

Introduction

1.1 Introduction and Background

The U.S. Fish and Wildlife Service (Service or USFWS) has prepared this Comprehensive Conservation Plan (CCP) to guide the management of the San Diego National Wildlife Refuge (NWR or Refuge) over the next 15 years. It provides long-range management direction for achieving Refuge purposes, while also providing important background information related to the history of the Refuge, the resources being conserved, past management activities, and any anticipated future conditions that could affect Refuge resources and management.

The San Diego NWR is located in southwestern San Diego County, California (Figure 1-1). Managed by the Service as part of the National Wildlife Refuge System (NWRS or Refuge System), the Refuge protects a variety of native upland and wetland habitats, and plays a critical role in the regional effort to maintain the high biological diversity of southwestern San Diego County. More than 16 species currently listed as threatened or endangered under the Federal Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA) are either known to occur on the Refuge or have occurred here within the last 20 years. Many other species of concern, including at least 35 species covered by the San Diego Multiple Species Conservation Program (MSCP) (City of San Diego 1998a) have also been documented on the Refuge.

In 1997, the Service approved a Land Protection Plan (LPP) and acquisition boundary for the San Diego NWR's Otay-Sweetwater Unit, as well as the Vernal Pools Stewardship Project (Figure 1-2). The Land Protection Plan for the Otay-Sweetwater Unit established an acquisition boundary that has the potential to protect up to 43,860 acres of native habitat (Figure 1-3). Acquisition within this boundary from willing sellers is intended to contribute to the conservation of listed species within southwestern San Diego County and sustain native diversity by conserving large contiguous blocks of undisturbed native habitat (USFWS 1997a).

In the years since the LPP was approved, several large areas within the Otay-Sweetwater acquisition boundary have been acquired by the Service for inclusion in the Refuge and acquisition efforts will continue per available funding. It should be noted that because the Service's land acquisition program is based on willing sellers, it is likely that some lands within the approved acquisition boundary will never be acquired. As of August 2013, the Otay-Sweetwater Unit included about 11,470 acres of USFWS-owned lands (refer to Figure 1-3). Over the next few years, an additional 337 acres of land owned by the California Department of Transportation (Caltrans) are expected to be transferred to the Service for inclusion in the Refuge (Figure 1-4).

In addition to the Refuge's 11,470 acres, there are more than 25,000 acres within the Otay-Sweetwater acquisition boundary that are owned by other Federal, State, and local agencies, tribes, and non-profit conservation organizations (refer to Figure 1-4). Most of this acreage is already managed for habitat conservation and/or watershed protection; therefore, it is unlikely that the majority of these lands will ever be incorporated into the Refuge.

The LPP for the Vernal Pools Stewardship Project established an approved project boundary (refer to Figure 1-2) to conserve up to 8,220 acres through a variety of habitat protection methods for the purpose of protecting sensitive vernal pool habitat and the rare species this habitat supports (USFWS 1997b). As illustrated in Figure 1-2, some portions of the Vernal Pools Stewardship Project boundary overlap with the acquisition boundary for the Otay-Sweetwater Unit.

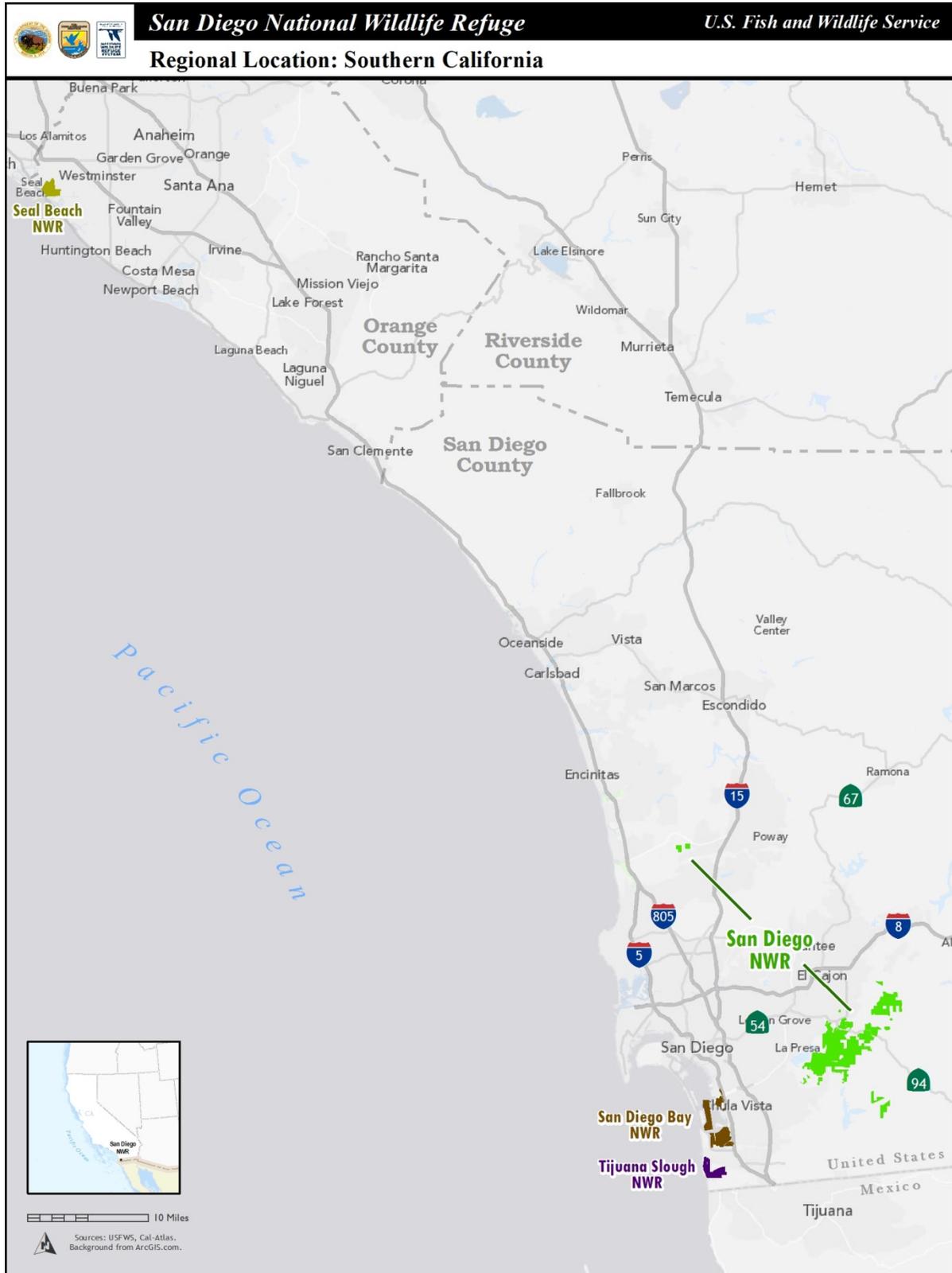


Figure 1-1. Location Map - San Diego National Wildlife Refuge

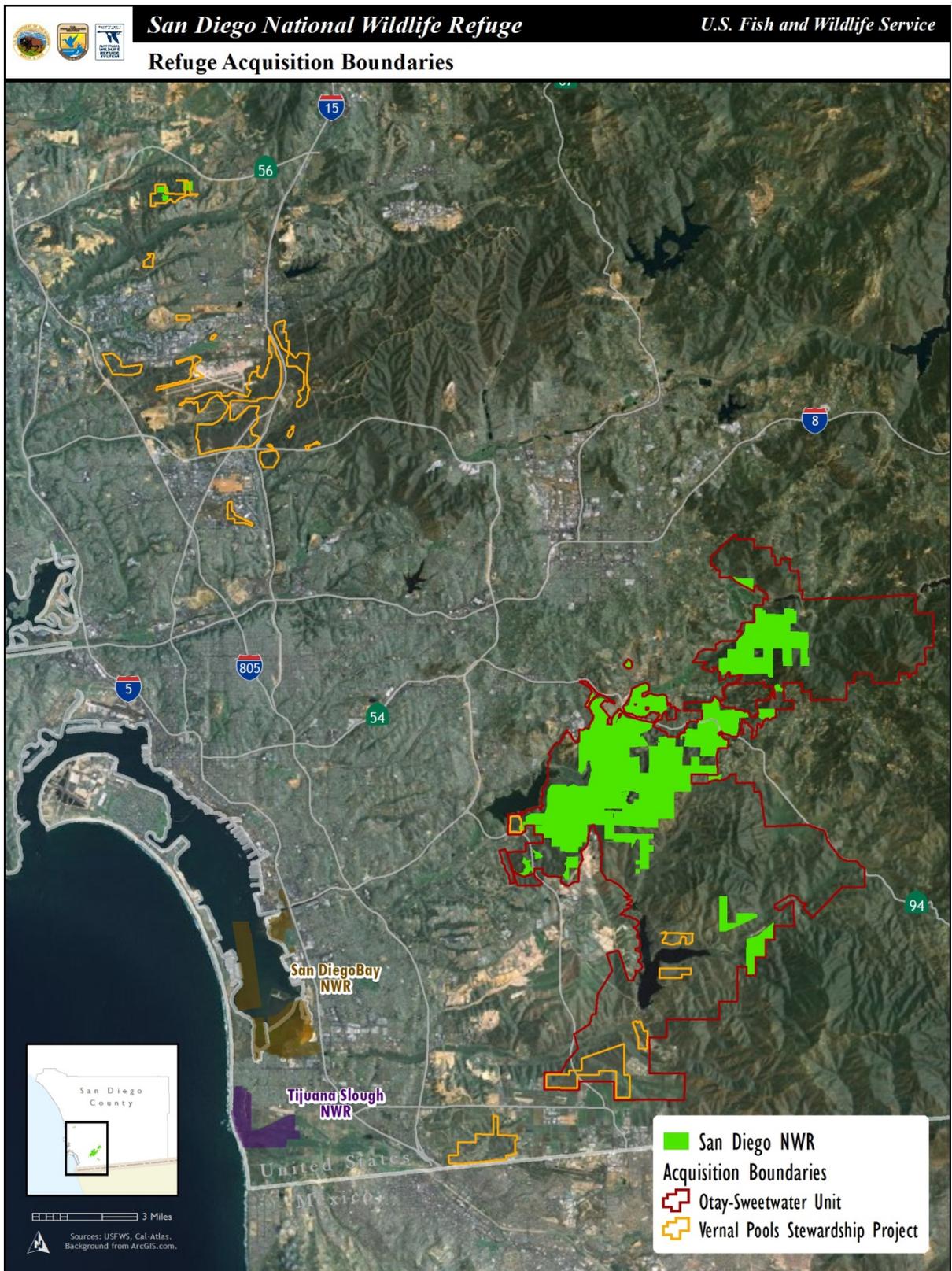


Figure 1-2. Refuge Acquisition Boundaries – San Diego National Wildlife Refuge

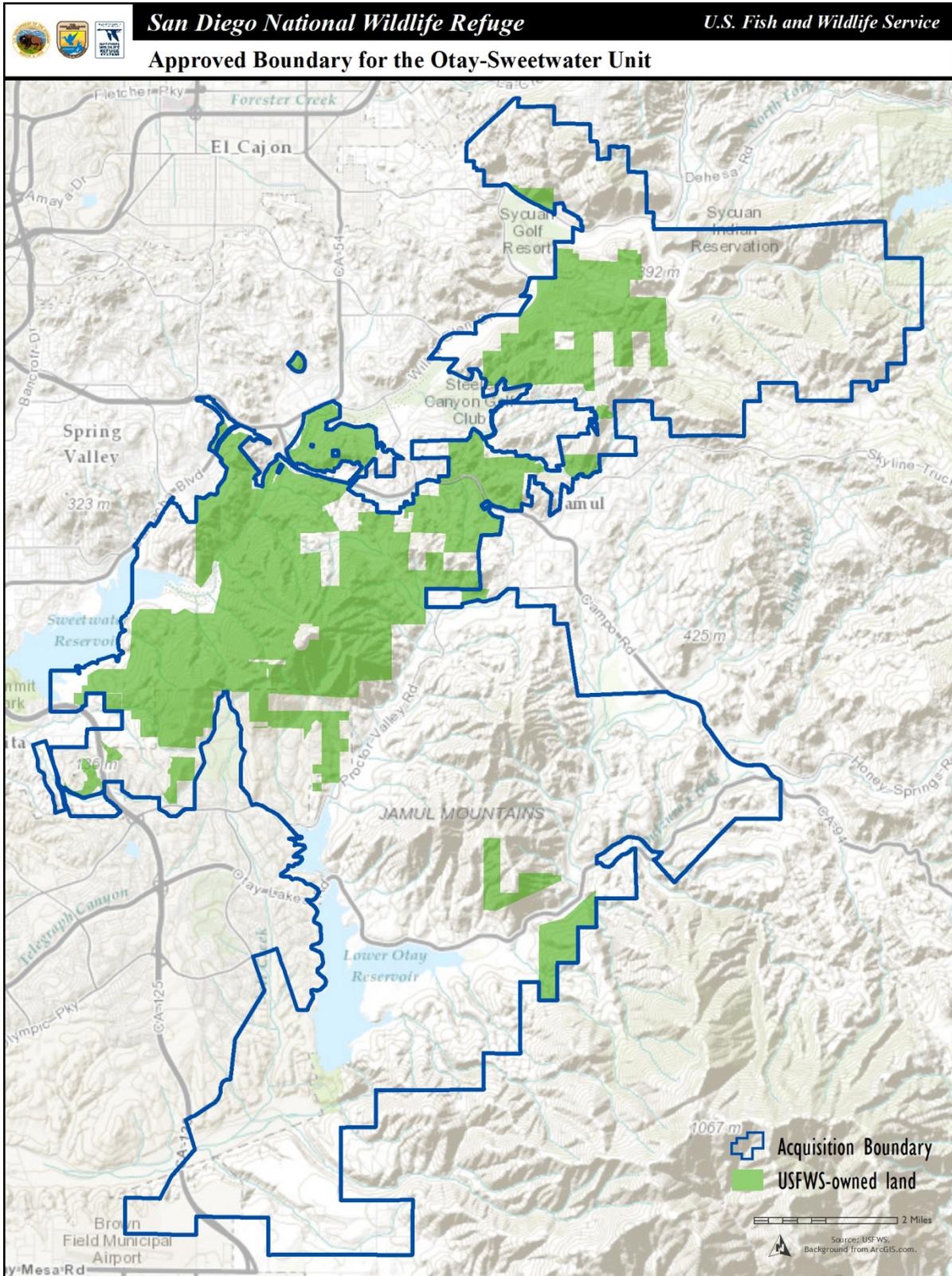


Figure 1-3. Location Map - Otay-Sweetwater Unit

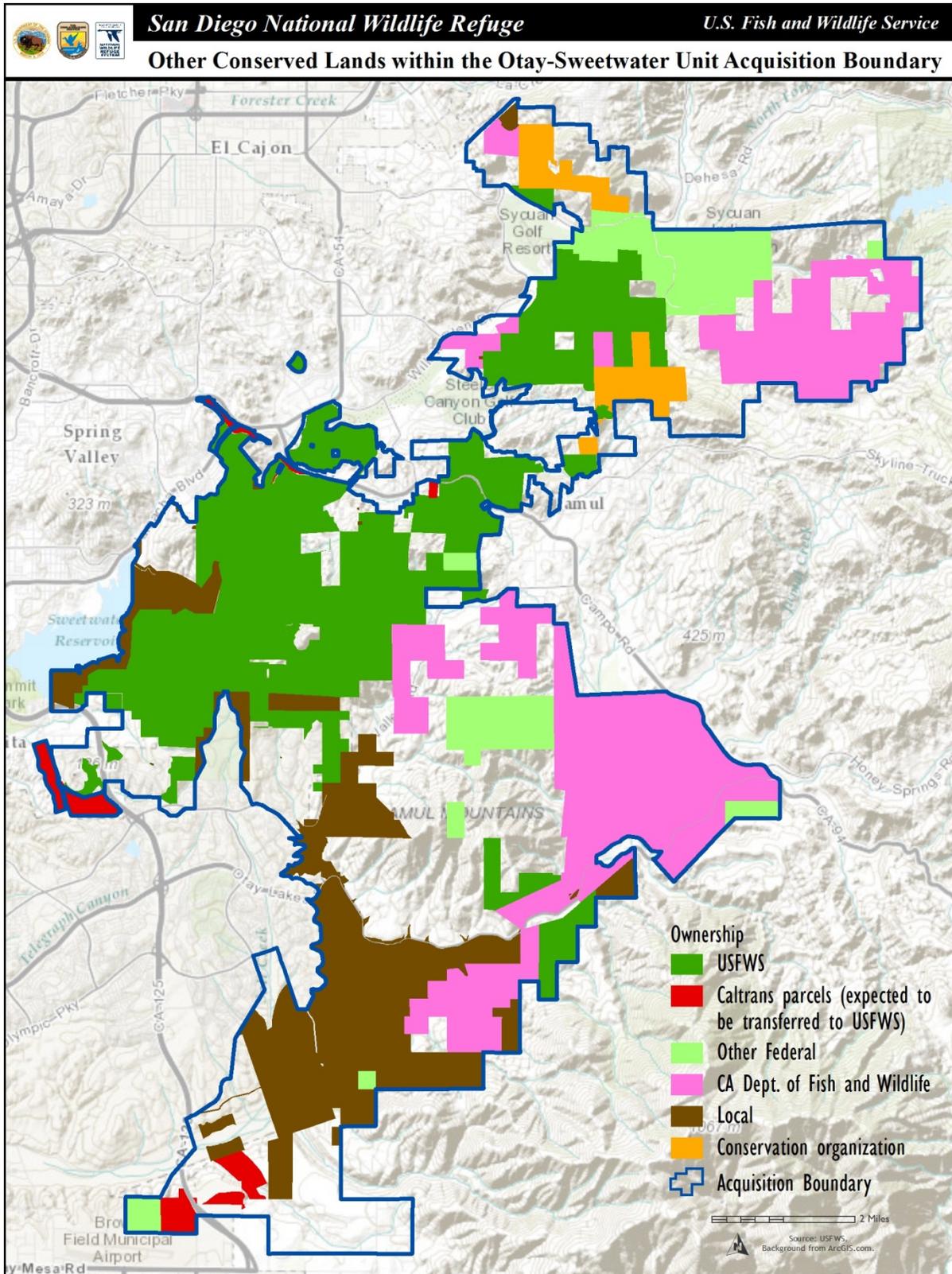


Figure 1-4. Lands Conserved within the Otoy-Sweetwater Unit Acquisition Boundary

Between 1997 and 2013, two areas within the Vernal Pools Stewardship Project boundary were incorporated into the Refuge. These areas include 17 acres located near the southeastern end of the Sweetwater Reservoir, which are collocated within the boundaries of the Otay-Sweetwater Unit, and 60 acres located the Del Mar Mesa area (Figure 1-5). Approximately 360 acres of the Caltrans lands to be transferred to the Service are collocated within the boundary of the Vernal Pool Stewardship Project and the acquisition boundary of the Otay-Sweetwater Unit.

1.2 Purpose and Need

The purpose and need for the San Diego NWR CCP is to provide guidance to the Refuge Manager and others for how this Refuge should be managed to best achieve the purposes for which it was established and to contribute to the mission of the NWRS. This CCP, when completed, is intended to provide a 15-year management plan for addressing the conservation of wildlife and plant resources and their related habitats, while also presenting the opportunities on the Refuge for compatible wildlife-dependent recreational uses. It is through the CCP process that the overarching wildlife, public use, and management needs for the Refuge, as well as any issues affecting the management of Refuge resources and public use programs, are identified. Through this process, various strategies for meeting Refuge needs and/or resolving issues that may be impeding the achievement of Refuge purposes are evaluated and ultimately presented for implementation.

The CCP is intended to:

- Ensure that Refuge management is consistent with the NWRS mission and Refuge purposes and that the needs of wildlife come first, before other uses;
- Provide a scientific foundation for Refuge management;
- Establish a clear vision statement of the desired future conditions for Refuge habitat, wildlife, visitor services, staffing, and facilities;
- Communicate the Service's management priorities for the Refuge to its neighbors, visitors, partners, State, local, and other Federal agencies, and to the general public;
- Ensure that current and future Refuge uses are compatible with Refuge purposes;
- Provide long-term continuity in Refuge management; and
- Provide a basis for budget requests to support the Refuge's needs for staffing, operations, maintenance, and capital improvements.

The development of this CCP is also required to fulfill legislative obligations of the Service. Its preparation is mandated by the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (the Improvement Act) (Public Law 105-57). The Improvement Act requires that a CCP be prepared for each refuge or related complex of refuges within 15 years of the law's enactment. In accordance with the Act, the Service is developing a CCP for each refuge included within the NWRS.

Currently, there is no overarching management plan in place for the San Diego NWR. Those documents that are available, such as the Conceptual Management Plan for the San Diego National Wildlife Refuge (USFWS 1997b) and the San Diego MSCP Plan (City of San Diego 1998a), provide general direction and guidance, but do not address the full range of activities and strategies that should be considered in managing a national wildlife refuge. The Conceptual Management Plan provides a broad overview of the Service's proposed approach for managing Refuge resources and operations, while the MSCP Plan provides general guidance for habitat and species management and monitoring within the larger MSCP preserve.

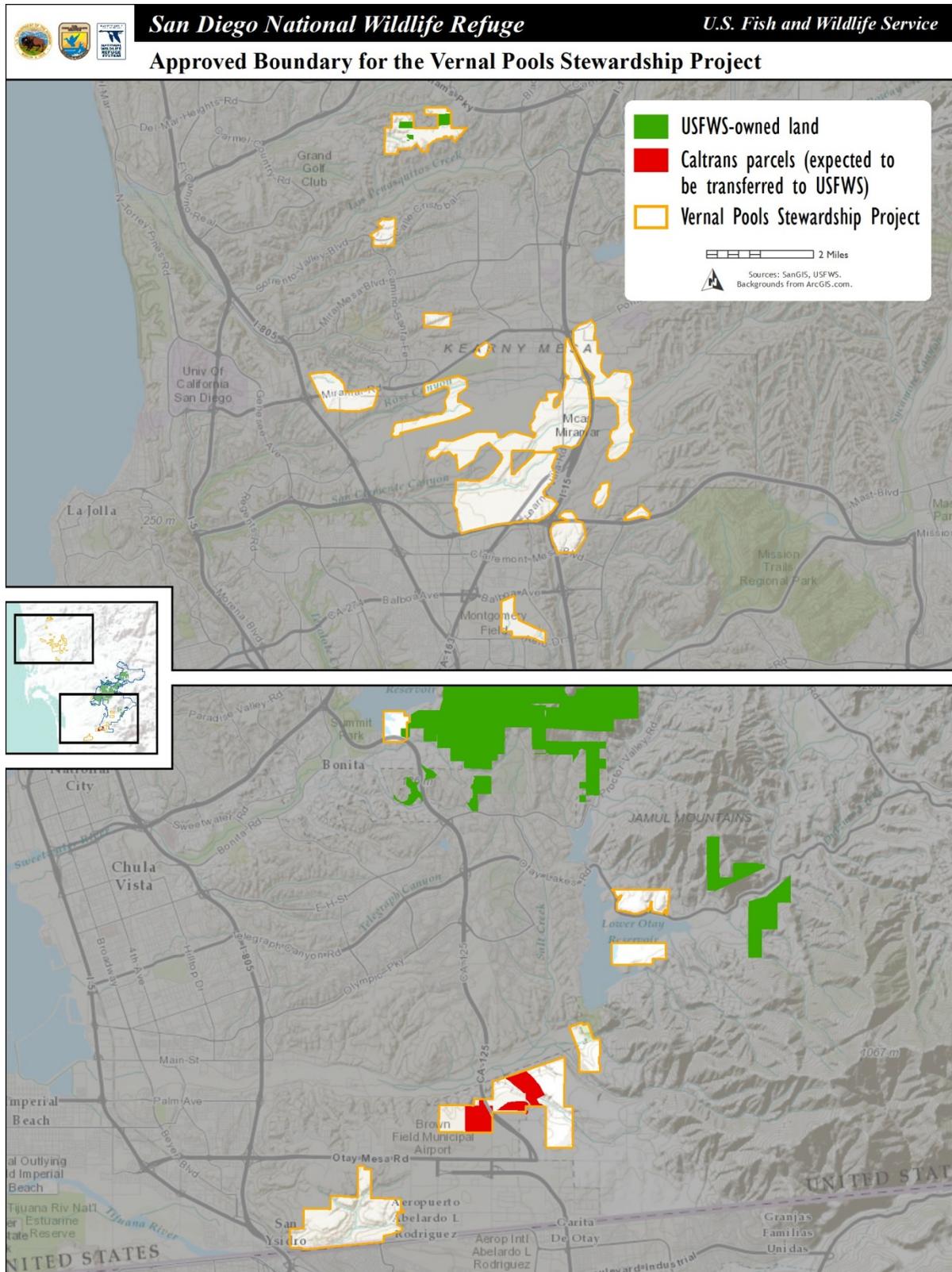


Figure 1-5. USFWS-Owned Lands within the Vernal Pool Stewardship Project

As the first comprehensive management plan for the San Diego NWR, the CCP will set forth Refuge goals and objectives and describe the specific strategies to be implemented to achieve these goals and objectives. The guidance provided will be based on specific Refuge purposes, Federal laws, NWRS goals, and Service policies. Although the CCP will address all management actions and activities occurring or proposed to occur on the Refuge, some of these actions or activities, such as hunting, may be broadly stated. In such cases, the Refuge staff will prepare detailed step-down plans to further describe how a specific management strategy or activities will be implemented. These step-down plans provide specific strategies and implementation schedules for meeting the various goals and objectives identified in the CCP. The step-down plans to be prepared for the San Diego NWR following CCP approval are outlined in Chapter 6.

1.3 U.S. Fish and Wildlife Service and National Wildlife Refuge System

1.3.1 U.S. Fish and Wildlife Service

The Service is the primary Federal agency responsible for conserving and enhancing the Nation's fish and wildlife populations and their habitats. Although this responsibility is shared with other Federal, State, tribal, local, and private entities, the Service has specific responsibilities for migratory birds, threatened and endangered species, interjurisdictional fish, and certain marine mammals. The Service also has similar trust responsibilities for the lands and waters it administers to support the conservation and enhancement of fish and wildlife. The mission of the Service is: "Working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people."

1.3.2 National Wildlife Refuge System

The NWRS is the largest system of lands and waters in the world specifically dedicated to the conservation of fish and wildlife. Operated and managed by the Service, the NWRS currently includes more than 150 million acres, consisting of over 560 national wildlife refuges and other units of the Refuge System and more than 35 wetland management districts. The majority of Refuge System lands (over 77 million acres) are in Alaska. The remaining acreage is scattered across the other 49 states and several island territories. About 21 million acres are managed as wilderness under the Wilderness Act of 1964.

The NWRS started in 1903, when President Theodore Roosevelt established Pelican Island as the Nation's first bird sanctuary. With this action, pelicans, herons, ibis, and roseate spoonbills nesting on a small island in Florida's Indian River were given protection from feather collectors who were decimating their colonies. President Roosevelt went on to establish many other sanctuaries for wildlife during his tenure. This small network of sanctuaries continued to expand, later becoming the NWRS. In contrast to other public lands, which are managed under a multiple uses mandate (e.g., national forests managed by the U.S. Forest Service, and lands administered by the U.S. Bureau of Land Management [BLM]), the lands within the NWRS are managed primarily for the benefit of fish, wildlife, and plant resources and their habitats.

The mission of the NWR 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" (the Improvement Act).

The administration, management, and growth of the NWRS are guided by the following goals (Service Manual, Part 601 FW1, NWRS Mission and Goal, and Refuge Purposes):

- Conserve a diversity of fish, wildlife, and plants and their habitats, including species that are endangered or threatened with becoming endangered.
- Develop and maintain a network of habitats for migratory birds, anadromous and interjurisdictional fish, and marine mammal populations that is strategically distributed and managed to meet important life history needs of these species across their ranges.
- Conserve those ecosystems, plant communities, wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or underrepresented in existing protection efforts.
- Provide and enhance opportunities to participate in compatible wildlife-dependent recreation (hunting, fishing, wildlife observation and photography, and environmental education and interpretation).
- Foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.

1.4 Legal and Policy Guidance

Refuges are guided by the purposes of the individual refuge, the mission and goals of the Refuge System, Service policy, various Federal laws, and international treaties. Relevant guidance includes the Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4), the National Wildlife Refuge System Administration Act of 1966 (Refuge Administration Act), which was significantly amended by the National Wildlife Refuge System Improvement Act of 1997 (Improvement Act, 16 U.S.C. 668dd-668ee), and selected portions of the Code of Federal Regulations and the U.S. Fish and Wildlife Service Manual (Service Manual). Refuges are also governed by a variety of other Federal laws, Executive orders (EOs), treaties, interstate compacts, regulations, and policies pertaining to the conservation and protection of natural and cultural resources (see Service Manual 602 FW 1 (1.3)). Federal laws and Executive orders relevant to the management of the San Diego NWR are summarized in Table 1-1 and addressed in more detail in Appendix J.

Table 1-1 Federal Laws and Executive Orders Applicable to the Management of the San Diego National Wildlife Refuge	
Biological Resources	
<ul style="list-style-type: none"> • Endangered Species Act of 1973 (16 U.S.C. §1531 et seq.), as amended (ESA) • National Environmental Policy Act of 1969 (42 U.S.C. §4321 et seq.) (NEPA) • Fish and Wildlife Act of 1956 (16 U.S.C. §742a-743j, not including 742d-742l) • Fish and Wildlife Conservation Act of 1980 (16 U.S.C. §661-667e), as amended • Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. Jan. 10, 2001. • Executive Order 13112, Invasive Species • Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. §668 et seq.) • Migratory Bird Treaty Act of 1918, as amended (MBTA) • Fish and Wildlife Coordination Act of 1958 • Federal Noxious Weed Act of 1990 • Emergency Wetlands Resources Act of 1986 	

Table 1-1 Federal Laws and Executive Orders Applicable to the Management of the San Diego National Wildlife Refuge
Cultural Resources
<ul style="list-style-type: none"> • Antiquities Act of 1906 • Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. §3001 et seq.)(NAGPRA) • Executive Order 13007, Indian Sacred Sites. 24 May, 1996 • Executive Order No. 11593, Protection and Enhancement of the Cultural Environment • Archaeological Resources Protection Act of 1979 (16 U.S.C. §470aa-47011), as amended (ARPA) • American Indian Religious Freedom Act 1978 (42 U.S.C. 1996) • National Historic Preservation Act of 1966 (16 U.S.C. §470 et seq.; 36 CFR 800), as amended (NHPA) • Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469) • Curation of Federally-Owned and Administered Archaeological Collections (36 CFR 79)
Tribal Coordination
<ul style="list-style-type: none"> • Executive Order 13175, Consultation and Coordination with Indian Tribal Governments
Paleontological Resources
<ul style="list-style-type: none"> • Paleontological Resources Preservation Act of 2009 (P.L. 111-11, Title VI, Subtitle D)
Farmland Protection
<ul style="list-style-type: none"> • Farmland Protection Policy Act (7 U.S.C. §4201 et seq.)
Contaminants and Hazardous Materials
<ul style="list-style-type: none"> • Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9601, et seq.) • Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (P.L. 80-104; 7 U.S.C. § 136 et seq.)
Water Protection and Wetland Management
<ul style="list-style-type: none"> • Clean Water Act of 1972, as amended (Sections 401 and 404) • Executive Order No. 11990, Protection of Wetlands • Executive Order No. 11988, Floodplain Management
Air Quality
<ul style="list-style-type: none"> • Clean Air Act of 1970, as amended (P.L.. 91-604; 42 U.S.C. §1857 et seq.)
Land Use
<ul style="list-style-type: none"> • Refuge Recreation Act of 1962, as amended • Fish and Wildlife Improvement Act of 1978 • National Wildlife Refuge System Administration Act of 1966 (16 USC 668dd-668ee), National Wildlife Refuge System Improvement Act of 1997 (PL 105-57) • Executive Order No. 12996, Management and General Public Use of the National Wildlife Refuge System

Table 1-1 Federal Laws and Executive Orders Applicable to the Management of the San Diego National Wildlife Refuge	
Human Rights	
<ul style="list-style-type: none"> • Executive Order 12898, Environmental Justice • Rehabilitation Act of 1973, as amended (Section 504) • Architectural Barriers Act of 1968, as amended (42 U.S.C. §4151 et seq.) 	
Agency Coordination	
<ul style="list-style-type: none"> • Executive Order No. 12372, Intergovernmental Review of Federal Programs 	

1.4.1 National Wildlife Refuge System Improvement Act of 1997

Statutory authority for Service management and associated habitat management planning on units of the Refuge System is derived from the National Wildlife Refuge System Administration Act of 1966 (Refuge Administration Act), as amended by the National Wildlife Refuge System Improvement Act of 1997. The Improvement Act directs the Service to manage each refuge to fulfill the mission of the Refuge System, as well as the specific purposes for which that refuge was established. The Improvement Act also states that the, “purposes of the refuge and purposes for each refuge mean the purposes specified in or derived from law, proclamation, Executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge subunit.”

The Improvement Act provides clear standards for management, use, planning, and growth of the NWRS. Its passage followed the promulgation of Executive Order 12996 (April 1996), “Management of Public Uses on National Wildlife Refuges,” reflecting the importance of conserving natural resource for the benefit of present and future generations of people. The Improvement Act recognizes that wildlife-dependent recreational uses involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation, when determined to be compatible with the mission of the NWRS and purposes of the Refuge, are legitimate and appropriate public uses of the Refuge System.

Section 5 of the Improvement Act directs the Secretary of the Interior to ensure or conduct 14 actions in administering the NWRS. In addressing these actions, a number of policies have been developed to help guide the administration of Refuge lands. Refuge System policies are found in the land use management series (600) of the U.S. Fish and Wildlife Service Manual. These policies, which are available online at <http://www.fws.gov/policy/manuals>, are summarized in Table 1-2.

Table 1-2 Key Service Policies Related to the Management of National Wildlife Refuges	
Policy	Purpose
Refuge System Mission and Goals and Refuge Purposes (601 FW 1)	Reiterates and clarifies the Refuge System mission and how it relates to the Service mission; explains the relationship between the Refuge System mission, goals, and purpose(s). It also includes the decision making process for determining refuge purposes.

Table 1-2 Key Service Policies Related to the Management of National Wildlife Refuges	
Comprehensive Conservation Planning (602 FW 3)	Describes the requirements and processes for developing refuge comprehensive conservation plans.
Biological Integrity, Diversity, and Environmental Health Policy (601 FW 3)	Provides guidance for maintaining and restoring, where appropriate, the biological integrity, diversity, and environmental health of the Refuge System.
Appropriate Use Policy (603 FW 1)	Describes the initial decision process the Refuge Manager follows when first considering whether or not to allow a proposed use on a refuge. For uses other than the six wildlife-dependent recreational uses of the Refuge System, the Refuge Manager must first find the use appropriate before undertaking a compatibility review. Appropriateness reviews of existing and proposed uses are located with the compatibility determinations in Appendix A of this CCP.
Compatibility Policy (603 FW 2)	Details the formal process for determining if a use proposed on a NWR is compatible with the Refuge System mission and the purposes for which the refuge was established. Units of the Refuge System are legally closed to all public access and use, including economic uses, unless and until they are officially opened through a compatibility determination. Appendix A contains the compatibility determinations prepared for proposed uses on San Diego NWR.
Wildlife-Dependent Recreation (605 FW 1-7)	Provides specific information and guidance for each of the six priority wildlife-dependent uses (hunting, fishing, wildlife observation, photography, environmental education, and interpretation): the policy for the use; guiding principles for the use; guidelines for program management; and guidelines for opening the specific program.
Wilderness Stewardship Policy (610 FW 1-5)	Provides guidance on conducting wilderness reviews for Refuge System lands and waters to determine if these lands and waters should be recommended for wilderness designation; establishes policy for managing wilderness study areas and recommended and proposed wilderness; and prescribes how refuge managers will preserve the character and qualities of designated wilderness while managing for refuge establishing purpose(s). The wilderness review prepared for the San Diego NWR is provided in Appendix K.

1.4.2 National Environmental Policy Act (NEPA) of 1969

As the basic national charter for the protection of the environment, the National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190, 42 U.S.C. 4321-43470), as amended, requires Federal agencies to consider the environmental effects of all actions (i.e., policies, plans, programs, or projects that are implemented, funded, permitted, or controlled by a Federal agency or agencies) they undertake. Agencies must also consider the environmental effects of all reasonable and feasible alternatives to a proposed action and must make public the environmental effects of the proposed action and possible alternatives. If adverse environmental effects cannot be entirely

avoided, NEPA requires an agency to show evidence of its efforts to reduce these adverse effects and to restore and enhance environmental quality as much as possible. The contents of an environmental assessment (EA) or Environmental Impact Statement (EIS) document that an agency has addressed these issues.

Each CCP process must comply with the provisions of NEPA through the concurrent preparation of an EA or EIS that can accompany or be integrated into the draft CCP. The San Diego NWR CCP has been prepared consistent with the requirements of NEPA, the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR §1500 et seq.), and the Department of Interior's NEPA procedures (43 CFR Part 46). To comply with CEQ NEPA regulations and ensure the NEPA process to be integrated into the CCP process at the earliest possible time, an EA has been integrated directly into the draft CCP document for the San Diego NWR. In this document, the primary components of the EA (Section 1508.9 of the CEQ NEPA regulations) include Chapter 1, which addresses the purpose and need for the proposed action; Chapter 3, which describes the affected environment; Chapter 4, which presents the proposed action and the alternatives to the proposed action; Chapter 5, which analyzes the environmental consequences of the proposed action and the alternatives; and Appendix B, which lists the agencies and persons consulted.

1.5 San Diego National Wildlife Refuge

1.5.1 Location

The San Diego NWR is one of four refuges that comprise the San Diego NWR Complex (Complex). In addition to the San Diego NWR, the Complex includes the Tijuana Slough NWR, San Diego Bay NWR, and Seal Beach NWR (refer to Figure 1-1). The Complex, which provides oversight and administrative functions for its four refuges, is headquartered on the Sweetwater Marsh Unit of the San Diego Bay NWR in Chula Vista, California.

In August 2013, the San Diego NWR included approximately 11,530 acres distributed among several non-contiguous land areas (refer to Figure 1-2). The majority of these Refuge lands are concentrated along the southeastern edge of San Diego County's metropolitan area within the Otay-Sweetwater Unit. For ease of description, we have divided the Otay-Sweetwater Unit into five management areas: McGinty Mountain; Sweetwater River; Las Montañas; San Miguel Mountain; and Otay Mesa and Lakes (Figure 1-6). An additional 60 acres of Refuge land is located at the northern edge of the City of San Diego (refer to Figure 1-5). For planning purposes, this area is described as the Del Mar Mesa Vernal Pool Unit.

The Otay-Sweetwater Unit, which in August 2013 included about 11,470 acres (Table 1-3), are generally located to the southeast of Highway 54 between Otay Mesa to the south and the unincorporated community of Crest to the north. The Del Mar Mesa Vernal Pool Unit is located south of State Route 56 and west of Interstate 15 in northern San Diego.

1.5.2 Physical Setting

The Otay-Sweetwater Unit of the San Diego NWR abuts the southeastern edge of the San Diego metropolitan area. These refuge lands lie to the northeast of the City of Chula Vista, to the southeast of the City of El Cajon, to the west of the unincorporated community of Jamul, to the south of the unincorporated community of Crest, and to the west and north of the undeveloped lower slopes of the San Ysidro Mountains.

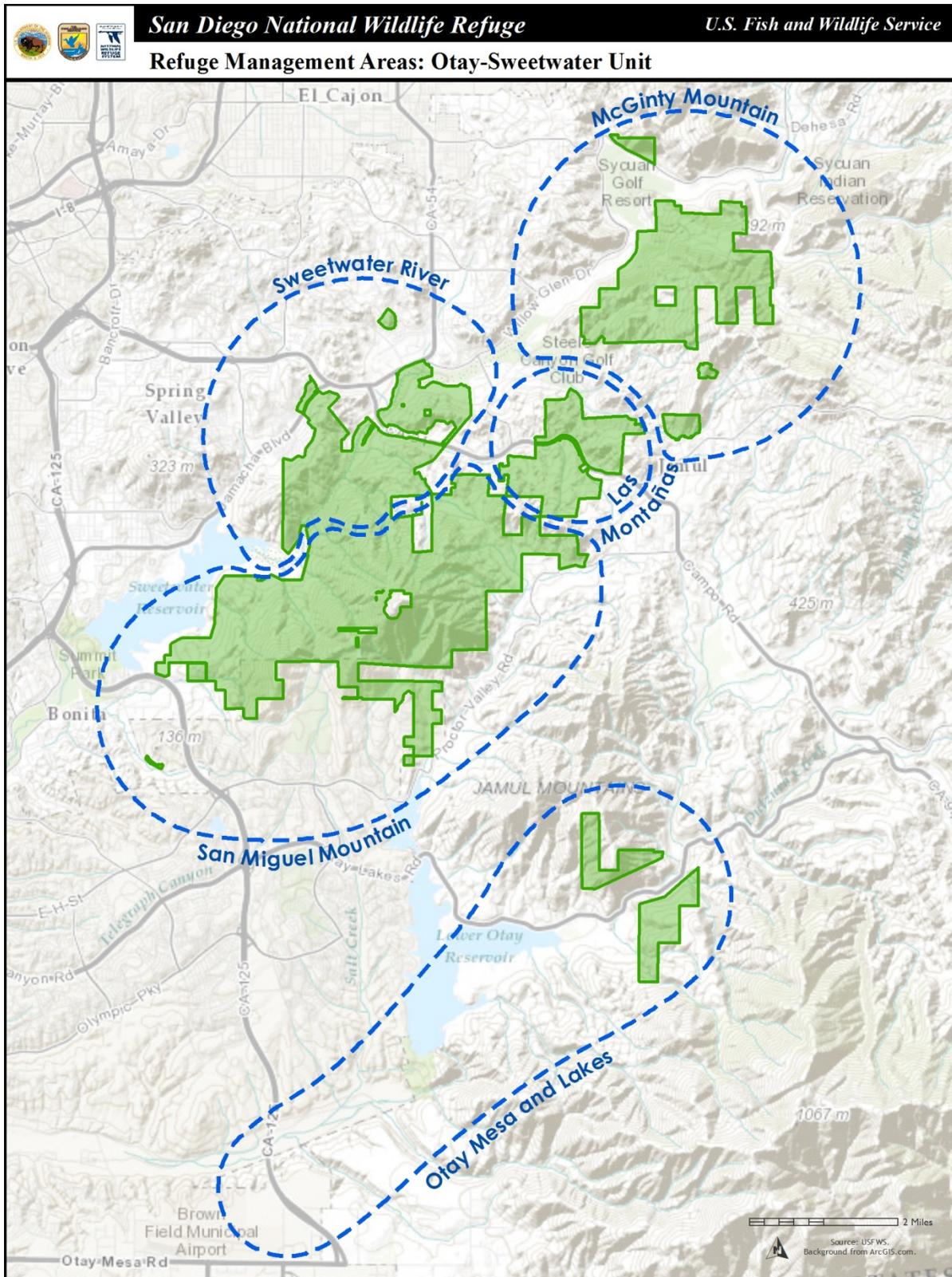


Figure 1-6. Management Areas of the Otay-Sweetwater Unit

Table 1-3 Approximate Acreages within the Management Areas of the San Diego NWR	
Management Area	Acreage¹ (approximate)
Otay-Sweetwater Unit	
McGinty Mountain Area	2,080 acres
Las Montañas Area	1,035 acres
Sweetwater River Area	1,950 acres
San Miguel Mountain Area	5,765 acres
Otay Mesa and Lakes Area	640 acres
Subtotal	11,470 acres
Del Mar Mesa Vernal Pool Unit	60 acres
Approximate Acreage of the San Diego NWR	11,530 acres

¹Acreage as of August 2013

The lands within the Otay-Sweetwater Unit are characterized by a striking diversity of landforms. The Sweetwater River and its associated floodplain extend through or adjacent to the McGinty Mountain, Sweetwater River, and San Miguel Mountain areas of the Refuge. Smaller drainages, such as those found in Steele Canyon and Coon Canyon, have created steep canyon walls within the Las Montañas and San Miguel Mountain areas. Moderately steep to very steep slopes associated with McGinty Mountain, San Miguel Mountain, Mother Miguel Mountain, and the Jamul Mountains, as well as other more gently sloping foothills, characterize much of the remaining lands. Flatter topography is found within the Otay Mesa area. The variety of topographic features, drainage patterns, underlying geologic formations, and overlaying soil types present within the Refuge boundary support a diverse assemblage of habitat types and species.

The Del Mar Mesa Vernal Pool Unit, located in the northern portion of the City of San Diego, is included within the 980-acre Del Mar Mesa Preserve (Preserve), of which all but 169 acres are in public ownership. The largest landowner within the Preserve is the City of San Diego. Other landowners include the County of San Diego, California Department of Fish and Wildlife, and USFWS. The Refuge lands in this area are characterized by level mesa tops, steep slopes, deep canyons, and undulating mima mounds with intervening depressions referred to as vernal pools. Vernal pool habitat supports extremely sensitive plant and animal species.

1.5.3 Ecosystem Context

To the extent possible, the CCP will assist in meeting the conservation goals established in existing national and landscape-level plans, California's Wildlife Action Plan, and other regional and species and habitat specific plans covering the same watersheds or ecosystems in which the Refuge resides (602 FW 3.3). In the State of the Birds 2011 (North American Bird Conservation Initiative 2011), a report that addresses the status of birds on public lands and waters in the United States, effective management is identified as essential to healthy bird populations. The report states that "Although birds benefit in part because most public lands are protected from residential and commercial development, increased protections and more effective management of habitats and bird populations are essential. Natural processes must be restored to ensure functional and resilient ecosystems through management actions such as control of nonnative species and diseases, prescribed cuts and burns to reinvigorate forests and grasslands, and water delivery and management to sustain wetlands. Many of these needs are expected to intensify because of climate change. All agencies are faced with the challenge of balancing needs for resource extraction,

energy development, recreation, and other uses with the growing urgency to conserve birds and other wildlife. To succeed, they will need additional resources and greater public support to increase land protection and management. Better collaboration among agencies will also increase the effectiveness of public lands management for birds that migrate across political boundaries.” These concerns and recommendations also apply to the other wildlife, plants, and habitat protected within the San Diego NWR.

Landscape Conservation Cooperatives

To achieve better collaboration among agencies, conservation organizations, foundations, academia, and commercial enterprises, conservation science partnerships have been formed through the establishment of Landscape Conservation Cooperatives (LCCs). LCCs have two main functions: to provide the science and technical expertise needed to support conservation planning at landscape scales, and to promote collaboration among their members in defining shared conservation goals. LCCs, which are applied conservation science partnerships between the Service and other Federal agencies, states, tribes, non-governmental organizations, universities, and stakeholders within a geographically defined area, are generating the tools, methods, and data that managers need to design and deliver informed landscape conservation planning.

The San Diego NWR is included within the California LCC. The California LCC has been divided into several subunits, and the San Diego NWR is located within the Coastal Southern California subunit. This subunit covers the coastal mountain ranges of central California, southern California, and northern Mexico; lands between the Mojave Desert and the Pacific Ocean; and numerous offshore islands. Like other LCCs, the California LCC will provide a forum for information exchange and feedback among partners and, secondarily, among other interested parties (e.g., organizations, scientists, managers). LCC partners will jointly decide on the highest priority needs and interests of the LCC and will have a role in helping partners identify common goals and priorities.

Sonoran Joint Venture Bi-national Bird Conservation

Another landscape-level planning effort involves the Sonoran Joint Venture (SJV), a partnership of diverse organizations and individuals from the southwestern United States and northwestern Mexico. The Strategic Plan for the SJV presents a regional strategy for protecting, conserving, restoring, and enhancing bird populations and their habitats. This effort is intended to address and integrate the conservation recommendations of the North American Waterfowl Management Plan, Partners in Flight North American Landbird Conservation Plan, and North American Waterbird Conservation Plan, as well as habitat-specific bird conservation plans (e.g., Coastal Scrub and Chaparral Bird Conservation Plan [CalPIF 2004], Oak Woodland Bird Conservation Plan [CalPIF 2002], Riparian Bird Conservation Plan [Riparian Habitat Joint Venture 2004], draft Grassland Bird Conservation Plan [CalPIF 2000]).

The San Diego NWR is located within the Californian Coast and Mountains Region of the SJV Bird Conservation Plan (SJVBBCP) and has been identified as one of 36 focus areas within this region (SJV Technical Committee 2006). Focus areas are locations that have been identified as having significant bird populations and habitat values and/or the potential to be restored to a condition that supports bird populations. The primary conservation needs identified in the SJVBBCP for the lands within the Refuge include protecting coastal scrub and chaparral shrublands from fragmentation and human disturbance related primarily to recreational uses and restoring riparian habitat and the associated natural riparian processes that support this habitat.

California Wildlife Action Plan

The California Wildlife Action Plan (Action Plan), prepared by the California Department of Fish and Wildlife (CDFW) (formerly the Department of Fish and Game [CDFG]) (CDFG 2005) identifies the species and habitats at greatest risk in California, describes the major stressors affecting wildlife and habitats, and presents statewide and regional conservation actions needed to restore and conserve ecosystems and wildlife populations. The Action Plan divides the State into nine regions, with the San Diego NWR included within the South Coast Region, a region acknowledged as one of the world's hotspots for biological diversity. The areas within this region are home to some 476 vertebrate animal species and of these species, 14 are endemic to the South Coast Region (that is, found nowhere else in the world), and 14 other species found here are endemic to California. According to the Action Plan, the juxtaposition of outstanding biological resources and urbanization on a vast scale has made the South Coast Region the most threatened biologically diverse area in the continental United States. More than 150 vertebrate animal species (of the 476 total vertebrates) and 200 species of plants are either listed as protected or considered sensitive by wildlife agencies and conservation groups (CDFG 2005).

Urban development, water management conflicts, degradation of aquatic ecosystems, invasive species, altered fire regimes, and recreational pressures are identified as major stressors affecting wildlife and native habitats. Of these stressors, habitat loss and fragmentation that occur in association with development are considered the most significant. The Action Plan's recommended conservation actions for the South Coast Region that are applicable to and have been considered in the development of San Diego NWR CCP include:

- a. Ensuring that staffing and funding for the wildlife agencies (Service and CDFW) are adequate to conserve habitat and species in the region's rapidly urbanizing areas, as set forth in approved NCCPs;
- b. Providing greater resources and coordination efforts to eradicate or control existing occurrences of invasive species and to prevent new introductions;
- c. Establishing appropriate fire management policies and practices to restore the ecological integrity of the region's ecosystems while minimizing loss of property and life through a collaborative effort among Federal and State land managers and non-governmental partners; and
- d. Developing a comprehensive, region-wide program to evaluate which public land areas are most appropriate for different forms of recreation, to develop recreational opportunities in these areas, and to direct inappropriate recreational uses away from biologically sensitive areas and important wildlife habitats.

The Service requires the States to update their wildlife action plans every 10 years, and CDFW is working to complete their update by 2015. CDFW's objectives for the updated plan include:

- creating a vision for fish and wildlife conservation in California;
- providing an accounting of accomplishments;
- stratifying analysis of impacts and stressors by ecoregions;
- incorporating climate change impacts and adaptation strategies;
- updating species at risk, vulnerable species, and species of greatest conservation need; and
- recommending conservation actions consistent with planning documents developed by other agencies.

1.5.4 Refuge Purposes

The San Diego NWR was established in 1996 under the authorities of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754), Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544, 87 Stat. 884), and Refuge Recreation Act of 1962, as amended (16 U.S.C. 460k-460k-4) (USFWS 1995a). Establishment occurred on April 10, 1996, when approximately 1,826 acres of land (referred to at the time as Rancho San Diego) were conveyed to the Service for management as a national wildlife refuge.

The purposes for this initial acquisition included:

“ . . . to conserve (A) fish or wildlife which are listed as endangered species or threatened species . . . or (B) plants. . . ” 16 U.S.C. § 1534 (Endangered Species Act of 1973);

“ . . . for the development, advancement, management, conservation, and protection of fish and wildlife resources . . . ” 16 U.S.C. § 742f(a)(4) “ . . . for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude . . . ” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956); and

“ . . . (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species and threatened species . . . ” 16 U.S.C. § 460k-460k-4 (Refuge Recreation Act of 1962).

Subsequent acquisitions have been made to meet these and other refuge purposes outlined in the Land Protection Plan (LPP) for the Otay-Sweetwater Unit of the San Diego NWR, approved in April 1997. In accordance with the LPP, “The purpose of the San Diego National Wildlife Refuge is to protect, manage, and restore habitats for federally listed endangered and threatened species and migratory birds and to maintain and enhance the biological diversity of native plants and animals” (USFWS 1997a).

1.5.5 Refuge Vision Statement and Goals

Our vision for the future of the San Diego NWR is:

Large, connected, healthy stands of southern California coastal lowland and foothill habitats, including coastal sage scrub, maritime succulent scrub, native grassland, chaparral, riparian woodland, and vernal pools, are conserved through an ecosystem approach to management and monitoring that draws on the talents of Federal, State, and local agencies and other conservation partners to leverage and maximize funds and staffing. Listed and sensitive plant and animal species are protected, and species that historically occurred on Refuge lands are reestablished. One of the last expanses of open space in coastal southern California, with exceptional biological, social, historical, and economic values, is protected as a sanctuary not just for plants and animals but also for people.

The goals for the San Diego NWR include:

Goal 1: Protect, manage, and, where appropriate, enhance or restore habitat to support the recovery of the federally and State listed endangered and threatened species and other species of concern currently or historically present on the Refuge.

- Goal 2: Protect, manage, and restore the Refuge’s native habitats, MSCP-covered species, and other species of concern for their inherent value and to contribute to the regional effort of conserving the biological diversity of southwestern San Diego County.
- Goal 3: Engage in partnerships and provide leadership in coordinating land management and acquisition efforts throughout southwestern San Diego County in support of the Multiple Species Conservation Program (MSCP) and other resource protection objectives developed for the Region.
- Goal 4: Provide safe and high-quality opportunities for compatible wildlife-dependent recreational uses that foster public appreciation of the unique natural heritage of the San Diego region.

1.5.6 History of Refuge Establishment

The events that led to the establishment of the San Diego NWR in 1996 can be traced back to the adoption of the Clean Water Act (CWA) (33 U.S.C. §1251 et seq.) in 1972. Included in the CWA was a provision requiring wastewater treatment plants to provide a minimum of secondary treatment before discharging the effluent back into the environment. An exception to this provision was provided in CWA Section 301(h), which allowed those wastewater treatment plants discharging into a marine environment to request a waiver from these secondary treatment standards (City of San Diego 2009a). In 1979, the City of San Diego applied for such a waiver for its Point Loma Wastewater Treatment Plant, which was discharging primary treated wastewater into the Pacific Ocean. The city subsequently withdrew, revised, and then resubmitted its application in 1983. In 1986, the U.S. Environmental Protection Agency (USEPA) tentatively denied the request for waiver due in part to the city’s lack of compliance with the California Ocean Plan. As a result, the city withdrew its application and in 1987, USEPA sued the City of San Diego for numerous violations of the CWA (National Research Council 1993).

In the midst of the court battle over CWA violations, the San Diego City Council, in 1988, established the “Clean Water Program” (subsequently reorganized as the City of San Diego Metropolitan Wastewater Department) to assist with the lawsuit, as well as to develop a program to meet the water and sewage treatment needs of the City through water reclamation and reuse (National Research Council 1993). From 1988 through 1990, the Clean Water Program prepared plans for the construction and operation of a secondary treatment plant composed of two wastewater treatment plants, an additional ocean outfall, four water reclamation systems, associated pipeline conveyance systems, and proposals for regional sludge processing and disposal (Harper 1991). The potential environmental impacts of implementing this proposal, referred to as the Greater San Diego Secondary Treatment System and Associated Sludge Management Facilities Project, were described in a joint Environmental Impact Report/Environmental Impact Statement issued for public review and comment in the fall of 1990. Included in the draft was an analysis of the project’s potential for inducing growth within the region, as well as an evaluation of the secondary impacts to the environment, including native habitats and listed species, that would result from such growth.

The Service, in considering the implications of this growth inducement on wildlife and habitat, concluded that a countywide mitigation program would be necessary to address the extensive loss of habitat projected to occur as a result of implementing the city’s expanded sewage treatment proposals (Saldaña 1993). In 1991, the City of San Diego agreed to prepare a Multiple Species Conservation Program (MSCP) as partial mitigation to offset impacts resulting from the secondary growth related effects of the city’s Clean Water Program. The purpose of the MSCP was to

develop a program for the conservation of federally endangered, threatened, or key candidate species and their habitats (Opdycke 1991) within the Metropolitan Sewerage System Services Area of the Clean Water Program, encompassing approximately 900 square miles in southwestern San Diego County (City of San Diego 1998a). Further, the MSCP was to be designed to identify, evaluate, and delineate a network of lands that, if acquired and properly managed, would conserve habitat and provide for wildlife movement on a large scale in an effort to ensure the long-term protection of the biodiversity within the greater San Diego area.

Also at this time, proposals for habitat conservation planning were being discussed at the State level. In April 1991, California Governor Pete Wilson unveiled an environmental initiative entitled “Resourceful California.” This initiative included a proposal to develop a regional habitat conservation plan for southern California (Pollak 2001). Legislation that would implement the proposals in this initiative was introduced in the form an amendment to AB 2172. After several revisions, the legislation was signed into law in October 1991. The intent of the legislation (the Natural Community Conservation Planning [NCCP] Act, was to foster voluntary collaboration between CDFW, then further to as CDFG, and the Service, local governments, and private development interests in addressing species and habitat protection and providing a predictable, streamlined regulatory process (Pollak 2001).

The NCCP Act authorized CDFW to enter into agreements with other public agencies or private interests for the purpose of preparing habitat conservation plans “to provide comprehensive management and conservation of multiple wildlife species, including but not limited to” species listed as endangered or threatened under California Endangered Species Act (CESA) (Pollak 2001). The primary objective of the NCCP program was and continues to be conservation of natural communities at the ecosystem level while at the same time accommodating compatible land use.

In accordance with the NCCP Act, a pilot program was initiated in southern California to address the protection of coastal sage scrub habitat and the species it supports, including the coastal California gnatcatcher (*Polioptila californica californica*). In December 1991, the Service and the CDFW agreed in a Memorandum of Understanding (MOU) to jointly undertake habitat conservation planning for the Southern California Coastal Sage Scrub NCCP.

On March 30, 1993, the Service published a Final Rule in the *Federal Register* listing the coastal California gnatcatcher as threatened under the provisions of the Federal Endangered Species Act (ESA). This action was followed on December 10, 1993, with a special rule allowing incidental take of the gnatcatcher if, among other conditions, the take results from activities conducted pursuant to the State’s NCCP and in accordance with a NCCP plan for the protection of coastal sage scrub habitat (Federal Register Vol. 58, No. 236, December 10, 1993). It was the approval of this special rule the allowed the integration of the California’s NCCP program into the Habitat Conservation Plan/incidental take requirements of Section 10(a)(1)(B) of the EAS.

To develop a habitat conservation plan for southwestern San Diego County that complied with both Section 10 of the ESA and the NCCP Act required cooperation among a full range of participants, including local, State, and Federal agencies, developers, private conservation groups, and private landowners. Initiated in 1991, the MSCP, which represents the first large-scale, proactive and ecosystem-based conservation planning effort of its kind in the Nation, was approved by the participating agencies in 1998 (City of San Diego 1998a, Conservation Biology Institute and The Nature Conservancy 2007). Developed to conserve the diversity and function of the natural ecosystem within the planning area, the MSCP proposed the preservation of large blocks of

interconnected habitat, as well as smaller areas of habitat that support rare vegetation communities such as vernal pools.

An important component in the preparation of the MSCP was defining a Multiple Habitat Planning Area (MHPA) within which preserve planning could be focused (City of San Diego 1997). In defining the MHPA, core biological areas and associated habitat linkages were identified throughout the study area. Core areas were defined as areas supporting high concentrations of sensitive biological resources that, if lost or fragmented, could not be replaced. The location and configuration of these core areas provided the framework for ultimately identifying a regional preserve network.

In addition to the development of the subregional MSCP, local jurisdictions and special districts within the MSCP planning area were required to implement their portions of the plan through subarea plans (City of San Diego 1998a). The MSCP Subarea Plan for the City of San Diego and the County of San Diego's Subarea Plan were both approved in 1997. An Incidental Take Permit under the MSCP for the County's Subarea Plan was issued on March 17, 1998.

Along with the approval of the subarea plans and Incidental Take Permits, Implementing Agreements by and between the Service, CDFW, and the participating jurisdiction were also issued. The City of San Diego's Implementing Agreement was signed in 1997 and the County's was signed in 1998. As part of the Implementing Agreements, the Service and CDFW agreed to "apply their best efforts to contribute public lands and funds to the acquisition and management, maintenance, and monitoring of habitat lands within the MHPA."

Per the Service's commitment to provide a contribution towards the implementation of the MSCP, studies to establish the San Diego NWR were initiated in 1995 when a Concept Plan for the San Diego NWR was distributed to government agencies, tribes, interested citizens, and landowners within and adjacent to the planning areas for the proposed Refuge, including the Vernal Pools and Otay-Sweetwater planning areas (USFWS 1997a, 1997c). The planning proposed for the Otay-Sweetwater Unit represented the largest expanse of undeveloped land in the MSCP planning area and was considered one of the cornerstone conservation areas in the MSCP.

In the midst of the MSCP planning process, the Nation's savings and loans were in crisis due in part to high interest rates, high gasoline prices, and misconduct as a result of deregulation. In 1992, approximately 1,840 acres of undeveloped land owned by Home Federal Savings and Loan were placed in Federal receivership under the control of the Resolution Trust Corporation (RTC). The RTC was responsible for liquidating this property, referred to as Rancho San Diego, as well as other real estate assets owned by Home Federal.

The Rancho San Diego parcels had been identified as a core biological resource area in the draft MSCP. These parcels contained large blocks of high value coastal sage scrub supporting approximately 25 pairs of coastal California gnatcatchers. In addition, a significant riparian woodland corridor extended through the parcels that supported approximately 30 pairs of the endangered least Bell's vireo (*Vireo bellii pusillus*). The Service recognized that the acquisition of these lands would prevent the loss of habitats critically important to the recovery of listed species and would represent an important contribution by the Federal government to the MSCP. Based on the sensitivity of the biological resources present on the parcels, as well as the importance of this area to the implementation of the MSCP, the Service entered into a purchase agreement with the RTC, and on April 10, 1996, approximately 1,826 acres within the Rancho San Diego area were acquired by the Service. (This agreement included the establishment of the Rancho San Diego Mitigation Bank, which is discussed in Chapter 4.) Although the Service was still in the process of

preparing Land Protection Plans for the Otay-Sweetwater Unit and Vernal Pools Stewardship Project, this acquisition marked the establishment of the San Diego NWR. In 1997, the Service approved the acquisition boundary for the Otay-Sweetwater Unit (refer to Figure 1-2).

To complement the MSCP and assist in the recovery of vernal pool species, the Service also approved the Vernal Pools Stewardship Project in April 1997. The approved acquisition boundary encompassed approximately 8,220 acres, of which about half could be acquired by the Service from willing sellers for inclusion in the Refuge and half would be managed by the Department of the Navy at MCAS Miramar under existing authorities and through the development of a cooperative agreement with the Service and CDFW under the Sikes Act (USFWS 1997b). The intent of this action was to allow the Service to establish a Vernal Pool Unit of the San Diego NWR (USFWS 1997b) for the purpose of providing for the long-term conservation of the San Diego region's vernal pool habitats and their associated flora and fauna. The Vernal Pools Stewardship Project includes a number of non-contiguous land areas extending from Del Mar Mesa, located just south of Highway 56, to Otay Mesa, located to the east of Interstate 805 and abutting the U.S./Mexico border (refer to Figure 1-5). Specific areas include Del Mar Mesa, Lopez Ridge, Miramar, Montgomery Field, Otay Mesa, and areas adjacent to Sweetwater Reservoir and the Otay Lakes.

When the Conceptual Management Plan for the San Diego NWR was initially prepared, the Refuge was described as including three areas, the Otay-Sweetwater Unit, Vernal Pools Stewardship Project, and the South San Diego Bay Unit (USFWS 1997c). When the South San Diego Bay Unit was established in 1999, it was still a part of the San Diego NWR. However, on July 13, 2004, the South San Diego Bay Unit and the Sweetwater Marsh NWR were reorganized to become the San Diego Bay NWR. The San Diego Bay NWR is now made up of the South San Diego Bay Unit and Sweetwater Marsh Unit; the San Diego NWR is made up of the Otay-Sweetwater Unit and the Vernal Pools Stewardship Project. This change was made to streamline management and facilitate public understanding and recognition of the two Refuge areas (USFWS 2006a).

In May 2012, a refuge boundary expansion was approved for the San Diego NWR by the Service's Region 8 Regional Director. As a result of this action, the boundary of the Otay-Sweetwater Unit was expanded by approximately 327 acres to accommodate four parcels of land to be donated by Caltrans for inclusion in the Refuge. The largest parcel, about 237 acres, is located to the south of Proctor Valley Road and west of Highway 125 (refer to Figure 1-4). When donated, this parcel will become part of the San Miguel Mountain management area. Several parcels located to the south of Highway 94 and west of Jamacha Road (totaling approximately 79 acres) and another parcel (2.4 acres), located to the south of Highway 94 and west of Millar Ranch Road, will become part of the Sweetwater River management area. The remaining 25.75-acre parcel located south of Highway 94 and east of Steele Canyon Road will become part of the Las Montañas management area.