fitness pack test. Personnel must complete a three mile hike with a 45 pound pack in less than 45 minutes.

Supplies and Equipment

A small, 10-person cache for the Refuge is located at the Complex headquarters in Fremont, two hours from the Refuge. The cache is maintained by the Complex staff and is accessible 24 hours a day. The cache consists of personal protective equipment (e.g. clothing and boots) and fire tools (e.g. shovel and rake).

Additional equipment and supplies are available through cooperators and the interagency cache system. Requests for additional personnel and equipment are made through the Mendocino NF Dispatch. The contact list can be found in the Dispatch plan (Appendix D).

Annual fire readiness requires an inventory of existing cache items. The cache should be capable of outfitting six personnel for wildfire activities and will be inventoried as ready by June 1 of each year.

DETECTION

Most wildland fires are reported by the public to 9-1-1. The 9-1-1 dispatchers contact MCFD for suppression response. The Refuge is contacted by MCFD with a report of all wildland fire activities. The Fire Management Plan does not discriminate between human-caused and lightning caused fire. All wildland fires will be suppressed. Any human-caused fires of suspicious origin (as determined by the Refuge Manager or FMO) will require an investigation and report by law enforcement personnel. For serious human-caused fires, including those involving loss of life, a qualified arson investigator will be requested.

COMMUNICATIONS

There is no open radio communication frequency for Refuge personnel. Instead, staff utilize a direct connect cellular phone system.

Prescribed fire activities performed by Service personnel utilize the various NIFC Tactical channels as needed. Normally NIFC Tactical channels 2 (168.200 mhz) and 3 (168.600 mhz) are used depending upon the number of frequencies needed during prescribed burns.

There is currently no common communication link between Service personnel and MCFD.

PRE-ATTACK PLAN

Maps showing locations of water sources, roads, sensitive plant communities, private property, etc will be kept at refuge headquarters and distributed to Cooperators to facilitate actions that effectively

suppress fires while protecting values at risk. The Refuge will use Del Monte Boulevard as the primary firebreak and other arterial cross roads as holding line (Figure 2).

FIRE MANAGEMENT UNITS

The Refuge will be managed as one unit. Although there are four vegetation communities, the overall objective is to restore and maintain the area with native vegetation. Consistent with Service policy, all fires will be managed as either wildland fires or prescribed fires. Suppression strategies, management restrictions, fuels, fire environment and values at risk are similar throughout the Refuge. Thus all lands will be managed as one single fire management unit.

Due to staff limitations, relatively small land management parcels, long response times, valuable resources, and values at risk on neighboring lands, this plan does not recommend wildland fire managed for resource benefit as an option for the unit. Wildland fires will be suppressed using the appropriate suppression response. Prescribed fires will be used to reduce hazardous fuels and to meet resource management objectives.

Vegetation Type

The majority of the vegetation on the Refuge is marsh or grass species which have high rate of fire spread when dry. Small expanses of riparian habitat with grass in the under story have high rates of fire spread in strong winds.

The proposed prescribed fire burn area is within coyote scrub brush/ grassland habitat (Figure 1). There have been no observed federally listed plant species within this habitat. There are native plants that include wild rye, California barley, annual hair grass, and California brome, that were planted by the Watershed Institute for restoration. Currently, intensive hand weeding, weed wacking, and mowing are used to maintain native grassland. Late spring fires, in May and June, will benefit native grasses by reducing nonnative weed seed banks, which have later seed production.

Fuel Types and Fire Behavior

Fuel types at the Refuge are predominately upland grass, seasonal marsh, and riparian woodland-dominated fuel types, Fire Behavior Fuel Models (FBFM) 1, 3, and 9. Fuel Model 1 and 3 encompasses approximately 195 acres of the Refuge and have high rates of spread. FBFM 1 has a rate of spread of 275 chains/hr (3.5 mph) and a flame length of 7.7 ft. FBFM 3 has a rate of spread of 259 chains/hr (3.0mph) and a flame length of 20.4 ft. Fuel Model 9 encompasses approximately 20 acres and has a rate of speed of 22 chains/hr and a flame length of 4.8 ft. This small portion of riparian habitat with grass understory would exhibit smoldering and creeping rates due to the mosaic site characteristics unless strong winds are present. Fire behavior in these model types can be simulated thru BEHAVE.

SUPPRESSION TACTICS

Wildland fires will be suppressed in a prompt, safe, aggressive, and cost-effective manner to produce fast, efficient action with minimum damage to resources. Suppression involves a range of possible actions from initial attack to final suppression. All wildland fires will be suppressed.

Personnel and equipment must be efficiently organized to suppress fire effectively and safely. To this end, the FMO assumes the command function on major or multiple fire situations, setting priorities for the use of available resources, and establishing a suppression organization.

There will be only one Incident Commander responsible through the FMO, Refuge Manager or Delegate. The Incident Commander will designate all overhead positions on fires requiring extended attack.

Suppression Conditions

The typical fire suppression response to a fire at SRNWR would consist of an IC provided by the MCFD and two engines. Water is the primary method for extinguishing fires. Handline is not usually needed for suppression efforts. Foam and/or retardents have not yet been determined to be compatible with Refuge resources.

Aggressive attack of all unplanned ignitions with minimum acreage burned is the goal. Heavy equipment shall not be used due to the sensitivity of the habitat, except in cases where life or fire-fighter safety is threatened or when the Refuge Manager determines necessary. Safety of personnel and sensitive habitat at risk will determine its use. This decision will be made by the incident commander, in concert with a Refuge Biologist or Manager. Suppression guidelines will be outlined in the MOU with MCFD.

Wildland Fire Situation Analysis

For fires that cannot be contained in one burning period, a WFSA must be prepared (Appendix H). In the case of a wildland fire, the Incident Commander, in conjunction with the FMO, will prepare the WFSA. Approval of the WFSA resides with the Refuge Project Leader.

The purpose of the WFSA is to allow for a consideration of alternatives by which a fire may be controlled. Damages from the fire, suppression costs, safety, and the probable character of suppression actions are all important considerations.

Public safety will require coordination between all refuge staff and the IC. Notices should be posted to warn visitors, trails may be closed, traffic control will be necessary where smoke crosses roads, etc. Where wildland fires cross roads, the burned area adjacent to the road should be mopped up and dangerous snags felled. Every attempt will be made to utilize natural and constructed barriers, including changing fuel complexes, in the control of wildland fire. Rehabilitation efforts will concentrate on the damages done by suppression activities rather than on the burned area itself.

Aircraft Operations

Aircraft may be used in all phases of fire management operations. All aircraft must be Office of Aircraft Services (OAS) or Forest Service approved. An OAS Aviation Policy Department Manual will be provided by OAS.

Helicopters may be used for reconnaissance, bucket drops and transportation of personnel and equipment. Natural helispots and parking lots are readily available in most cases. Clearing for new helispots should be avoided where possible. Improved helispots will be rehabilitated following the fire.

As in all fire management activities, safety is a primary consideration. Qualified aviation personnel will be assigned to all flight operations.

REHABILITATION AND RESTORATION

When suppression action is taken, rehabilitation is appropriate. The most effective rehabilitation measure is prevention of impacts through careful planning and the use of minimum impact suppression techniques.

Fire rehabilitation will be as prompt as possible to prevent erosion and spread of non-native plants. This will be developed by the Refuge staff and submitted to the Regional Fire Management Coordinator for review within 90 days of the unplanned ignition being declared out.

Rehabilitation will be initiated by the Incident Commander, FMO, or Refuge Manager. Rehabilitation will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential hazards caused by the fire. These actions may include:

1. Backfill control lines, scarify, and seed.
2. Install water bars and construct drain dips on control lines to prevent erosion.
3. Install check dams to reduce erosion potential in drainages.
4. Restore natural ground contours.
5. Remove all flagging, equipment and litter.
6. Consider and plan more extensive rehabilitation or revegetation to restore sensitive impacted areas.

If revegetation or seeding is necessary, only native plant species will be used.

If emergency rehabilitation measures are needed or if rehabilitation is needed to reduce the effects of a wildland fire then the Refuge can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund.

Rehabilitation plans for each fire will be reviewed by the Refuge Manager. A final plan will be submitted to Region for establishing an account. Rehabilitation should be initiated prior to complete demobilization or early the following season.

REQUIRED REPORTING

A DI-1202, fire report, will be filled out and submitted to the Regional Fire Management Officer for input into the Fire Management Information System (FMIS) within 20 days of the fire being declared out. Copies of reports from the Monterey County Fire Department will be obtained and report will be written to summarize the specifics of the fire, actions taken and outcomes from those actions. A formal review will be conducted on all serious injuries and losses of significant resources.

FIRE INVESTIGATION

Fire management personnel will attempt to locate and protect the probable point of origin and record pertinent information required to determine fire cause. They will be alert for possible evidence, protect the scene and report findings to the fireline supervisor.

The Refuge Manager, FMO, or IC may request a fire investigator through the MCFD. Prompt and efficient investigation of all suspicious fires will be carried out. However, fire management personnel should not question suspects or pursue the fire investigation unless they are currently law enforcement commission qualified.

Personnel and services of other agencies may be utilized to investigate wildland fire arson or fire incidents involving structures. All fire investigations should follow the guidelines outlined in 4.1-2 of the Fire Management Handbook (2000a).

PRESCRIBED FIRE ACTIVITIES

PRESCRIBED BURN PROGRAM OBJECTIVES

Prescribed fire can be a useful tool for restoring and maintaining natural conditions and processes at Salinas River NWR.

The goal of prescribed fire at the Refuge is to maintain between 50% and 75% cover of native grassland composed of at least 90% (by plant cover) grasses and herbs native to the local area within 15 years, within the mosaic of grassland and coastal scrub habitat (Objective 2.2 of Salinas River NWR CCP).

The objectives of prescribed fire are to:

1. Maintain and enhance native grassland with prescribed fire in addition to mowing and herbicide use.
2. Limit extent of nonnative species (e.g. wild radish (*Raphanus sativus*), hemlock (*Conium maculatum*), mustard (*Brassica rapa ssp. olifera*))

Prescribed fires involve the use of fire as a tool to achieve management objectives. Research burning may also be conducted when determined to be necessary for accomplishment of research project objectives. To meet the goals and objectives of prescribed fires on the Refuge, it is important to monitor the grasslands and choose the most appropriate areas and timing to conduct the burns. That is, burns should be conducted in areas that currently support native species, and should be conducted after native grasses have set seed and cured, but before nonnatives have seeded. Follow up is necessary to determine frequency of burning and spot treating. Actions included in the prescribed burn program include: the selection and prioritization of prescribed burns to be carried out during the year, prescribed burn plans, burn prescriptions, burn operations, documentation and reporting, and burn critiques. Measures to ensure the successful implementation of the prescribed fire program are to:

1. Conduct a vigorous prescribed fire program with the highest professional and technological standards;
2. Identify the prescribed burn parameters that are most appropriate for meeting resource management objectives.;
3. Efficiently accomplish resource management objectives through the application of prescribed fire;
4. Continually evaluate the prescribed fire program to better meet program goals by refining prescriptions treatments and monitoring methods, and by integrating applicable technical and scientific advancements;
5. Prepare prescribed burn plans with a review by a qualified Prescribed Fire Manager/Prescribed Burn Boss, and approval by the Refuge Manager.
6. Conduct prescribed burns with an adequate number of qualified personnel to conduct the burn as well as to mop-up.

The Refuge reserves the option to utilize an interagency team approach for complex burns carried out on the boundaries and close to developed areas or burns of large acreage. The most highly qualified and experienced personnel in the regional interagency community would be requested to serve on this team.

FIRE MANAGEMENT STRATEGIES

Prescribed fire will be used to reduce hazard fuel accumulation, restore fire to fire-dependent ecological communities, improve wildlife habitat, and to maintain cultural/ historic scenes where appropriate. All prescribed fire activity will comply with applicable Federal, state, and local air quality laws and regulations.

All prescribed fire projects will have a burn plan approved by the Project Leader. Each burn plan will be prepared using a systematic decision-making process, and contain measurable objectives, predetermined prescriptions, and using an approved environmental compliance document. Appropriate NEPA documentation exists for this Fire Management Plan in the Draft CCP/Environmental Assessment. Therefore, additional NEPA documentation will be necessary only for prescribed fire projects not meeting the criteria outlined in this Plan.

Prescribed Fire Burn Plans must include components such as a GO/ No-Go Checklist, contingency actions to be taken in the event the prescription is exceeded, and the need for alerting neighbors and appropriate public officials to the timing and the planing of the burn. A burn plan format meeting all required needs is located in Appendix I.

Fire monitoring will be used to evaluate the degree to which burn objectives are accomplished. Monitoring can assist managers in documenting success in achieving overall programmatic objectives and limiting occurrence of undesired effects.

PRESCRIBED FIRE PLANNING

Annual Activities

The FMO will be responsible for completing an annual fire summary report. The report will contain the number of fires by type, acres burned by fuel type, cost summary, personnel utilized, and fire effects.

The Refuge Manager, Biologist, and FMO will determine burn unit priorities, timing, and burn plan development schedule by January of each year. Burn Plans will be prepared and submitted for Project Leader review and approval by March. The Burn Plan will be submitted to the Air Quality District by March 30 for smoke management review and authorizing letter.

Prescribed Fire activities will be reviewed annually. Necessary updates or changes to the Fire Management Plan will be accomplished prior to the next fire season. Any additions, deletions, or changes will be reviewed by the Refuge Manager to determine if such alterations warrant a re-approval of the plan.

Prescribed Burn Plan

The Prescribed Burn Boss will conduct a field reconnaissance of the proposed burn location with the FMO, Biologist, and/or Refuge Manager to discuss objectives, special concerns, and gather all necessary information to write the burn plan. After completing the reconnaissance, a qualified Burn Boss will write the prescribed burn plan.

All prescribed fires will have prescribed burn plans. The prescribed burn plan is a site specific action plan describing the purpose, objectives, prescription, and operational procedures needed to prepare and safely conduct the burn. The treatment area, objectives, constraints, and alternatives will be clearly outlined. No burn will be ignited unless all prescriptions of the plan are met. Fires not within those parameters will be suppressed. Prescribed Burn Plans will follow the format contained in Appendix I.

Each burn plan will be reviewed by the Refuge Manager, Biologist, FMO, and Burn Boss. The Project Leader has the authority to approve the burn plan. The term “burn unit” refers to a specific tract of land to which a prescribed burn plan applies.

Strategies and Personnel

Execution of prescribed burns will only be executed by qualified personnel. The Prescribed Burn Boss will fill all required positions to conduct the burn with qualified personnel. All personnel listed in the burn plan must be available for the duration of the burn or the burn will not be initiated. Personnel will meet minimum USFWS fitness and qualifications standards for prescribed burning.

Weather and fuel moisture conditions must be monitored closely in planned burn units to determine when the prescription criteria are met. A belt weather kit may also be utilized to augment monitoring. Fuel moisture samples of 10-, 100-, and 1000-hour down and dead logs (where applicable) and of live plants may be monitored each week and percent moisture contents figured to help determine when the prescription criteria are met.

When all prescription criteria are within the acceptable range, the Prescribed Burn Boss will select an ignition date based on current and predicted weather forecasts. A thorough briefing will be given by the Prescribed Burn Boss and specific assignments and placement of personnel will be discussed. An updated spot weather forecast will be obtained on the day of ignition and all prescription elements will be rechecked to determine if all elements are still within the approved ranges. If all prescription elements are met, a test fire will be ignited to determine on-site fire behavior conditions as affected by current weather. If conditions are not satisfactory, the test fire will be suppressed and the burn will be rescheduled. If conditions are satisfactory the burn will continue as planned.

Specific management needs for the Refuge as a whole and for specific areas will be determined annually. Specific burn objectives, fire frequency rotation, firing methodology, and prescriptions will vary from year to year. Burn plans will be updated to reflect any variations. Project Leader will approve prescribed fire plans.

Based on resource needs, 10 to 40 acres per year will be targeted for burning in coyote brush scrub/grassland habitat only. The burn would occur in May or June, allowing native grasses to drop seed, but prior to nonnatives going to seed. Additional planting of native grasses may be necessary to achieve final objectives. No threatened or endangered species are known to exist in this habitat, but ground nesting birds, such as mallards, have been found in the area.

Depending upon the complexity of the burn, two or more fire crews (3 crew members per crew) from the Central Valley Refuges Zone and 3-4 collateral fire duty personnel from SFBNWRC may be needed to ignite, hold, and mop-up the burn. In addition, personnel and equipment from MCFD shall be available in the event that fire spreads outside Refuge property and into their local responsibility area. A qualified Prescribed Burn Boss Type II or higher will be required to write the Burn Plan and serve as Burn Boss during any planned ignitions

One person with botanical/sampling design expertise will also be needed to conduct pre and post burn monitoring. One person with biological/botanical expertise will be needed to assist in developing site specific prescribed burn plans.

Only qualified personnel will be used to conduct burns on the Refuge. Pre- and post-fire briefings will be conducted on all planned ignitions.

Coordination needed with the following entities:

- Monterey Bay Unified Pollution Control District: Written approval required; Burn Plan needs to be submitted 30 days in advance of planned ignition; day of fire approval required.
- Monterey County Police Department: Needs to be contacted the day of the burn to notify them of potential smoke across roads.
- Monterey County Fire Department: Needs to receive copy of Prescribed Burn Plan 1 month in advance.
- California State Parks, Martin Jefferson & Sons, Robert Scattini, City of Marina, and other adjacent landowners: Adjacent or nearby landowners need to be contacted at least 1 week prior to the burn so that vehicles are moved and employees are aware of the burn.
- Volunteers and personnel from other agencies or organizations that conduct research on the Refuge need to be contacted at least 1 week prior to the burn (Appendix F).

The Refuge will procure burn permits and follow procedures in them. In addition, the Zone Fire Management Officer or an individual qualified at the Prescribed Burn Boss Type II level will write a Burn Plan to be approved by the Project Leader. The guidance and format for writing Burn Plans is found in the Service's Prescribed Fire Management Handbook, Section 2.2. All ignitions require a DI-1202 form to be completed and returned to the responsible fire management officer for input into the Fire Management Information System (FMIS) within 20 days after the fire is declared out.

If the prescribed burn escapes the predetermined burn area, all further ignition will be halted except as needed for suppression efforts. Suppression efforts will be initiated, as discussed in the preburn briefing. The FMO will be notified immediately of any control actions on a prescribed burn. If the burn exceeds the initial suppression efforts, the burn will be declared a wildland fire and suppressed using guidelines established in this plan. If a prescribed burn is declared a wildland fire, all personnel must meet NWCG qualifications and fitness levels for wildland fire activities. A WFSA will be completed and additional personnel and resources ordered as determined by the Incident Commander. If the fire continues to burn out of control, additional resources will be called from the local cooperating agencies via the servicing dispatch. A management overhead team may be requested to assume command of the fire.

Recommendations of the Monterey Bay Unified Pollution Control District will be followed which will satisfy the District's criteria for use of the "72-Hour Outlook/48-Hour Decision" forecasting procedure. These may include restrictions on igniting under certain wind speeds/directions, humidity, or other conditions that would cause local air quality to be degraded. Other conditions under which fires will not be ignited include: east wind conditions, Red Flag Warnings /Watches, situations where local fire department resources are over committed to wildland fires in the Bay Area (i.e., Oakland Hills Fire 1991 or Vision -Pt. Reyes Fire 1995). The prescribed fire plan will also identify other "no-go" or suppression criteria. Prior to any planned ignitions, Burn Boss will contact MCFD Emergency Communications Center to determine resource availability in case of an escaped burn.

Monitoring and Evaluation

Monitoring of prescribed fires is intended to provide information for quantifying and predicting fire behavior and its ecological effects on refuge resources while building a historical record. Monitoring measures the parameters common to all fires: fuels, topography, weather and fire behavior. In addition,

ecological changes such as species composition and structural changes will be monitored after a fire. This information will be very useful in fine-tuning the prescribed burn program.

All wildland fires will be appropriately suppressed. However, monitoring wildland fires may be appropriate and potentially valuable in mapping and documenting the growth of the fire, measuring on-site weather and fuel loading to provide the fire staff with present and expected fire behavior and effects. During prescribed burns, monitoring can serve as a precursor to invoking suppression action by determining if the fire is in prescription, assessing its overall potential, and determining the effects of the prescribed burn.

During prescribed burning, monitoring should include mapping, weather, site and fuel measurements and direct observation of fire characteristics such as flame length, rate of spread and fire intensity. Operational monitoring provides a check to insure that the fire remains in prescription and serves as a basis for evaluation and comparison of management actions in response to measured, changing fire conditions, and changes such as fuel conditions and species composition.

All fires may be monitored regardless of size. The FMO will establish specific fire information guidelines for each fire to update intelligence about the fire. Highest priority for monitoring will be assigned to large fires or fires which threaten to leave the Refuge.

Short term: BEHAVE predictions will be used to model fire behavior, and a belt weather kit will be used to monitor actual burn day conditions. The Service presently has no fire effects results for the Refuge.

Long term: The response of native and non-native vegetation to the prescribed fire will be monitored. Plant species composition and percent cover will be measured pre and post burn for certain native and weed species of concern.

Monitoring must be done to document and verify that the stated objectives have been met. Plots, photo points, or other methods will be developed to document the results of the burn. These data will be stored for future refinement of prescriptions and to determine the success of the program.

Required Reports

All prescribed burn forms will be completed as outlined by the Prescribed Burn Boss. A monitor will be assigned to collect all predetermined information and complete all necessary forms prior to, during, and after the burn. All records will be archived in the refuge's fire records for future use and reference.

The Prescribed Burn Boss will prepare a final report on the prescribed burn for the Fire Analysis Committee. Information will include a narrative of the burn operation, a determination of whether objectives were met, weather and fire behavior data, map of the burn area, photographs of the burn, number of work hours, and final cost of the burn.

Prescribed Burn Critique

A report detailing the actual burn will accompany any recommendations or changes deemed necessary in the program. This report will be submitted to the Refuge Project Leader. A post-season critique of the

fire management program, including the prescribed burn program, will be held each year at the conclusion of the fall fire season.

AIR QUALITY / SMOKE MANAGEMENT GUIDELINES

Air quality is managed by the Monterey Bay Unified Air Pollution District (MBUAPD). Burn permits must be issued to conduct a prescribed burn. The Refuge would obtain a Prescribed Burn Permit each year prescribed burning is conducted. The Refuge would follow all conditions of the permits. MBUAPD is currently in the process of revising fee structure. There has been no determination, yet direction is forthcoming.

The Refuge is located in an area that is classified by EPA and the California State Air Resources Board as "Non-Attainment" for Particulate Matter -10 (PM-10). Close coordination between the Refuge and the MBUAPD is required to meet PM-10 emission requirements if prescribed burning is done .

Specific aspects of a Smoke Management Plan (wind, weather, visibility hazard, and residual smoke problems) would be addressed on project Prescribed Burn Plans prepared for each burn, as required per Title 17 of the State Air Resources Board.

FIRE RESEARCH

The Refuge would collect data and monitor the success or failure of burning under certain conditions required to accomplish objectives of controlling non-native vegetation and restoring riverine and upland sand dune habitat. Weather conditions would be recorded to establish future successful/ideal burning results.

Additional research may be conducted as funds become available.

PUBLIC SAFETY

Salinas River NWR is dedicated to ensuring the safety of each visitor and to all residents and property adjacent to the Refuge's boundary. Therefore, during prescribed burns and wildland fires, the Refuge will be closed to the public.

Firefighter and public safety will always take precedence over property and resource protection during any fire management activity. For public safety, the fire scene and areas determined by the Refuge Manager or Project Leader, will remain clear of unauthorized people. The responsibility for managing public safety lies with the Incident Commander (IC) or Burn Boss for wildland or prescribed fire. Public safety considerations will be included as part of the burn prescription.

Where possible, areas of fire activity will be signed at visitor centers and bulletin boards. Residents adjacent to the Refuge may be notified of any prescribed burn and if any fire poses a threat to burn onto their lands (Appendix F).

During prescribed burns at least one burn team member will have first aid training. A first aid kit will be on-site for prescribed burns as well as wildland fires. The local police, fire, and emergency medical services will be notified prior to the ignition of any prescribed burn. They will also be notified of the location of any wildland fires.

PUBLIC INFORMATION AND EDUCATION

Informing the public is an important part of the fire management program. During a wildfire, the IC is responsible for providing information to the public. Prescribed fire public information would be addressed in the Prescribed Fire Plan and the Environmental Assessment when developed.

Educating the public on the value of fire as a natural process is important to increasing public understanding and support for the fire management program. The Refuge will use the most appropriate and effective means to explain the overall fire and smoke management program. This may include signing, personal contacts, interpretive panels, or media releases. When deemed necessary, interpretive presentations will address the fire management program and explain the role of fire in the environment.

The public information program will be developed as follows:

1. Concepts of the prescribed burn program will be incorporated, as appropriate, in future interpretive panels, and in local publications.
2. During periods when prescribed burns are ignited, handouts will be prepared, posted, and distributed to all visitors.
3. The fire management program may be incorporated into visitor contacts. Particular attention will be given when fires are conspicuous from roads or visitor use areas.
4. News releases will be distributed to the media as appropriate.
5. The public information outlets of neighboring and cooperating agencies and the regional office will be provided with all fire management information.
6. The fire management program will be discussed in informal talks with all employees , volunteers, residents, and neighbors.

Prior to the lighting of any planned ignition, information should be made available to visitors, local residents, and/or the press about what is scheduled to happen and why. On-site information will be provided to alleviate visitor concern about the apparent destruction of resources by fire or the impairment of views due to temporary smoke. This information will include prescribed burn objectives and control techniques, current fire location and behavior, effects caused by the fire, impacts on private and public facilities and services, and restrictions and closures.

As outlined in the prevention section, restrictions may become necessary during Red Flag Warnings, but public use should not be affected.

FIRE CRITIQUES AND ANNUAL PLAN REVIEW

FIRE CRITIQUES

Fire reviews will be documented and filed with the final fire report. The FMO will retain a copy for the Refuge files.

ANNUAL FIRE SUMMARY REPORT

The FMO will be responsible for completing an annual fire summary report. The report will contain the number of fires by type, acres burned by fuel type, cost summary (prescribed burns and wildland fires), personnel utilized, and fire effects.

ANNUAL FIRE MANAGEMENT PLAN REVIEW

The Fire Management Plan will be reviewed annually. Necessary updates or changes will be accomplished prior to the next fire season. Any additions, deletions, or changes will be reviewed by the Refuge Manager to determine if such alterations warrant a re-approval of the plan.

The fire management plan will be updated as major policy decisions are made. At a minimum, this plan will be reviewed once a year by the individual on the Refuge with fire responsibility to maintain the integrity of the plan. Amendments to the fire management plan itself will be made as needed by sending them to the Regional Fire Management Coordinator for concurrence and to be approved by the Regional Director in Portland. Minor changes to the appendices, such as phone number corrections and personnel changes, can be made at the Refuge level and attached to the plan during this yearly review process without involvement of the Regional Office.

CONSULTATION AND COORDINATION

The following agencies, organizations and/or individuals were consulted in preparing this plan.

Roddy Baumann, Prescribed Fire Specialist, Pacific Region, USFWS, Portland, OR

Richard Hadley, Team Leader, Land Prot., USFWS, Sacramento, CA

Rachel Hurt, Wildlife Biologist, San Francisco Bay NWRC, USFWS, Fremont, CA

Diane Kodama, Wildlife Biologist, Salinas River NWR, USFWS, Fremont, CA

Ivette Loreda, Refuge Manager, Salinas River NWR, USFWS, Fremont, CA

Amanda McAdams, Fire Planner, Pacific Region, USFWS, Portland, OR

Dave Paullin, Klamath/Central Valley Refuge Supervisor, USFWS, Sacramento, CA

Tom Romanello, Assistant Fire Management Officer, Sheldon-Hart NWR, Lakeview, OR.

APPENDICES

APPENDIX A: REFERENCES CITED

Habitat Restoration Group, Inc. 1991. Salinas River Lagoon Management and Enhancement Plan. Administrative Draft. Prepared for Salinas River Lagoon Task Force.

Monterey Bay National Marine Sanctuary Drafts EIS, 1990.

San Francisco National Wildlife Refuge Complex (SFNWRC). 1998. Draft Public Use Management Plan and Environmental Assessment.

U. S. Army Corps of Engineers. 1999. Inventory Project Report Castroville Amphibious Training Base. Supplemental.

U. S. Fish and Wildlife Service. 1983. California Brown Pelican Recovery Plan.

U. S. Fish and Wildlife Service. 2000a. Fire Management Handbook.

U. S. Fish and Wildlife Service. 2000b. Fire Management Preparedness and Planning Handbook.

Personal Communication:

Larkin, Ian, ECC Captain, MCFD, 8 June 2001.

Loredo, Ivette, Refuge Manager SRNWR, USFWS, 11 June 2001.

Valentine, Nicholas, Archeologist, Museum Specialist, USFWS, 2000.

APPENDIX B: DEFINITIONS

Agency Administrator. The appropriate level manager having organizational responsibility for management of an administrative unit. May include Director, State Director, District Manager or Field Manager (BLM); Director, Regional Director, Complex Manager or Project Leader (FWS); Director, Regional Director, Park Superintendent, or Unit Manager (NPS), or Director, Office of Trust Responsibility, Area Director, or Superintendent (BIA).

Appropriate Management Action. Specific actions taken to implement a management strategy.

Appropriate Management Response. Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

Appropriate Management Strategy. A plan or direction selected by an agency administrator which guide wildland fire management actions intended to meet protection and fire use objectives.

Appropriate Suppression. Selecting and implementing a prudent suppression option to avoid unacceptable impacts and provide for cost-effective action.

Bureau. Bureaus, offices or services of the Department.

Class of Fire (as to size of wildland fires):

Class A - ¼ acre or less.

Class B - more than ¼ but less than 10 acres.

Class C - 10 acres to 100 acres.

Class D - 100 to 300 acres.

Class E - 300 to 1,000 acres.

Class F - 1,000 to 5,000 acres.

Class G - 5,000 acres or more.

Emergency Fire Rehabilitation/Burned Area Emergency Rehabilitation (EFR/BAER). Emergency actions taken during or after wildland fire to stabilize and prevent unacceptable resource degradation or to minimize threats to life or property resulting from the fire. The scope of EFR/BAER projects are unplanned and unpredictable requiring funding on short notice.

Energy Release Component (ERC) A number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of a fire. It is generated by the National Fire Danger Rating System, a computer model of fire weather and its effect on fuels. The ERC incorporates thousand hour dead fuel moistures and live fuel moistures; day to day variations are caused by changes in the moisture content of the various fuel classes. The ERC is derived from predictions of (1) the rate of heat release per unit area during flaming combustion and (2) the duration of flaming.

Extended attack. A fire on which initial attack forces are reinforced by additional forces.

Fire Suppression Activity Damage. The damage to lands, resources and facilities directly attributable to the fire suppression effort or activities, including: dozer lines, camps and staging areas, facilities (fences, buildings, bridges, etc.), handlines, and roads.

Fire effects. Any consequences to the vegetation or the environment resulting from fire, whether neutral, detrimental, or beneficial.

Fire intensity. The amount of heat produced by a fire. Usually compared by reference to the length of the flames.

Fire management. All activities related to the prudent management of people and equipment to prevent or suppress wildland fire and to use fire under prescribed conditions to achieve land and resource management objectives.

Fire Management Plan. A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational procedures such as preparedness plans, preplanned dispatch plans, prescribed fire plans and prevention plans.

Fire prescription. A written direction for the use of fire to treat a specific piece of land, including limits and conditions of temperature, humidity, wind direction and speed, fuel moisture, soil moisture, etc., under which a fire will be allowed to burn, generally expressed as acceptable range of the various fire-related indices, and the limit of the area to be burned.

Fuels. Materials that are burned in a fire; primarily grass, surface litter, duff, logs, stumps, brush, foliage, and live trees.

Fuel loadings. Amount of burnable fuel on a site, usually given as tons/acre.

Hazard fuels. Those vegetative fuels which, when ignited, threaten public safety, structures and facilities, cultural resources, natural resources, natural processes, or to permit the spread of wildland fires across administrative boundaries except as authorized by agreement.

Initial Attack. An aggressive suppression action consistent with firefighter and public safety and values to be protected.

Maintenance burn. A fire set by agency personnel to remove debris; i.e., leaves from drainage ditches or cuttings from tree pruning. Such a fire does not have a resource management objective.

Natural fire. A fire of natural origin, caused by lightning or volcanic activity.

NFDRS Fuel Model. One of 20 mathematical models used by the National Fire Danger Rating System to predict fire danger. The models were developed by the US Forest Service and are general in nature rather than site specific.

NFFL Fuel Model. One of 13 mathematical models used to predict fire behavior within the conditions of their validity. The models were developed by US Forest Service personnel at the Northern Forest Fire Laboratory, Missoula, Montana.

Prescription. Measurable criteria which guide selection of appropriate management response and actions. Prescription criteria may include safety, public health, environmental, geographic, administrative, social, or legal considerations.

Prescribed Fire. A fire ignited by agency personnel in accord with an approved plan and under prescribed conditions, designed to achieve measurable resource management objectives. Such a fire is designed to produce the intensities and rates of spread needed to achieve one or more planned benefits to natural resources as defined in objectives. Its purpose is to employ fire scientifically to realize maximize net benefits at minimum impact and acceptable cost. A written, approved prescribed fire plan must exist and NEPA requirements must be met prior to ignition. NEPA requirements can be met at the land use or fire management planning level.

Preparedness. Actions taken seasonally in preparation to suppress wildland fires, consisting of hiring and training personnel, making ready vehicles, equipment, and facilities, acquiring supplies, and updating agreements and contracts.

Prevention. Activities directed at reducing the number or the intensity of fires that occur, primarily by reducing the risk of human-caused fires.

Rehabilitation (1) Actions to limit the adverse effects of suppression on soils, watershed, or other values, or (2) actions to mitigate adverse effects of a wildland fire on the vegetation-soil complex, watershed, and other damages.

Suppression. A management action intended to protect identified values from a fire, extinguish a fire, or alter a fire's direction of spread.

Unplanned ignition. A natural fire that is permitted to burn under specific conditions, in certain locations, to achieve defined resource objectives.

Wildfire. An unwanted wildland fire.

Wildland Fire. Any non-structure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Situation Analysis (WFSA). A decision-making process that evaluates alternative management strategies against selected safety, environmental, social, economical, political, and resource management objectives as selection criteria.

Wildland/urban interface fire. A wildland fire that threatens or involves structures.

APPENDIX C: SPECIAL STATUS SPECIES ON THE REFUGE

(Forthcoming)

APPENDIX D: FIRE DISPATCH PLAN/ CONTACT LIST

When a report of smoke or fire on the Refuge is received, get as much information from the caller or messenger as possible:

- Location of smoke or fire?
- Location of caller?
- Name and telephone number or contact point of the caller or messenger?
- Color of smoke?
- Size of fire?
- Type of fuel (What is burning?)
- Character of the fire (active, smoldering, etc.)?
- Is anyone fighting the fire? How many personnel? Equipment?
- Did they see anyone in the vicinity or vehicles leaving the area?
- Is the fire site accessible by a slip-on unit?
- What are the weather conditions at the fire?

1. Report to:

Monterey County Fire Department (408) 647-6208

2. Due to the distance of Salinas River NWR from the Fremont Headquarters, the fire will likely have already been extinguished before Refuge personnel arrive. However, a Refuge police officer and Refuge firefighter unit should be dispatched for mop-up, fire investigation, and report purposes.
3. If discovered while on the Refuge, call 911 or the County Department at (408) 647-6208 or Refuge Headquarters (510) 792-0222 for assistance.
4. Dispatch Refuge firefighters if the fire is on the Refuge or threatens Refuge property.
5. Notify Refuge Manager Ivette Loreda, Project Leader, on-duty Police Office, and Zone Fire Management Officer (Roger Wong - (209) 826-3508).
6. For fires occurring at night or on weekends, the following individuals should be notified in order:

- a. On-call Police Officer: Call Park Police Dispatch (415) 561-5510

Barry Tarbet (510) 247-3357
Jon Adamson (510) 782-1154

- b. Refuge Manager
Ivette Loreda (510) 792-0222 (Cell) 377-5956
- c. Project Leader
Marge Kolar (510) 792-0222 (Cell) 377-9450
- d. Wildlife Biologist
Diane Kodama (510) 792-0222 (Cell) 377-5695

e. Zone Fire Management Officer
Roger Wong (209) 826-3508 (Cell) 209-704-4508

f. Refuge Fire Crew:

Ivette Loredó	510-377-5956
Clyde Morris	510-377-2781
Carmen Leong	510-377-9229
Joelle Buffa	510-377-5958
Joy Albertson	510-377-5693
Art Chan	510-377-3119
Juan Flores	510-377-5891
Mike Parker	510-928-0497

g. Other personnel to be involved if necessary:

Dennis Macomber, Regional Fire Management Coordinator,
Regional Office: (503) 231-6174 or residence (503) 698-2815

Andy Anderson, Regional Fire Management Officer
(503) 231-6175 business or residence (360) 666-5031

Amanda McAdams, Fire Planner, Pacific Region
Regional Office: (503) 872-2756

Pam Ensley, Regional Fire Management Coordinator,
Regional Office: (503) 231-6174 or residence (360) 835-7004

Roddy Baumann, Regional Prescribed Fire Specialist
Regional Office: (503) 231-2075 or (360) 573-9444 residence

Mendicino NF Dispatch
Willows, CA
(888) 663-3479

APPENDIX E: DELEGATION OF AUTHORITY

Salinas River NWR

Delegation of Authority
for

_____ Incident

_____ is assigned as Incident Commander. You have full authority and responsibility for managing the fire suppression activities within the framework of laws, Agency policy, and direction provided in the Wildland Fire Situation Analysis and the Agency Administrator Briefing.

Your primary responsibility is to organize and direct your assigned resources for efficient and effective suppression of the fire. You are accountable to the Agency Administrator or the representatives designated below.

Specific direction for this incident covering management and environmental concerns are:

1. Protection of life and private property is your highest priority task.
2. Give special consideration to firefighter safety, especially with respect to aviation operations, working around dozers, snags, and entrapments. Avoid sensitive environmental areas. When in doubt, sacrifice acres not people in your strategic and tactical decisions.
3. You are authorized to utilize helicopters, chainsaws, portable pumps, fireline explosives, and retardant at Salinas River NWR. You are not authorized to use equipment within the _____.
4. Manage human resources assigned to the fire in a manner that promotes mutual respect and is consistent with the enclosed U.S. Fish & Wildlife Service "Harassment-Free Workplace" policy.
5. Be cost effective; final costs should be no more than 120% of the preferred WFSA alternative.
6. Manage equipment and supplies to ensure losses are within Acceptable Fire Loss/Use Rates.

You should takeover management of the incident on or before _____, _____.

Marge Kolar, Project Leader, Antioch Dunes NWR

Date

Delegation of Authority - Guidelines for Mitigating the Effects of Fire Suppression

LINE BUILDING

1. Do not fall snags on the outside of the line unless they are an obvious safety hazard.
2. On the inside of the line, fall only those snags that would reach the fire line should they burn and fall over, or if they are an obvious safety hazard.

3. Don't cut live trees over 12" d.b.h. unless deemed absolutely necessary by the Complex Manager. Limbing of these trees, as necessary, should be the first choice.
4. Cut brush or small trees flush with the ground if the area is visible from roads.
5. Lop and scatter cut limbs so the depth will not exceed 15 inches.

MOP-UP

1. Extinguish fire in living trees or snags within 200 feet of the fires perimeter with water or dirt. Fell those trees as a last resort.
2. If felling occurs in the vicinity of service roads/trails, cut the stumps flush with the ground.
3. Buck fallen trees across service roads/trails only to the extent necessary to facilitate road/trail passage.

AIR OPERATIONS

1. Consider fixed wing delivery of water vs. standard colored retardant.
2. When possible, use long line slings instead of cutting helispots.

APPENDIX F: NOTIFICATION LIST FOR PRESCRIBED BURNING

County Fire Department
Reno DiTullio, Chief
Monterey County Fire Department
2221 Garden Road
Monterey, CA 93940
(408)647-6208

Monterey Bay Unified Air Pollution Control District (MBUAPCD)
Amy Taketomo, Senior Air Quality Planner
24580 Silver Cloud Ct.
Monterey, CA 93940
(831)647-9411

Gary Page, Point Reyes Bird Observatory, Snowy Plover Monitoring
(415) 868-1221 x23

John and Ricky Warriner, Snowy Plover Monitoring
(831) 722-5589

Brian Walton, Santa Cruz Predatory Bird Research Group
(831) 459-2466

Martin Jefferson & Sons, Adjacent Landowner
(831) 384-2049

Robert Scattini, Adjacent Landowner
(831) 633-3509 x13

City of Marina
(831) 384-3715

David Dixon, Cal. Dept. of Parks and Recreation
(831) 384-6932

Nikki Nedeff, Big Sur Land Trust
(831) 625-5523

Terry Palmisano, Cal. Dept. of Fish and Game
(831) 649-2890

APPENDIX G: CULTURAL RESOURCE COMPLIANCE

Project Name:					Program: (Partners, Refuges, JITW, WSECP, etc.)	
State: CA, ID, HI, NV, OR, WA		EcoRegion: CBE, IPE, KCE, NCE			FWS Unit: Org Code:	
Project Location:	County	Township	Range	Section	FWS Contact: Name, Tel#, Address	
USGS Quad:					Date of Request:	
Total project acres/linear ft/m:		APE Acres / linear ft/m (if different)			Proposed Project Start Date:	
MAPS Attached		Check below				
Copy of portion of USGS Quad with project area marked clearly (required)				Project (sketch) map showing Area of Potential Effect with locations of specific ground altering activities (required)		
Photocopy of aerial photo showing location (if available)				Any other project plans, photographs, or drawings that may help CRT in making determination (if available)		
Directions to Project: <small>(if not obvious)</small>						
Description of Undertaking:	Describe proposed project and means to facilitate (e.g., provide funds to revegetate 1 mile of riparian habitat, restore 250 acres of seasonal wetlands, and construct a 5-acre permanent pond). How is the project designed (e.g., install 2 miles of fence and create approximately 25' of 3' high check dam)?					

Area of Potential Effects (APE) :	Describe where disturbance of the ground will occur. What are the dimensions of the area to be disturbed? How deep will you excavate? How far apart are fenceposts? What method are you using to plant vegetation? Where will fill be obtained? Where will soil be dumped? What tools or equipment will be used? Are you replacing or repairing a structure? Will you be moving dirt in a relatively undisturbed area? Will the project reach below or beyond the limits of prior land disturbance? Differentiate between areas slated for earth movement vs. areas to be inundated only. Is the area to be inundated different from the area inundated today, in the recent past, or under natural conditions? Provide acres and/or linear ft/m for all elements of the project.
Environmental and Cultural Setting :	Briefly describe the environmental setting of the APE. A) What was the natural habitat prior to modifications, reclamation, agriculture, settlement? B) What is land-use history? When was it first settled, modified? How deep has it been cultivated, grazed, etc.? C) What is land use and habitat today? What natural agents (e.g., sedimentation, vegetation, inundation) or cultural agents (e.g., cultivation) might affect the ability to discover cultural resources? D) Do you (or does anybody else) know of cultural resources in or near the project area?

APPENDIX H: SAMPLE WFSA
WILDLAND FIRE SITUATION ANALYSIS

3. Jurisdiction: US Fish and Wildlife Service	4. Geographic Area: Northwest Coordination Center
5. Unit: National Wildlife Refuge	6. WFSA Number of .
7. Fire Name:	8. Incident Number:
9. Accounting Code:	
10. Date/Time prepared / / @ : .	
11. Attachments	
-Complexity Analysis	X
-Risk Assessment/Analysis	X
Probability of success	
Consequences of Failure	
-Maps	
-Decision Tree	
-Fire Behavior Projections	X
-Calculations of Resource Requirements	
-Other	

OBJECTIVES AND CONSTRAINTS

<p>•Objectives (Must be specific and measurable) These objectives must be considered in the development of alternatives in III, below. Suppression objectives must relate to the Unit resource management objectives.</p> <ul style="list-style-type: none"> •Safety (These must receive the highest priority) <ul style="list-style-type: none"> -Public -Firefighter •Economic (May include closure, which could impact the public through transportation, communication and resource values) •Environmental (e.g. management objectives for wildlife habitat, water quality, etc.) •Social (May include local attitudes towards fire that might affect decisions on the fire) •Other (e.g. legal or administrative constraints needing consideration such as fire encroaching onto other jurisdictions) <p>•Constraints (e.g. environmentally and culturally sensitive areas, irreparable damage to resources, and economic constraints)</p>

ALTERNATIVES

	A.	B.	C.
Wildland Fire Strategy	e.g. Allow fire to play a natural role	e.g. Aggressive attack	
Narrative			
Resources Needed			
Hand Crews			
Engines			
Dozers			
Air Tankers			
Helicopters			
Final Size			
Est. Contain/ Control Date			
Costs			
Risk Assessment			
-Probability of success			
-Consequence of failure			
Complexity			
Attach maps for each alternative			

EVALUATION OF ALTERNATIVES

	A.	B.	C.
Evaluation Process			
Safety			
Firefighter			
Aviation			
Public			
Sum of safety values			
Economic			
Forage			
Improvements			
Recreation			
Water			
Wildlife			
Other			
Sum of economic values			
Environmental			
Air			
Visual			
Fuels			
T&E Species			
Other			
Sum of environmental values			
Social			
Employment			
Public Concern			
Cultural			
Other			
Sum of social values			

Other			
Sum of other values			
TOTAL			

ANALYSIS SUMMARY

	A.	B.	C.
Compliance with Objectives			
Safety			
Economic			
Environmental			
Social			
Other			
Pertinent Data			
Final fire size			
Complexity			
Suppression cost			
Resource values			
Probability of success			
External/Internal Influences			

VI. DECISION

<p>The Selected Alternative is:</p> <p>Rationale:</p> <p>Agency Administrator's Signature</p>	<p>Date/Time</p>
---	------------------

VII. DAILY REVIEW

			P R E P A R E D N E S S L E V E L	I N C I D E N T P R I O R I T Y	R E S O U R C E A V A I L A B I L I T Y	W E A T H E R F O R E C A S T	F I R E B E H A V I O R P R E D I C T I O N S	W F S A V A L I D
Date	Time	By						

VIII. FINAL REVIEW

<p>The elements of the selective alternative were met on:</p> <p style="text-align: center;">Date Time:</p> <p>By:</p> <p style="padding-left: 40px;">Agency Administrator</p>

APPENDIX I: SAMPLE BURN PLAN

Prescribed Fire Plan

Refuge or Station _____

Unit _____

Prepared By: _____ Date: _____

Reviewed By: _____ Date: _____
Refuge Manager

Reviewed By: _____ Date: _____
Prescribed Fire Burn Boss

Reviewed By: _____ Date: _____
Regional Fire Management Coordinator

Reviewed By: _____ Date: _____
(Others)

The approved Prescribed Fire Plan constitutes the authority to burn, pending approval of Section 7 Consultations, Environmental Assessments, or other required documents. No one has the authority to burn without an approved plan or in a manner not in compliance with the approved plan. Prescribed burning conditions established in the plan are firm limits. Actions taken in compliance with the approved Prescribed Fire Plan will be fully supported, but personnel will be held accountable for actions taken which are not in compliance with the approved plan.

Approved By: _____ Date: _____

PRESCRIBED FIRE PLAN

Refuge: _____ Refuge Burn Number: _____

Sub Station: _____ Fire Number: _____

Name of Area: _____ Unit No. _____

Acres To Be Burned: _____ Perimeter Of Burn: _____

Legal Description: Lat. ___ Long. ___ T ___ R ___ S ___

County: _____

Is a Section 7 Consultation being forwarded to Fish and Wildlife Enhancement for review? Yes No
(circle).

(Page 2 of this PFP should be a refuge base map showing the location of the burn on Fish and Wildlife Service land.)

The Prescribed Fire Burn Boss/Specialist must participate in the development of this plan.

I. GENERAL DESCRIPTION OF BURN UNIT

Physical Features and Vegetation Cover Types (Species, height, density, etc.):

Primary Resource Objectives of Unit (Be specific. These are management goals):

Objectives of Fire (Be specific. These are different than management goals):

Acceptable Range of Results (Area burned vs. unburned, scorch height, percent kill of a species, range of litter removed,

II. PRE-BURN MONITORING

Vegetation Type	Acres	%	FBPS Fuel Model
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Total	_____	_____	_____

Habitat Conditions (Identify with transect numbers if more than one in burn unit.):

Type of Transects:

Photo Documentation (Add enough spaces here to put a pre-burn photo showing the habitat condition or problem you are using fire to change/correct. A photo along your transect may reflect your transect data.):

Other:

III. PLANNING AND ACTIONS

Complexity Analysis Results:

Site preparation (What, when, who & how. Should be done with Burn Boss):

Weather information required (who, what, when, where, how, and how much):

Safety considerations and protection of sensitive features (Adjacent lands, visitors, facilities, terrain, etc., and needed actions. Include buffer and safety zones. Be specific, indicate on a burn unit map. Map should be a USGS quadrangle if possible, so ridges, washes, water, trails, etc. can be identified.)

Special Safety Precautions Needing Attention (Aerial ignition, aircraft, ignition from boat, etc.):

Media Contacts (Radio stations, newspaper, etc., list with telephone numbers):

Special Constraints and Considerations (Should be discussed with Burn Boss):

Communication and Coordination on the Burn (Who will have radios, frequencies to be used, who will coordinate various activities.):

IV. IGNITION, BURNING AND CONTROL

Planned or Proposed

Actual

Scheduling: Approx. Date(s) _____

Time of Day _____

Acceptable Range

FBPS Fuel Model _____	Low	High	Actual
Temperature			
Relative Humidity			
Wind Speed (20' forecast)			
Wind Speed (mid-flame)			
Cloud Cover (%)			
ENVIRONMENTAL CONDITIONS			
Soil Moisture			
1 hr. Fuel Moisture			
10 hr. FM			
100 hr. FM			
Woody Live Fuel Moisture			
Herb. Live Fuel Moisture			
Litter/Duff Moisture			
FIRE BEHAVIOR			
Type of Fire (H,B,F)			
Rate of Spread			
Fireline Intensity			

Flame Length			
Energy Release Component NFDRS Fuel Model _____			

Cumulative effects of weather and drought on fire behavior:

Ignition Technique (Explain and include on map of burn unit. Use of aerial ignition must be identified in this plan. Last minute changes to use aircraft will not be allowed and will be considered a major change to the plan. This will require a resubmission):

Prescribed Fire Organization (See Section VII, Crew and Equipment Assignments. All personnel and their assignments must be listed. All personnel must be qualified for the positions they will fill.)

Other (If portions of the burn unit must be burned under conditions slightly different than stated above, i.e., a different wind direction to keep smoke off of a highway or off of the neighbors wash, detail here.)

Prescription monitoring (Discuss monitoring procedure and frequency to determine if conditions for the burn are within prescription):

V. SMOKE MANAGEMENT

Make any Smoke Management Plan an attachment.

Permits required (who, when):

Distance and Direction from Smoke Sensitive Area(s):

Necessary Transport Wind Direction, Speed and Mixing Height (Explain how this information will be obtained and used):

Visibility Hazard(s) (Roads, airports, etc.):

Actions to Reduce Visibility Hazard(s):

Residual Smoke Problems (Measures to reduce problem, i.e., rapid and complete mop-up, mop-up of certain fuels, specific fuel moistures, time of day, etc.):

Particulate emissions in Tons/Acre and how calculated (This should be filled in after the burn so more precise acreage figures can be used):

VI. FUNDING AND PERSONNEL

Activity Code: _____

Costs

	Equipment & Supplies	Labor	Overtime	Staff Days	Total Cost
Admin. (planning, permits, etc.)					
Site Preparation					
Ignition & Control					
Travel/Per Diem					
Total					

VII. BURN-DAY ACTIVITIES

Public/Media Contacts on Burn Day (List with telephone numbers):

Crew & Equipment Assignments (List all personnel, equipment needed, and assignments. The following is not an all-inclusive list for what you may need.)

Burn Boss/Manager -

Ignition Specialist -

Ignition Crew -

Holding Specialist -

Holding Crew -

Aircraft Manager -

FWBS -

Dispatcher-

Other -

Crew Briefing Points (Communications, hazards, equipment, water sources, escape fire actions, etc., to be done by Burn Boss. Refer to Safety Considerations in Planning Actions and points listed below):

Ignition Technique (Methods, how, where, who, and sequence. Go over what was submitted in Section IV and any changes needed for the present conditions.) Attach ignition sequencing map if necessary:

Personnel Escape Plan

Special Safety Requirements:

Go-No-Go Checklist:

Holding and Control:

Critical Control Problems:

Water Refill Points:

Other:

Contingency Plan for Escaped Fire (Are there crews standing by to initial attack or will people doing other jobs be called upon to do initial attack, who must be called in case of an escape, what radio frequencies will be used, etc.)

Mop Up and Patrol:

Rehabilitation Needs:

DI 1202 Submission Date: _____

Special Problems:

VIII. CRITIQUE OF BURN

Were burn objectives within acceptable range of results? (Refer to Section I):

What would be done differently to obtain results or get better results?

Was there any deviation from plan? If so, why?

Problems and general comments:

IX. POST-BURN MONITORING

Date: _____ Refuge Burn Number: _____

Length of Time after Burn: _____

Vegetative Transects:

Comments on Habitat Conditions, etc.:

Photo Documentation:

Other:

X. FOLLOW-UP EVALUATION

Date: _____ Refuge Burn Number: _____

Length of Time after Burn: _____

Vegetative Transects:

Comments on Habitat Conditions, etc.:

Photo Documentation:

Other:

Appendix J. Salinas River NWR Hunting Plan

REFUGE HUNTING PLAN
for
SALINAS RIVER NATIONAL WILDLIFE REFUGE

I. INTRODUCTION

Salinas River National Wildlife Refuge (NWR) is located 11 miles north of Monterey, California where the Salinas River empties into Monterey Bay (Figure 1). The 367-acre Refuge consists of several habitat types and supports large numbers of shorebirds, wading birds, waterfowl, pelicans, gulls, and terns. Several Federally listed threatened or endangered species have been documented on the refuge including the endangered California brown pelican, Smith's blue butterfly, and Monterey gilia as well as the threatened western snowy plover and Monterey spineflower.

Major habitat types include: 1) a 15-acre saline pond with surrounding coastal salt marsh vegetation; 2) grassland and coyote brush scrub, including restored grasslands that were formerly in agricultural production; 3) beach and foredunes which provide feeding, resting, and nesting areas for shorebirds, including the Western snowy plover; 4) back dunes, which are characterized by a diversity of native vegetation including coastal buckwheat, yellow bush lupine, lizard tail, and mock heather; 5) and riparian/riverine habitat along an approximately one mile stretch of the Salinas River.

The Refuge was acquired in 1973 when surplus military (U.S. Army and the Coast Guard) property was transferred to the Service. From 1974 to 1991, the Refuge was managed as a Wildlife Management Area under a cooperative agreement with the California Department of Fish and Game (CDFG). In 1991, the Service began managing the area as a National Wildlife Refuge. Salinas River NWR is open to the public. Public uses include wildlife observation and photography, access to surf fishing, and waterfowl hunting. These activities were previously administered by CDFG. Public use facilities on Salinas River NWR are minimal, consisting of a parking area, two maintained trails, and some signs. Improvements to the Refuge's wildlife interpretation are proposed in the 2001 Comprehensive Conservation Plan (CCP); these include interpretive signs and materials, and a docent program.

This area has historically been used for hunting; the majority of the area was hunted for waterfowl and upland game under CDFG management, and military officers hunted the area prior to Service acquisition. The Refuge is now one of only two locations in the local area open for public waterfowl hunting during the season, typically from October through January. 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. The Refuge, however, is the only local hunting area available to hunters on foot rather than by boat. Other public hunting areas such as the San Luis NWR near the community of Los Banos are located 80 miles or more away. Annual hunter visitation is estimated to be 140 hunter visits for an average of 6 hours each, totaling 840 activity hours.

II. CONFORMANCE WITH STATUTORY AUTHORITIES

Salinas River NWR was established in 1973 because of its “particular value in carrying out the national migratory bird management program (U.S.C. Sec. 6676). Specific Refuge goals, detailed in the CCP, are to:

1. Protect, restore and enhance populations of migratory birds and other native species and their habitats.
2. Protect and enhance populations of endangered, threatened, and rare species and promote their recovery by restoring and enhancing their natural habitats.
3. Provide opportunities for safe, unique, wildlife-dependent recreation when compatible with other Refuge purposes and goals.

Hunting provides a wildlife-oriented public recreational opportunity, and has been identified in the National Wildlife Refuge Improvement Act of 1997 as a priority public use. Other priority public uses are fishing, wildlife observation, photography, environmental education, and environmental interpretation. As expressed priorities of the refuge system, these uses take precedence over other potential uses in refuge planning and management. The Service strives to provide for the six priority public uses when they are compatible with the purpose of the Refuge.

Migratory bird hunting (waterfowl, coot, and moorhen) will be permitted in accordance with State and Federal regulations and seasons to ensure that it will not interfere with the conservation of wildlife and their habitat.

III. STATEMENT OF OBJECTIVES

A goal of the National Wildlife Refuge System is: To provide an understanding and appreciation of fish and wildlife ecology and man’s role in his environment and to provide refuge visitors with high quality, safe, wholesome and enjoyable recreational experiences oriented toward wildlife to the extent these activities are compatible with the purposes for which the refuge was established.

Hunting has been identified as a priority public use for the National Wildlife Refuge System.

IV. ASSESSMENT OF RESOURCE

Pacific Flyway waterbirds migrating along the coast feed and rest on Salinas River as well as the saline pond when it is flooded. Refuge waterfowl populations vary from approximately 500 to 2,000 birds depending on water availability throughout the fall and winter

months. Primary species include ruddy, mallard, gadwall, green-wing teal, wigeon, shoveler, and pintail in typical order of abundance. Coots are seasonally abundant with as many as 600 present during the winter months. Common moorhen have been documented, but are not regularly seen.

Waterfowl that use Salinas River NWR are presumably part of a wintering population that also uses Elkhorn Slough and other nearby wetlands. The population of waterfowl using this general area is much larger than the individuals observed using the Refuge at any particular time. This “mobile population” always seems to provide a diverse abundance of waterfowl for other public users to enjoy, especially in the proposed sanctuary area.

V. DESCRIPTION OF HUNTING PROGRAM

A. AREAS OF REFUGE SUPPORTING TARGET SPECIES

All hunted species are present on Salinas River, and when high surf or rains flood the saline pond, many of the hunted species are present there, sometimes in very high numbers.

B. AREAS OPENED

Approximately 80 acres of the Refuge along the Salinas River would be conducive to hunting; hunting will be permitted in an area of approximately 38 acres (2,800 linear feet of riverbank). This is approximately 10% of the 367-acre Refuge. The area available for waterfowl hunting has been reduced to eliminate disturbance to brown pelicans roosting along the Salinas River lagoon by eliminating the hunt area along the northern 800 linear feet of the Salinas River (see figs. 4 and 5 in the CCP). This is the area closest to the river mouth.

C. REGULATIONS

The designated Refuge hunting area is open during established State waterfowl seasons and all applicable State and Federal regulations will be enforced. Species hunted are geese, ducks, coots, and common moorhen. Hunting on the Refuge will be permitted every day throughout the waterfowl season. Hunters will be limited to having no more than 25 shells in their possession while on the Refuge. This will discourage hunters from taking long-shots, thereby reducing disturbance and decreasing the possibility of target misidentification. Hunters may only possess approved nontoxic shot while on the Refuge. Access to the hunting area is delineated by hunting signs and is accessed by foot only. Hunting dogs are allowed off leash and under voice control for the purpose of retrieving waterfowl from the river. All firearms must remain unloaded until hunters are within the designated hunt area. The Refuge will remain closed to all other forms of hunting or target shooting. Hunting access will not be regulated due to the relatively low demand.

This area will be closely monitored to assess if further regulation may be warranted in the future.

D. PROCEDURES FOR COORDINATION WITH STATE

Hunting will be permitted within the framework of applicable State and Federal regulations. A joint meeting of these two agencies occurs annually to review these regulations. The CDFG will be consulted if any changes are planned in the refuge hunting program.

E. METHODS OF ENFORCEMENT

The Refuge will maintain an active law enforcement presence by Refuge officers and through an agreement with CDFG to ensure public compliance with hunting regulations. The Refuge will increase law enforcement patrols especially during the opening weeks of the season to document hunter use and ensure compliance with Refuge regulations.

F. FUNDING AND MANPOWER REQUIREMENTS

Approximately 35 staff days will be required to monitor and conduct the hunt program at Salinas NWR. This work will include law enforcement patrols during waterfowl season, sign posting and replacement, and responding to public inquiries. The total cost of the program is expected to be approximately \$5,000 per year.

VI. MEASURES TAKEN TO AVOID CONFLICTS WITH OTHER OBJECTIVES

A. BIOLOGICAL CONFLICTS

A Comprehensive Section 7 consultation has been conducted in conjunction with the CCP. The hunt area has been reduced in size to provide better protection for brown pelicans in addition to creating sanctuary areas for waterfowl.

Hunters, and other visitors, are not allowed on the dunes where the Smith's blue butterfly, western snowy plover, and threatened and endangered plants occur. In addition, the waterfowl hunting season, which typically opens in October and closes in January, occurs outside the breeding season for the Smith's blue butterfly and western snowy plover. The lower end of the river, including the sand spits where brown pelicans roost, will be closed to hunting to minimize hunter disturbance to this species. This river portion also will serve as a sanctuary for migratory waterfowl, as will the saline pond when it is flooded.

B. PUBLIC USE CONFLICTS

The majority of non-hunting public use occurs on the beach and saline pond habitats, but there is occasional use of the river bank by birders. However, hunt use on the refuge is relatively low and public use conflicts are expected to be minimal. In addition, numbers of non-hunters visiting the Refuge appear to be higher in the spring and summer. The Refuge will monitor public use and will consider changing to a limited day hunt season in the future if warranted.

C. ADMINISTRATIVE CONFLICTS

Potential conflicts could arise from hunters not familiar with new regulations. Informational signs will be placed at the parking area and along the river, and signs will be posted on both sides of the hunting boundary showing “closed” and “open” areas. A simple one page hunting regulation leaflet with map will be published and dispersed through the mail and on-site. Law enforcement officers may need to spend additional time explaining changes in regulations and management.

VII. CONDUCT OF THE HUNT

A. FEDERAL REGISTER SPECIAL REGULATIONS

The following special regulations are proposed. They will be in place by the 2002-2003 hunt season.

50 CFR 32.24 Refuge-specific regulations; migratory game birds.

California

Salinas River National Wildlife Refuge.

A. Hunting of Migratory Game Birds. Hunting of geese, ducks, coots, and moorhens is permitted on designated areas of the refuge subject to the following conditions:

1. You may possess and use only nontoxic shot while in the field.
2. You may possess no more than 25 shells while on the Refuge.
3. Access to the hunt area is by foot traffic only. We do not allow bicycles and other conveyances. Mobility-impaired hunters should consult with the Refuge Manager for allowed conveyances.
4. You must keep firearms unloaded until you are within the designated hunt area.

B. ANTICIPATED PUBLIC REACTION

Hunt days and hunting area have been reduced from what was previously allowed, so hunters may object to these restrictions. Law enforcement officers, refuge personnel, the news media, and other public information systems will be used to explain the reasons for these

restrictions. Anti-hunting individuals and organizations can be expected to voice their concerns regarding hunting of any kind.

C. HUNTER REQUIREMENTS

Hunters must comply with all State and Federal regulations, including a regulation change requiring “approved” non-toxic shot to be used for waterfowl hunting on Salinas River NWR as well as throughout the state.

Appendix K. Mailing List

Mailing List

Last Name	First Name	Organization	Branch
Agencies/Organizations/Companies			
Kendall	Robert	American Fisheries Society	
Hayden	Mike	American Sportsfishing Association	
Papouchis	Christopher	Animal Protection Institute	
Fox	Camilla	Animal Protection Institute	
		Assembly Committee on Water Parks and Wildlife	
Leavy	Zad	Big Sur Land Trust	
Saslaw	Larry	BLM	
Grove	Tami	California Coastal Commission	Santa Cruz Area Office
		California Coastal Commission	S. Central Coast Area Office
		California Coastal Commission	Central Coast Area Office
Hillyard	Deborah	California Department of Fish and Game	
		California Department of Fish and Game	Nongame Bird and Mammal Section
Trunnell	Byron	California Department of Fish and Game	
		California Department of Transportation	Headquarters Office
		California Department of Transportation	District 5
		California Native Plant Society	
		California Polytechnic State Library	Robert E. Kennedy Library
Culbertson	Bob	California State Parks	Santa Cruz District
Gray	George	California State Parks	Santa Cruz District
Gray	Ken	California State Parks	Monterey District
Moss	Tom	California State Parks	Monterey District
		California State Water Resources Control Board	Headquarters

APPENDIX K — *Mailing List*

Last Name	First Name	Organization	Branch
		California Waterfowl Association	
		California Waterfowl Association	Monterey
Touchon	Ron	Calpine	
Myrah	Julie	CalTrans	Biology
Cannon	Charlie	Cannon Consultants, Inc.	
Teresa	Sherry	Center for Natural Lands Management	
Barrows	Cameron	Centers for Natural Lands Management	Regional
Strand	Leslie	Central Coast District Coastal Commission	
O’Henley	Connie	Central Coast Salmon Enhancement	
Chipping	David	CNPS	
		Coastal Conservancy	
Duff	Tim	CSCC	
Beetham	Mary Beth	Defenders of Wildlife	
Bontadelli	Peter	Department of Fish and Game	OSAR
du Vair	Pierre	Department of Fish and Game	OSAR
Richer	Rob	Department of Fish and Game	OSAR
Hackenbracht	Mary	Deputy Attorney General	
		Ducks Unlimited	
Touchstone	Vicki	Ducks Unlimited	Sweetwater Marsh NWR
Sutherland	Scott	Ducks Unlimited	
Bumgardner	Michael	EIP Associates	Biological Services
Weston	Mark	Elkhorn Slough Waterfowl Association	
		Fish and Game Commission	
Miller	Brent	Government Publications Section	
		Grower/Shipper Vegetable Association	

Last Name	First Name	Organization	Branch
Taylor	Gary	International Association of Fish and Wildlife Agencies	
Belknap	Ray	Land Conservancy of San Luis Obispo County	
		Martin Jefferson and Sons, Inc.	
		Monterey Bay Salmon and Trout Project	
Taketomo	Amy	Monterey Bay Unified Air Pollution Control District	
Maki	Steve	Monterey County Planning Department	
Di Tullio	Rene	Monterey County Fire Department	
		Monterey County Parks Department	
		Monterey County Water Resource Agency	
		Monterey Dunes Natural History Association	
Ghormley	Peter	Northern Salinas Valley Mosquito Abatement District	
		Monterey Peninsula Audubon Society	
Sibbing	Julie	National Audubon Society	
Muller	Gretchen	National Audubon Society	
Lovett	Mark	National Audubon Society	
Cannon	Charlie	National Audubon Society	
Sigmon	Neal	National Fish and Wildlife Foundation	
Kania	Gary	National Fish and Wildlife Foundation	
Bayless	Jonathan	National Natural Landmarks Program	
Larnson	Susan	National Rifle Association of America	
Inkley	Doug	National Wildlife Federation	
Fields	Robert	National Wildlife Refuge Association	

Last Name	First Name	Organization	Branch
		National Wildlife Refuge Association	
Mazzoni	Joe	National Wildlife Refuge Association	CA/NV Representative
		Native American Heritage Commission	
		Natural Resources Conservation Service (USDA)	West Regional Office
		Office of Historic Preservation	
Hickey	Michael	Office of Management and Budget	Natural Resources Division
Houghten	Chuck	Portland Regional Office, 3W	Refuge Planning
Laird	Kriss	PRBO	
Eyster	Carelton	PRBO	
Nichols	Mary	Resources Agency	
Booher	Robert A.	Robert A. Booher Consulting	
Parsons	Rick	Safari Club International	
Loredo	Ivette	San Francisco Bay NWR Complex	
		Santa Cruz Bird Club	
Sparks	Jeanne	SB County Board of Supervisors	
		Sea Mist Farms	
		Sierra Club	Ventana Chapter
		SPCA	Santa Cruz County
Davis	Gray	State Capitol Building	
Arnold	Carol	State Coastal Conservancy	
Lynch	Robert	State Lands Commission	
Boxer	Barbara	State of California	
		The Wildlife Society	Western Section
Mosher	Jim	The Izaak Walton League of America	
Hogan	Matt	The Congressional Sportsmen's Foundation	
Gable	Melinda	The Congressional Sportsmen's Foundation	

Last Name	First Name	Organization	Branch
Goldstein	Ed	The Wilderness Society	
Waltman	Jim	The Wilderness Society	
Franklin	Tom	The Wildlife Society	
Moyer	Steve	Trouts Unlimited	
		Trust for Public Lands	Western Region
Valentine	Nick	U.S. Fish and Wildlife Service	Cultural Resources Team
		U.S. Department of the Interior	Bureau of Indian Affairs
		U.S. Environmental Protection Agency R9	
Olson	Norm	U.S. Fish and Wildlife Service	Regional Planning
		U.S. Fish and Wildlife Service	Division of Refuge Management
Villanueva	Terry	U.S. Fish and Wildlife Service	Division of Refuges, Region 2
Vaniman	Mark	U.S. Fish and Wildlife Service	Arrowwood NWR
Young	Rebecca	U.S. Fish and Wildlife Service	San Diego Refuges
Aspland	Trish	U.S. Fish and Wildlife Service	
Swilling	Randy	U.S. Fish and Wildlife Service	Bon Secour NWR
Clough	Helen	U.S. Fish and Wildlife Service	Division of Refuges
Stieglitz	Barry	U.S. Fish and Wildlife Service	Division of Refuges
McCorkle	Loretta	U.S. Fish and Wildlife Service	Editor
Arend	Maggi	U.S. Fish and Wildlife Service	Refuge Planning
Slown	John	U.S. Fish and Wildlife Service	
Govan	Jhadda	U.S. Fish and Wildlife Service	Sonny Bono Salton Sea NWRD
Scherr	Paulette	U.S. Fish and Wildlife Service	Arrowwood NWR

Last Name	First Name	Organization	Branch
Rizor	Pam	U.S. Fish and Wildlife Service	Arapaho NWR
Palmer	Thomas	U.S. Fish and Wildlife Service	Crab Orchard NWR
Marrow	Harold	U.S. Fish and Wildlife Service	St. Marks NWR
Hadley	Richard	U.S. Fish and Wildlife Service	Division of Planning
Lanier	Mark	U.S. Fish and Wildlife Service	Arapaho NWR
Langer	Gregory	U.S. Fish and Wildlife Service	Arapaho NWR
Krey	Rod	U.S. Fish and Wildlife Service	Albuquerque RO
Bellatoni	Liz	U.S. Fish and Wildlife Service	Division of Refuges
Holler	Jeanne	U.S. Fish and Wildlife Service	Sherburne NWR
Hight	Shelly	U.S. Fish and Wildlife Service	Hadley RO
Pelz	Mark	U.S. Fish and Wildlife Service	CA/NV Refuge Planning Office
Browning	Donny	U.S. Fish and Wildlife Service	Refuges Division
Erikson	Michael	U.S. Fish and Wildlife Service	Chase Lake Prairie Project
Goldstein	Beth	U.S. Fish and Wildlife Service	Refuges and Wildlife
Blair	Charlie	U.S. Fish and Wildlife Service	Sherburne NWR
Eaton	Robert	U.S. Fish and Wildlife Service	St. Marks NWR
Bradley	John	U.S. Fish and Wildlife Service	San Diego NWRC
Shaffer	Bob	U.S. Fish and Wildlife Service	CVHJV
Richardson	Tim	Wildlife Forever	
Melancon	J. Dwight	Western Geophysical (Baker Hughes)	Western United States
Henessey	Scott	Watershed Institute	CSU Monterey Bay

Last Name	First Name	Organization	Branch
Horn	Bill	Wildlife Legislative Fund of America	
Quevli	Beth	Wildlife Legislative Fund of America	
Byrne	Robert	Wildlife Management Institute	
Sparrowe	Rollin D.	Wildlife Management Institute	
Christenson	Barry	Union Slough NWR	
Individuals			
		Ventana Wilderness Sanctuary	
Sansome	Stan		
Ruth	Dr. Stephen		
Feinstein	Senator Dianne		
Robertson	Don		
Hohenberger	Craig		
Shriner	Jan		

Salinas River National Wildlife Refuge
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560
Telephone: 510/792 0222
Fax: 510/792 5828

U.S. Fish and Wildlife Service
1 800/344 WILD
<http://www.fws.gov>
August 2001

